

# **HOMOEOPATHIC PHARMACOPOEIA OF INDIA**

**(H.P.I.)**

**COMBINED VOLUME - VI TO IX**

**(Revised & Augmented)**

**2016**



**सत्यमेव जयते**

**GOVERNMENT OF INDIA  
MINISTRY OF HEALTH & FAMILY WELFARE  
DEPARTMENT OF AYURVEDA, YOGA & NATUROPATHY,  
UNANI, SIDDHA AND HOMOEOPATHY,  
NEW DELHI**

## Preface to E-book

### Combined Volume - I<sup>st</sup> to IX<sup>th</sup> (Revised & Augmented)

The Government of India had constituted the Homoeopathic Pharmacopoeia Committee in the year of 1962. The objectives of Committee were (i) to prepare a Pharmacopoeia of Homeopathic drugs, whose therapeutic usefulness has been proved, on the lines of American, German and British Pharmacopoeia (ii) to lay down principles and standards for the preparation of homoeopathic drugs (iii) to lay down tests for identity, quality and purity (iv) such other matter as were incidental and necessary for the preparation of a Homeopathic Pharmacopoeia.

Several experts have contributed from time to time for the publications of 1<sup>st</sup> – IX<sup>th</sup> Volume of Homoeopathic Pharmacopoeia of India (HPI) that comprises monographs of 1010 drugs. The details are as under:

Volume	Year	New	Revised	Total
Volume I	1971	180	---	180
Volume II	1974	99	---	99
Volume III	1978	105	---	105
Volume IV	1984	104	02	106
Volume V	1987	109	01	110
Volume VI	1990	103	01	104
Volume VII	1999	77	28	105
Volume VIII	2000	74	27	101
Volume IX	2006	73	27	100
<b>Total</b>		<b>924</b>	<b>86</b>	<b>1010</b>

There are total 1010 monographs has been published in nine volumes by the Council till date and out of which, 924 monographs are new and 86 monographs are revised which contains 567 plant drugs, 301 chemical drugs, 39 zoological drugs, 03 mineral drugs, 02 hormones and 12 nosodes.

Over a period of time, it was noted that there are certain typographical and technical errors that requires correction. These have been checked, rectified and critically reviewed by the experts of respective field. I am happy to publish the corrected and augmented version by Homoeopathic Pharmacopoeia Laboratory (HPL), Central Council for Research in Homoeopathy (CCRH) and Pharmacopoeia Commission for Indian Medicine & Homoeopathy (PCIM&H). This arduous task has been accomplished by HPL, CCRH and PCIM&H.

The contribution of all the experts and staff of HPL and CCRH who worked dedicatedly is duly acknowledged.

## ACKNOWLEDGEMENT

### Combined Volume - I<sup>st</sup> to IX<sup>th</sup> (Revised & Augmented)

The contribution of following is gratefully acknowledges for providing the guidance and visionary leadership and active participation as well as technical contribution of various experts and reviewers in the publication of e-book of Combined Volume (Revised & Augmented).

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## INTRODUCTION

Ten volumes of Homoeopathic Pharmacopoeia of India (H.P.I.) have been published.

<b>Volume</b>		<b>No. of Monographs</b>
Volume I	(1971)	180
Volume II	(1974)	100
Volume III	(1978)	105
Volume IV	(1983)	107
Volume V	(1987)	114
Volume VI	(1990)	104
Volume VII	(1999)	105
Volume VIII	(2000)	101
Volume IX	(2006)	100
Volume X	(2013)	101 (In Hardcopy only)

The present H.P.I. Combined Volume – Part Second (Volume – VI to IX) comprises 410 monographs. This volume is being published on high demand and convenience of users. The general notices and general instructions published in Volume VI to IX of H.P.I. with amendments made from time to time are applicable to the contents of all the Volumes published so far.

The committee express the gratitude to the Secretary, Department of AYUSH, Shri Nilanjan Sanyal and Joint Secretary, Shri R. P. Singh for their guidance & visionary leadership and also sincere thanks to Dr. R. K. Manchanda, Director General, CCRH, New Delhi, Dr. Alok Kumar, Deputy Advisor (Homoeopathy) to the Govt. of India and Dr. Anil Khurana, Assistant Director, CCRH, New Delhi for providing constant support for completion of this task and continuation of project.

The committee is also grateful to Dr. Rajeev Kr. Sharma, Director I/C, HPL, Ghaziabad and Dr. (Mrs.) Rajat Rashmi, Research Officer (P.I.), HPL, Ghaziabad for constant efforts and technical expertise in bringing out this Combined Volume. Thanks are also put on record for Dr. Lalit Tiwari, Scientific Assistant, HPL, Ghaziabad, Dr. (Ms.) Nitin Rai, Consultant (Botany), Mrs. S. Geetha Sesha Prasad, Consultant (Chemistry) for their technical contribution and assisting all the technical data into a final shape. Thanks to Shri Pradeep Kumar, Data Entry Operator, CCRH, New Delhi for his meticulous efforts in development of eBook of HPI Combined Volumes.

## CUMULATIVE LIST OF MONOGRAPHS WITH ABBREVIATIONS

S. No.	Name of Monographs	Abbreviation	Volume
1.	Abelmoschus	Abel.	IX
2.	Abies Nigra	Abies n.	VII
3.	Abroma Augusta	Abrom. a.	IX
4.	Abrotanum	Abrot.	IX
5.	Acacia Arabica	Aca. arab.	IX
6.	Acalypha Indica	Acal. ind.	VIII
7.	Acetaldehyde	Acetald.	IX
8.	Acidum Aceticum	Acet. ac.	VIII
9.	Acidum Chrysophanicum	Acid. chry.	IX
10.	Acidum Formicum	Ac. form.	VII
11.	Acidum Hippuricum	Ac. hip.	VI
12.	Acidum Nitricum	Nit. ac.	VIII
13.	Acidum Stearicum	Ac. stear.	IX
14.	Acidum Uricum	Ac. uric.	VII
15.	Aconitum Ferox	Acon. f.	VII
16.	Aconitum Lycopodium	Acon. lyc.	VI
17.	Adlumia Fungosa	Adlu. fun.	VIII
18.	Adrenalinum	Adren.	VI
19.	Aegle Marmelos	Aegle m.	VI
20.	Aesculinum	Aescul.	VIII
21.	Aesculus Glabra	Aescul. g.	VII
22.	Aesculus Hippocastanum Cortice	Aes. h. cor.	IX
23.	Aethusa Cynapium	Aeth.	VIII
24.	Agaricus Campanulatus	Agar. cam.	IX
25.	Agaricus Campestris	Ag. camp.	VI
26.	Agaricus Citrinus	Agar. cit.	IX
27.	Agaricus Emeticus	Agar. e.	VII
28.	Agaricus Muscarius	Agar. m.	IX
29.	Agaricus Pantherinus	Agar. pan.	IX
30.	Agaricus Phalloides	Agar. ph.	IX
31.	Agaricus Procerus	Agar. pro.	IX
32.	Agaricus Stercorarius	Aga. ster.	VII
33.	Agave Americana	Aga. amer.	VI

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
34.	Agnus Castus	Agn. cast.	IX
35.	Agraphis Nutans	Agr. nut.	VI
36.	Agrostemma Githago	Agr. git.	IX
37.	Alchemilla Vulgaris	Alch. vul.	VIII
38.	Alcohol Fortis-Strong Alcohol	Alc.	IX
39.	Allium Ursinum	All. ursi.	VIII
40.	Alloxan	Alloxan	VII
41.	Alnus Serrulata	Alnus s.	VI
42.	Alstonia Constricta	Alst. con.	VII
43.	Althea Officinalis	Alth. off.	VII
44.	Alumina Phosphorica	Alu. ph.	VII
45.	Aluminium Metallicum	Al. met.	VII
46.	Ambra Grisea	Ambra. gris.	IX
47.	Ammi Majus	Ammi. maj.	IX
48.	Ammi Visnaga	Ammi. vis.	VII, IX
49.	Ammoniacum Gummi	Amon. gum.	VII
50.	Ammonium Citricum	Amm. cit.	IX
51.	Ammonium Nitricum	Amm. n.	VII
52.	Ammonium Phosphoricum	Am. phos.	VII
53.	Ammonium Picricum	Am. pic.	VII
54.	Ammonium Valerianicum	Amm. val.	IX
55.	Anacardium Occidentale	Anac. oc.	VII
56.	Anahalonium Lewinii	Anahal. l.	VI
57.	Angelica Archangelica	Angel. ar.	IX
58.	Anthamantha Oreoselinum	Anth. or.	VI
59.	Anthosanthum Odoratum	Antho.	VIII
60.	Antimonium Chloridum	Ant. chlo.	VI
61.	Antimonium Oxidatum	Antim. ox.	VII
62.	Apatite	Apat.	VIII
63.	Apocynum Cannabinum	Apoc. can.	VII
64.	Aqua Marina	Aqua. mar.	VI
65.	Aralia Racemosa	Aral. rec.	IX
66.	Areca Catechu	Areca c.	VII, IX
67.	Argemone Mexicana	Arge. mex.	IX
68.	Argentite	Argen.	VIII

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
69.	Aristolochia Serpentaria	Arist. s.	VII
70.	Arsenicum Bromatum	Ars. brom.	VI
71.	Artemisia Vulgaris	Art. vul.	IX
72.	Arundo Donax	Arun. don.	IX
73.	Asclepias Curassavica	Ascl. cur.	IX
74.	Asclepias Incarnata	Asclep. i.	VI
75.	Asclepias Tuberosa	Ascl. tub.	VII
76.	Asimina Triloba	Asim. tri.	IX
77.	Asparagus Officinalis	Asp. off.	VII
78.	Aspidosperma	Aspidos.	VI
79.	Astacus Fluviatilis	Ast. flu.	VI
80.	Atista Indica	Atis. ind.	VII
81.	Atista Radix	Atis. rad.	VI
82.	Aurum Arsenicum	Aur. ars.	VI
83.	Aurum Iodatum	Aur. iod.	VI
84.	Aurum Sulphuratum	Aur. sul.	VII
85.	Averrhoa Carambola	Aver. car.	IX
86.	Aviaire	Aviaire	VI
87.	Azadirachta Indica	Azad. ind.	VIII
88.	Bacilli of Morgan	Morg.	VIII
89.	Bacillus Coli	Bac. coli	VIII
90.	Bacillus No. 7	Bacil. 7	VII, VIII
91.	Bacopa Monnieri	Baco. mon.	IX
92.	Baptisia Confusa	Bapt. con.	VII
93.	Baptisia Tinctoria	Bapt. tin.	IX
94.	Barium Sulphuratum	Bar. sul.	VII
95.	Barosma Crenata	Bar. cren.	VII
96.	Barosma Serratifolia	Bar. ser.	VII
97.	Bellis Perennis	Bel. per.	IX
98.	Benzoinum	Benzoin.	VII
99.	Beta Vulgaris	Beta vul.	IX
100.	Betainum Muriaticum	Betain. m.	IX
101.	Betula Pendula Folia	Bet. p. fol.	VIII
102.	Bixa Orellana	Bix. or.	VII
103.	Blatta Americana	Blatta a.	VII



<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
104.	Boldo	Boldo	VI
105.	Boletus Laricis	Bole. lar.	IX
106.	Boletus Luridus	Bol. lur.	VII
107.	Boletus Satanus	Bole. sat.	IX
108.	Borago Officinalis	Bora. off.	VIII
109.	Brassica Oleracea	Bras. ole.	VIII
110.	Brucella Melitensis	Brucel.	VIII
111.	Bryonia Alba	Bry. alba	IX
112.	Bryonia Cretica	Bry. cre.	VIII
113.	Bufo Sahytiensis	Bufo. sah.	IX
114.	Cadmium Bromatum	Cad. brom.	VI
115.	Caesalpinia Bonducella	Caes. bon.	VI, VIII
116.	Calcarea Picrata	Cal. pic.	VI
117.	Calcarea Renalis	Cal. ren.	VI
118.	Calcarea Silicata	Calc. sil.	VI
119.	Calluna Vulgaris	Call. vul.	VIII
120.	Calotropis Lactum	Calo. lac.	VII
121.	Caltha Palustris	Calth.	VIII
122.	Camphora Bromata	Camph. b.	VI
123.	Canchalagua	Canchal.	VIII
124.	Canna	Canna.	VI, IX
125.	Carboneum Oxygenisatum	Carb. oxy.	VII
126.	Carbonicum Hydrogenisatum	Carb. hyd.	VI
127.	Cardiospermum Helicacabum	Card. hel.	VIII
128.	Carduus Marianus	Card. mar.	IX
129.	Carica Papaya	Carica p.	VIII
130.	Carum Carvi	Carum c.	VIII
131.	Cassia Sophora	Cass. sop.	VI
132.	Catharanthus Roseus	Cath. ros.	IX
133.	Caulophyllum Thalictroides	Caul. th.	VIII
134.	Cenchrus Contortrix	Cen. con.	IX
135.	Cereus Bonaplandi	Cer. bon.	VI
136.	Cervus Brasilicus	Cerv. bra.	IX
137.	Cetraria Islandica	Cet. is.	VIII
138.	Cheiranthus Cheiri	Chir. cheir.	VIII

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
139.	Chelidonium Majus	Che. maj.	VIII
140.	Chelone Glabra	Chelo.	VIII
141.	Chimaphila Maculata	Chim. mac.	VII
142.	Chimaphila Umbellata	Chimap. u.	VIII
143.	Cichorium Intybus	Cich. int.	IX
144.	Cicuta Maculate	Cicu. mac.	IX
145.	Cicuta Virosa	Cic. vir.	VIII
146.	Cina	Cina	IX
147.	Citrus Vulgaris	Aurant.	VI, VII
148.	Clerodendron Infortunatum	Cler. in.	VI
149.	Cocainum Muriaticum	Coca. mur.	VII
150.	Coccus Cacti	Coc. c.	VIII
151.	Colchicinum	Colchic.	IX
152.	Colchicum Autumnal	Colch. at.	IX
153.	Coleus Aromaticus	Col. ar.	VI
154.	Collinsonia Canadensis	Collin. c.	VIII
155.	Condurango	Cond.	VIII
156.	Corallium Rubrum	Coral. ru.	VI
157.	Cornus Circinata	Corn. c.	VI
158.	Cortisone	Cortis.	VII
159.	Cotyledon Umbilicus	Coty. umb.	VIII
160.	Cresol	Cresol	IX
161.	Cuphea Viscosissima	Cuph. vis.	IX
162.	Cupressus Australis	Cupre. au.	IX
163.	Cuprum Oxydatum Nigrum	Cup. ox. ni.	IX
164.	Cuprum Sulphuricum	Cup. s.	VII
165.	Cydonia Vulgaris	Cydo. vul.	IX
166.	Cynera Scolymus	Cyn. sco.	IX
167.	Cytisus Laburnum	Cyti. lab.	IX
168.	Damiana	Damiana	VII
169.	Daphne Indica	Daph. ind.	VII
170.	Datisca Cannabina	Dat. can.	VIII
171.	Datura Arborea	Dat. arb.	VI
172.	Delphinium	Delphin.	IX
173.	Desmodium Gangeticum	Desm. g.	VI

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
174.	Digitalis Purpurea	Dig. pur.	VII
175.	Digitoxinum	Digox.	VII
176.	Dioscoreinum	Diosnum.	VIII
177.	Diphtherinum	Diphth.	VII
178.	Dirca Palustris	Dirc. pal.	VII
179.	Draba Verna	Drab. ver.	IX
180.	Drosera Rotundifolia	Dros. rot.	IX
181.	Echinacea Purpurea	Echi. pur.	IX
182.	Eclipta Alba	Ecl. alba	IX
183.	Eichhornia Crassipes	Eich. cra.	VIII
184.	Elaeis Guinensis	Ela. guin.	IX
185.	Embelia Ribes	Embe. rib.	IX
186.	Emblica Officinalis	Emb. off.	VIII
187.	Emetinum	Emetin.	VII
188.	Ephedra Vulgaris	Ephe. vul.	VII
189.	Erechthites	Erechth.	VI
190.	Erodium Cicutarium	Erod. cic.	VIII
191.	Eschscholtzia Californica	Es. cal.	VIII
192.	Etherum	Ether.	VII
193.	Ethylum Nitricum	Ethy. nit.	VIII
194.	Eucalyptol	Eucatol.	VII, VIII
195.	Eugenia Caryophyllata	Eug. car.	VIII
196.	Euonymus Europaeus	Euon. eur.	VI
197.	Eupatorium Aromaticum	Eup. arom.	VII
198.	Euphorbia Cyparissias	Euph. cyp.	VIII
199.	Fabiana Imbricata	Fab. imb.	IX
200.	Fagopyrum Esculentum	Fago. esc.	VII
201.	Fel Tauri	Fel taur.	VIII
202.	Ferrum Aceticum	Fer. acet.	VI
203.	Ferrum Bromatum	Fer. brom.	VI
204.	Ferrum Pernitricum	Fer. pern.	VII, VIII
205.	Ferrum Sidereum	Fer. sid.	VIII
206.	Ferrum Tartaricum	Fer. tart.	VIII
207.	Ficus Indica	Ficus in.	VI
208.	Filipendula Ulmaria	Filip. ul.	VIII

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
209.	Foeniculum Vulgare	Foen. vul.	VIII
210.	Formalinum	Formlin.	VII
211.	Fuchsinum	Fuchsin.	VII
212.	Fucus Vesiculosus	Fucus v.	IX
213.	Galega Officinalis	Galeg. of.	VIII
214.	Galphimia Glauca	Galph. gl.	IX
215.	Genista Tinctoria	Genista	VII
216.	Ginkgo Biloba	Ginkgo	VII
217.	Glycerinum	Glyc.	VII
218.	Glycogenum	Glyco.	VIII
219.	Grindelia Robusta	Grind. ro.	IX
220.	Guaco	Guaco	VII
221.	Guarana	Guarana	VI
222.	Gun Powder	Gunp.	VIII
223.	Gymnocladus Canadensis	Gym. can.	VII
224.	Hamamelis Virginica	Ham. virg.	IX
225.	Haplopappus Baylahuen	Haplo. ba.	VIII
226.	Harungana Madagascariensis	Harung. m.	VIII
227.	Hekla Lava	Hek. lava	VI
228.	Heloderma	Helod.	VI
229.	Hemidesmus Indicus	Hemid. in.	VIII
230.	Hepatica Triloba	Hep. tri.	IX
231.	Herniaria Glabra	Hern. gla.	VIII
232.	Hoang Nan	Hoang. n.	VII
233.	Hoitzia Coccinea	Hoit. coc.	VIII
234.	Homarus	Homarus	VII
235.	Hura Brasiliensis	Hur. bras.	VI
236.	Hydrastininum Muriaticum	Hyd. mur.	VI
237.	Hydrastis Canadensis	Hydr. can.	IX
238.	Hydrobromic Acid	Hydr. ac.	VI
239.	Hygrophilla Spinosa	Hygro. sp.	IX
240.	Hypericum Perforatum	Hyper.	VIII
241.	Ilex Aquifolium	Ilx. a.	VIII
242.	Ilex Paraguayensis	Ile. para.	VII
243.	Indigo	Indigo	VI

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
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245.	Jacaranda Caroba	Jac. car.	VI
246.	Jequirity	Jequir.	IX
247.	Juncus Effusus	Junc. e.	IX
248.	Kali Silicatum	Kal. sil.	VII
249.	Kousso	Kous.	VII
250.	Lactuca	Lactuc.	VII
251.	Lamium Album	Lam. alb.	VII
252.	Larrea Mexicana	Larr. mex.	VIII
253.	Latroectus Mactans	Lat. mac.	VI
254.	Laurocerasus	Lauro.	VIII
255.	Lavandula Angustifolia	Lav. ang.	VIII
256.	Leonuorus Cardiaca	Leo. card.	VIII
257.	Leptandra	Leptan.	VII
258.	Lespedeza Capitata	Les. cap.	IX
259.	Lespedeza Sieboldii	Les. sieb.	IX
260.	Leucas Aspera	Leuc. asp.	VI, VIII
261.	Levisticum Officinale	Levis. of.	VIII
262.	Levomepromazine	Levomep.	VII
263.	Lilium Tigrinum	Lilli. tig.	IX
264.	Linaria Vulgaris	Lin. vulg.	VI
265.	Linum Usitatissimum	Linum. us.	IX
266.	Lobelia Syphilitica	Lob. syph.	VI
267.	Luffa Acutangula	Luffa. ac.	IX
268.	Luffa Amara	Luf. am.	VI
269.	Luffa Bindal	Luf. bin.	VI
270.	Luffa Operculata	Luf. oper.	VIII
271.	Malva	Malva	VIII
272.	Mandragora Officinarum	Mand. off.	VII
273.	Mangifera Indica	Mang. ind.	VII
274.	Melilotus Officinalis	Mel. off.	VI
275.	Mentha Arvensis	Ment. arv.	IX
276.	Mentha Viridis	Ment. vir.	IX
277.	Menyanthes Trifoliata	Menyan. t.	VIII
278.	Mercurialis Perennis	Mer. per.	VII

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
279.	Mercurius Precipitatus Albus	Merc. p. a.	VII
280.	Mimosa Pudica	Mimo. pud.	IX
281.	Mitchella Repens	Mit. rep.	VI
282.	Momordica Chirantia	Momor. ch.	VIII
283.	Moringa Olefera	Mor. ole.	IX
284.	Morphinum	Morph.	VI
285.	Morphinum Aceticum	Mor. ace.	VII
286.	Morphinum Sulphuricum	Mor. sulph.	VII
287.	Musa Sapientum	Mus. sap.	IX
288.	Myrrhis Odorata	Myr. odo.	VIII
289.	Myrtillocactus Geometrizzans	Myrt. geo.	VIII
290.	Myrtus Communis	Myrt. com.	VII
291.	Nabalus Serpentaria	Nab. serp.	VII
292.	Narcissus Pseudo Narcissus	Nars. pse.	VI
293.	Nasturtium Officinale	Nas. off.	VIII
294.	Natrum Fluoricum	Nat. fl.	VII
295.	Natrum Hypochlorosum	Nat. h. chl.	VII, VIII
296.	Natrum Silicofluoricum	Nat. sfl.	VI
297.	Negundium Americana	Neg. ame.	VII
298.	Niccolum Sulphuricum	Nic. sul.	VI
299.	Nuphar Lutea	Nuph. lut.	VI
300.	Nyctanthes Arbortristis	Nyct. arb.	VII
301.	Ocimum Basillicum	Ocim. bas.	IX
302.	Ocimum Canum	Oci. can.	VI
303.	Ocimum Gratissimum	Oci. grat.	VI
304.	Oldenlandia Herbacea	Old. herb.	VII
305.	Oleander	Oleand.	VII
306.	Oleum Cajuputi	Oleum c.	VI
307.	Oleum Ricini	Ol. ricin.	VII
308.	Ononis Spinosa	Onon. spi.	VIII
309.	Onosmodium Virginianum	On. virg.	VII
310.	Opuntia	Opuntia	VI
311.	Origanum Vulgare	Origan. v.	VII
312.	Ornithogalum Umbellatum	Orni. umb.	IX
313.	Osmium Metallicum	Os. met.	VI

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
314.	Oxalis Acetosella	Oxal. ac.	VIII
315.	Oxytropis	Oxytr.	VI
316.	Papaver Rhoëas	Pap. rhoe.	IX
317.	Paraphenylene Diamine	P. phen. di.	VIII
318.	Paronichia Illecebrum	Paro. il.	VIII
319.	Parthenium	Parth.	VII
320.	Penicillinum	Penicil. g.	VII
321.	Penthorum Sedoides	Pent. sd.	VII
322.	Perilla Frutescens	Per. fru.	VIII
323.	Persea Americana	Per. amer.	IX
324.	Pertussin	Pertus.	VII
325.	Petasites Hybridus	Pet. hy.	VIII
326.	Phaseolus	Phas.	VI
327.	Phenobarbital	Phenob.	VII
328.	Pilocarpinum Nitricum	Pil. nit.	VII
329.	Pimpinella Anisum	Pimp. ani.	VIII
330.	Pimpinella Saxifraga	Pim. sax.	VII
331.	Pix Liquida	Pix liq.	VI
332.	Platinum Muriaticum Natronatum	Pt. mur. n.	VI
333.	Plumbum Carbonicum	Pb. carb.	VI
334.	Potentilla Anserina	Pot. ans.	VIII
335.	Potentilla Erecta	Pot. er.	VIII
336.	Prunus Virginiana	Prun. vir.	VII
337.	Quassia	Quas.	VI
338.	Quillaya Saponaria	Quill. s.	VI
339.	Ranunculus Bulbosus	Ran. bulb.	VIII
340.	Ranunculus Repens	Ran. rep.	VIII
341.	Reserpine	Reserp.	VII
342.	Resina Laricis	Res. lar.	VIII
343.	Resorcinum	Resorc.	VI
344.	Rhamnus Californica	Rham. cal.	VI
345.	Rhus Toxicodendron	Rhus tox.	IX
346.	Rumex Acetosa	Rum. acet.	VIII
347.	Saccharum Lactis	Sac. lac.	VII, IX
348.	Saccharum Officinale	Sac. off.	VIII, IX

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
349.	Salvia Officinalis	Sal. off.	VI
350.	Sambucus Canadensis	Samb. can.	VI
351.	Sanguinarinum Nitricum	Sang. nit.	VI
352.	Santolina Chamaecyparissus	Sant. cha.	IX
353.	Saponaria Officinalis	Sap. off.	VI, VII, VIII
354.	Sassafras	Sass. ras.	VII
355.	Scarlatinum	Scarl.	VII
356.	Scrophularia Nodosa	Scro. nod.	VI
357.	Sedum Acre	Sed. acr.	VI
358.	Sempervivum Tectorum	Semp. tec.	VI
359.	Shigella Dysenteriae	Shig. dys.	VI
360.	Siegesbeckia Orientalis	Sieg. ori.	IX
361.	Silphium Laciniatum	Sil. lac.	VI
362.	Solaninum	Solanin.	VII
363.	Solanum Pseudocapsicum	Sol. psu.	IX
364.	Solanum Xanthocarpum	Sol. xan.	VI
365.	Sparteinum Sulphuricum	Sp. sulph.	VI
366.	Stachys Officinalis	Sta. off.	VIII
367.	Stellaria Media	Stel. med.	IX
368.	Stigmata Maydis-Zea	Zea mays	VI
369.	Strophanthus Gratus	Stroph. g.	VIII
370.	Strophanthus Sarmentosus	Stro. sar.	VIII
371.	Strychninum	Strych.	VI
372.	Sulfa Pyridine	Sul. pyr.	VII
373.	Swertia Chirata	Chirata	VI, VIII
374.	Talpa Europea	Talp. eur.	IX
375.	Tarentula Cubensis	Tar. cub.	VI
376.	Teucrium Scorodonia	Teu. scor.	VIII
377.	Thymus Serpyllum	Thy. ser.	VII
378.	Thymus Vulgaris	Thym. vul.	VIII
379.	Trichosanthes Dioica	Tri. dio.	VI
380.	Triosteum Perfoliatum	Trio. per.	VII
381.	Tussilago Fragrans	Tuss. fra.	VI
382.	Tylophora Indica	Tyl. ind.	VI
383.	Typha Latifolia	Typh. lat.	IX



<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>	<b>Volume</b>
384.	Ulex Europaeus	Ulex. eur.	IX
385.	Ulmus Fulva	Ulmus f.	VI
386.	Vaccinium Myrtillus	Vac. myrt.	VI
387.	Verbena Officinalis	Verb. off.	VI
388.	Vernonia Anthelmintica	Ver. anth.	VI
389.	Vespa Crabro	Ves. crab.	VI
390.	Vincetoxicum Hirudinaria	Vinc. hir.	VIII
391.	Withania Somnifera	With. som.	VIII
392.	Wyethia Helenioides	Wyet. hel.	VI
393.	Xanthium Spinosum	Xanth. sp.	IX
394.	Zincum Cyanatum	Zinc. cy.	VI
395.	Zincum Iodatum	Zinc. iod.	VI

**HOMOEOPATHIC PHARMACOPOEIA  
OF  
INDIA**

**(H.P.I.)**

**VOLUME – VI**

**1990**



**GOVERNMENT OF INDIA  
MINISTRY OF HEALTH AND FAMILY WELFARE**

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## FOREWORD

The Homoeopathic Pharmacopoeia Committee was constituted by the Govt. of India, Ministry of Health and Family Welfare vide letter No. X.19018/68/87-Homoeo dated the 24<sup>th</sup> February, 1988.

The material in the Sixth Volume of Homoeopathic Pharmacopoeia of India consists of 104 monographs in addition to the following items:-

1. Preface
2. Introduction
3. General Notices
4. General Instructions
5. Standards for finished products
6. Appendices

For the first time standard of finished products of 159 drugs have been incorporated in Homoeopathic Pharmacopoeia of India for the benefit of Homoeopathic profession.

The Sixth Volume of Homoeopathic Pharmacopoeia of India is presented herewith to the Govt. of India.

Sd.

(Dr. B. P. MISRA)

*Member Secretary*

*(Homoeopathic Pharmacopoeia Committee)*

NEW DELHI,

*Dated: 25th March 1991*

Sd.

(Dr. V. T. AUGUSTINE)

*Chairman*

*(Homoeopathic Pharmacopoeia Committee)*

## PREFACE

The Government of India constituted a Homoeopathic Pharmacopoeia Committee in 1962 for the purpose of preparing the Homoeopathic Pharmacopoeia of India with the following objects:-

- (i) to prepare a Pharmacopoeia of Homoeopathic drugs whose therapeutic usefulness has been proved on the lines of American, German and British Homoeopathic Pharmacopoeiae.
- (ii) to lay down principles and standards for the preparation of Homoeopathic drugs.
- (iii) to lay down test of identity, quality, purity and
- (iv) such other matters as are incidental and necessary for the preparation of Homoeopathic Pharmacopoeia.

The Committee approved 180 monographs which comprised Volume I of Homoeopathic Pharmacopoeia of India (1971).

The Homoeopathic Pharmacopoeia Committee was reconstituted by the Government of India, Ministry of Health & Family Welfare in 1971 which approved 265 monographs which comprised Volume II (1974) (100 monographs), Volume III (1978) (105 monographs) and part of Volume IV (1983) (60 monographs) or Homoeopathic Pharmacopoeia of India. The term of the Committee was extended vide letter No. X. 19018/21/76-Homoeo, dated the 30th November, 1976.

The objects of Committee were further enlarged to prepare standards for the preparation of Nosodes for the inclusion in the Homoeopathic Pharmacopoeia of India. In addition, it undertook the preparation of Homoeopathic Pharmacopoeia Codex in order to give detailed information on drugs and other Pharmaceutical substances and materials that are not included in H.P.I. as well as to supplement the information on drugs already included but cannot be listed in the H.P.I. This reconstituted Committee approved 105 monographs (Volume III) (1978) and a part of Volume IV (1983) (60 monographs).

The Homoeopathic Pharmacopoeia Committee was again reconstituted by the Govt. of India, Ministry of Health & Family Welfare vide letter No. X. 19018/26/79-Homoeo, dated 12th November, 1980 which approved 50 monographs of Volume IV (1983), 114 monographs of Volume V and 62 monographs (a part) of the Volume VI of Homoeopathic Pharmacopoeia of India. The Committee also approved 150 revised monographs for the Consolidated edition of H.P.I.

The members of the Committee are as follows:-

1. Honorary Advisor

*Chairman*

- (a) Dr. Diwan Harish Chand, M.B.B.S., LRCP, DTM & H., M.D. (Hom.), F.F. (Hom) (Lond.), DHT (USA) upto 1985
- (b) Dr. Anil Bhatia, B.Sc., DMS, MBS, DF (Hom.), (from 1985 to 1987)

2. Drugs Controller (India) (Dr. S. S. Gothoskar)	<i>Member</i>
3. Director, Central Drugs Laboratory, Calcutta (Dr. S.K. Roy)	<i>Member</i>
4. Director, Homoeopathic Pharmacopoeia Laboratory, Ghaziabad (Mr. P.N. Varma)	<i>Member</i>
5. Deputy Advisor (Homoeo), Govt. of India (Dr. V.T. Augustine)	<i>Member</i>
6. Director, Central Council for Research in Homoeopathy (Dr. D.P. Rastogi)	<i>Member</i>
7. Dr. P.N. Mehra, DSc, FNA, FNA. Sc., Chandigarh (Prof. Emer, Punjab)	<i>Member</i>
8. Prof. & Head of the Deptt. of Chemistry, University of Delhi, Delhi (Prof. M. Krishnamurthy)	<i>Member</i>
9. Prof. & Head of the Deptt. of Microbiology, A.I.I.M.S., New Delhi (Dr. L.N. Mahapatra) upto 1984 (Dr. Srinivas) from 1985	<i>Member</i>
10. Shri G.S. Bhar, B.A., Homoeopathic Manufacturing Pharmacist, Calcutta	<i>Member</i>
11. Dr. R.K. Bhandari, Homoeopathic Manufacturing Pharmacist, Delhi	<i>Member</i>
12. Dr. Joseph Zakarias, Homoeopathic Manufacturing Pharmacist, Mangalore	<i>Member</i>
13. Dr. A.U. Ramakrishnan, M.B.B.S., M.F. (Hom) (Lond), Homoeopathic Physician, Madras	<i>Member</i>
14. Dr. Dilip Kumar Saha, MBS, DF Hom. (Lond.), Homoeopathic Physician, Calcutta	<i>Member</i>
15. Dr. K.P. Muzumdar, B.Sc., D.M.S., M.B.S. MF(Malaysia), Homoeopathic Physician, Bombay	<i>Member</i>
16. Assistant Adviser (Homoeo), (Dr. B.P. Misra), Govt. of India- from 1985	<i>Member-Secretary</i>

The Committee appointed 3 Sub-Committees of the following members to scrutinise the initial details of monographs proposed by the staff:-

1. *Sub-Committee for Chemical Drugs:*
  - (a) Prof. M. Krishnamurthy
  - (b) Director, H.P.L.
  - (c) Director, C.C.R.H.
  - (d) Sh. G.S. Bhar

2. *Sub-Committee for Botanical Drugs:*

- (a) Dr. P.N. Mehra
- (b) Dr. K.P. Muzumdar
- (c) Sh. G.S. Bhar
- (d) Director, H.P.L.
- (e) Director, C.C.R.H.
- (f) Secretary, (HPC)

3. *Sub-Committee for Nosodes:*

- (a) Dr. Srinivas
- (b) Director, C.C.R.H.
- (c) Director, H.P.L.
- (d) Secretary, (HPC)

Dy. Adviser (H) was a member of all the above Sub-Committees.

The present Homoeopathic Pharmacopoeia Committee was reconstituted by the Govt. of India, Ministry of Health & Family Welfare vide letter No. X. 19018/68/99-Homoeo dated 24th February, 1988.

The members of the Committee are as follows:-

- |  |                 |
|--|-----------------|
| 1. Deputy Adviser (Homoeo) (Dr. V.T. Augustine), Ministry of Health & F.W.   | <i>Chairman</i> |
| 2. Drugs Controller (India) (Dr. P.K. Gupta), Director General of Health Services, New Delhi                                     | <i>Member</i>   |
| 3. Director (Dr. S.K. Roy), Central Drugs Laboratory, 3 Kyd Street, Calcutta   | <i>Member</i>   |
| 4. Director (Dr. D.P. Rastogi), Central Council for Research in Homoeopathy, B-6, Community Centre, Janak Puri, New Delhi-110058 | <i>Member</i>   |
| 5. Prof. & Head of the Deptt. of Microbiology (Dr. Srinivas), All India Institute of Medical Sciences, New Delhi                 | <i>Member</i>   |
| 6. Director (Sh. P.N. Varma), Homoeopathic Pharmacopoeia Laboratory, C.G.O. Complex, Kamla Nehru Nagar, Ghaziabad-201002         | <i>Member</i>   |
| 7. Prof. M. Krishnamurthy, Deptt. of Chemistry, University of Delhi, Delhi   | <i>Member</i>   |
| 8. Sh. G.S. Bhar, B.A., Homoeopathic Manufacturing Pharmacist, Calcutta  | <i>Member</i>   |

- |   |                         |
|---|-------------------------|
| 9. Dr. N. Krishna Rao, BA (Hons), Homoeopathic Manufacturing Pharmacist, Hyderabad              | <i>Member</i>           |
| 10. Dr. A.U. Ramakrishnan M.B.B.S., M.F. Hom (Lond.) Homoeopathic Physician, Madras             | <i>Member</i>           |
| 11. Dr. K.P. Muzumdar, B.Sc., D.M.S., M.B.S. MF (Malaysia), Homoeopathic Physician, Bombay      | <i>Member</i>           |
| 12. Dr. Dilip Kumar Saha, Homoeopathic Physician, Calcutta                                      | <i>Member</i>           |
| 13. Dr. R.K. Bhandari, Homoeopathic Manufacturer, New Delhi                                     | <i>Member</i>           |
| 14. Dr. P.N. Mehra, D.Sc., F.N.A., F.N.A. Sc., Prof. Emer. Punjab, Chandigarh                   | <i>Member</i>           |
| 15. Assistant Adviser (Homoeo) (Dr. B.P. Misra), Ministry of Health & Family Welfare, New Delhi | <i>Member-Secretary</i> |

The Homoeopathic Pharmacopoeia Committee was assisted by the following technical and administrative staff:-

- |                    |                         |
|--------------------|-------------------------|
| 1. Dr. B.S. Ahuja  | <i>Botanist</i>         |
| 2. Dr. S.P. Singh  | <i>Research Officer</i> |
| 3. Dr. G.P. Garg   | <i>Chemist (HPC)</i>    |
| 4. Sh. I.M. Sondhi | <i>Asst. Secy (HPC)</i> |

The committee finalized 50 monographs of the Sixth Volume of Homoeopathic Pharmacopoeia of India.

The committee specially commends the work of Homoeopathic Pharmacopoeia Laboratory, Ghaziabad for assistance in general and for providing technical data in particular for the monographs.

The Government of India, Ministry of Health & Family Welfare takes this opportunity to record its appreciation of work done by the Committee, Homoeopathic Pharmacopoeia Laboratory, Ghaziabad and the staff engaged in this work.



## INTRODUCTION

Five Volumes of Homoeopathic Pharmacopoeia of India have already been published as follows:-

<b>Volume</b>	<b>No. of Monographs</b>	<b>Year of Publication</b>
Volume I of H.P.I.	180	1971
Volume II of H.P.I.	100	1974
Volume III of H.P.I.	105	1978
Volume IV of H.P.I.	107	1983
Volume V of H.P.I.	114	1987

The present Volume VI comprises 104 monographs. Although the general notices and general instructions are mainly contained in Volume I (1971), some amendments have been made subsequently in Volume II to Volume V of H.P.I., which should be deemed to be applicable to the contents of all the volumes published so far unless otherwise revision of the text takes place in each in the revised edition.

The Volume VI of H.P.I. also contains standards for finished products of 159 drugs and the vernacular names of all the earlier monographs which have already been covered under Homoeopathic Pharmacopoeia of India.

## **GENERAL NOTICES / GENERAL INSTRUCTIONS**

The General Notices/General Instructions and the appendices of the First Volume as amended in Second, Third, Fourth and Fifth Volume are applicable to the material of this Sixth Volume of Homoeopathic Pharmacopoeia of India as well as to the earlier Volumes.

## LIST OF MONOGRAPHS WITH ABBREVIATIONS

S. No.	Name of Monographs	Abbreviation
1.	Acidum Hippuricum	Ac. hip.
2.	Aconitum Lycoctonum	Acon. lyc.
3.	Adrenalinum	Adren.
4.	Aegle Marmelos	Aegle m.
5.	Agaricus Campestris	Ag. camp.
6.	Agave Americana	Aga. amer.
7.	Agraphis Nutans	Agr. nut.
8.	Alnus Serrulata	Alnus s.
9.	Anahalonium Lewinii	Anahal. l.
10.	Anthamantha Oreoselinum	Anth. or.
11.	Antimonium Chloridum	Ant. chlo.
12.	Aqua Marina	Aqua. mar.
13.	Arsenicum Bromatum	Ars. brom.
14.	Asclepias Incarnata	Asclep. i.
15.	Aspidosperma	Aspidos.
16.	Astacus Fluvialtilis	Ast. flu.
17.	Atista Radix	Atis. rad.
18.	Aurum Arsenicum	Aur. ars.
19.	Aurum Iodatum	Aur. iod.
20.	Aviaire	Aviaire
21.	Boldo	Boldo
22.	Cadmium Bromatum	Cad. brom.
23.	Caesalpinia Bonducella	Caes. bon.
24.	Calcarea Picrata	Cal. pic.
25.	Calcarea Renalis	Cal. ren.
26.	Calcarea Silicata	Calc. sil.
27.	Camphora Bromata	Camph. b.
28.	Canna	Canna
29.	Carbonium Hydrogenisatum	Carb. hyd.
30.	Cassia Sophora	Cass. sop.
31.	Cereus Bonaplandi	Cer. bon.
32.	Citrus Vulgaris	Aurant.
33.	Clerodendron Infortunatum	Cler. in.
34.	Coleus Aromaticus	Col. ar.
35.	Corallium Rubrum	Coral. ru.
36.	Cornus Circinata	Corn. c.
37.	Datura Arborea	Dat. arb.

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>
38.	Desmodium Gangeticum	Desm. g.
39.	Erechthites	Erechth.
40.	Euonymus Europaeus	Euon. eur.
41.	Ferrum Aceticum	Fer. acet.
42.	Ferrum Bromatum	Fer. brom.
43.	Ficus Indica	Ficus in.
44.	Guarana	Guarana
45.	Hekla Lava	Hek. lava
46.	Heloderma	Helod.
47.	Hura Brasiliensis	Hur. bras.
48.	Hydrastininum Muriaticum	Hyd. mur.
49.	Hydrobromic Acid	Hydr. ac.
50.	Indigo	Indigo
51.	Jacaranda Caroba	Jac. car.
52.	Latrodectus Mactans	Lat. mac.
53.	Leucus Aspera	Leuc. asp.
54.	Linaria Vulgaris	Lin. vulg.
55.	Lobelia Syphilitica	Lob. syph.
56.	Luffa Amara	Luf. am.
57.	Luffa Bindal	Luf. bin.
58.	Melilotus Officinalis	Mel. off.
59.	Mitchella Repens	Mit. rep.
60.	Morphinum	Morph.
61.	Narcissus Pseudo Narcissus	Nars. pse.
62.	Natrum Silicofluoricum	Nat. sfl.
63.	Niccolum Sulphuricum	Nic. sul.
64.	Nuphar Lutea	Nuph. lut.
65.	Ocimum Canum	Oci. can.
66.	Ocimum Gratissimum	Oci. grat.
67.	Oleum Cajuputi	Oleum c.
68.	Opuntia	Opuntia
69.	Osmium Metallicum	Os. met.
70.	Oxytropis	Oxytr.
71.	Phaseolus	Phas.
72.	Pix Liquida	Pix liq.
73.	Platinum Muriaticum Natronatum	Pt. mur. n.
74.	Plumbum Carbonicum	Pb. carb.
75.	Quassia	Quas.
76.	Quillaya Saponaria	Quill. s.

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>
77.	Resorcinum	Resorc.
78.	Rhamnus Californica	Rham. cal.
79.	Salvia Officinalis	Sal. off.
80.	Sambucus Canadensis	Samb. can.
81.	Sanguinarinum Nitricum	Sang. nit.
82.	Saponaria Officinalis	Sap. off.
83.	Scrophularia Nodosa	Scro. nod.
84.	Sedum Acre	Sed. acr.
85.	Sempervivum Tectorum	Semp. tec.
86.	Shigella Dysenteriae	Shig. dys.
87.	Silphium Laciniatum	Sil. lac.
88.	Solanum Xanthocarpum	Sol. xan.
89.	Sparteinum Sulphuricum	Sp. sulph.
90.	Stigmata Maydis-Zea	Zea mays
91.	Strychninum	Strych.
92.	Swertia Chirata	Chirata
93.	Tarentula Cubensis	Tar. cub.
94.	Trichosanthes Dioica	Tri. dio.
95.	Tussilago Fragrans	Tuss. fra.
96.	Tylophora Indica	Tyl. ind.
97.	Ulmus Fulva	Ulmus f.
98.	Vaccinium Myrtillus	Vac. myrt.
99.	Verbena Officinalis	Verb. off.
100.	Vernonia Anthelmintica	Ver. anth.
101.	Vespa Crabro	Ves. crab.
102.	Wyethia Helenioides	Wyet. hel.
103.	Zincum Cyanatum	Zinc. cy.
104.	Zincum Iodatum	Zinc. iod.

**ACIDUM HIPPURICUM**

(Ac. hip.)



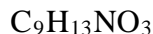
**Mol. wt.:** 179.18

- Common names** : *English:* Hippuric acid; *French:* Acida hippuric.
- Description** : Colourless or white crystals, odourless. Slightly soluble in *water* and in *alcohol*. Contains not less than 99.0 percent  $C_9H_9NO_3$  calculated with reference to the substance dried to constant weight at 105°.
- Identification** : Take about 0.5 g, add 5 ml of 5 percent *hydrochloric acid* and warm, filter the residue; yields the reactions characteristic of *benzoic acid*.
- Melting range** : 187° to 188°.
- Loss on drying** : Loses not more than 0.5 percent of its weight when dried to constant weight at 105°.
- Sulphated ash** : Not more than 0.1 percent.
- Chloride** : 3 g complies with the *limit test for chloride*.
- Heavy metals** : Not more than 10 parts per million.
- Assay** : Dissolve about 0.5 g accurately weighed in 25 ml hot water and titrate with 0.1 N *sodium hydroxide* solution using *phenolphthalein* as indicator. Each ml of 0.1 N *sodium hydroxide* solution is equivalent to 0.017917 g of  $C_9H_9NO_3$ .
- History and authority** : Proved by Griggs, *The Hahnemannian*, 88, 2-6, 1953 (HPUS); Boericke: *Materia Medica with Repertory*, 329.
- Preparation** : (a) Mother Solution Drug strength 1/1000  
                   Acidum Hippuricum 1 g  
                   Purified Water 250 ml  
                   Shake till dissolved, then add Purified Water, quantity sufficient to make one thousand millilitres of the Mother Solution
- (b) Potencies: Up to 5x with Purified Water; 6x and higher with *Dispensing Alcohol*.



**ADRENALINUM**

(Adren.)

**Mol. wt.:** 183.20

- Common name** : *English:* Adrenaline.
- Description** : Colourless or pale-buff coloured crystalline powder; taste, slightly bitter. It darkens on exposure to air or light. Sparingly soluble in *water* and *alcohol*. Contains not less than 99.0 percent of  $C_9H_{13}NO_3$  calculated with reference to the substance dried in vacuum over silica gel for eighteen hours.
- Identification** : (1) Not stable in neutral or alkaline solution, which rapidly becomes red on exposure to air.
- (2) Dilute 1 ml of a 0.1 percent w/v solution in dilute *hydrochloric acid* with 4 ml of water and add 1 drop of a 10 percent w/v *ferric chloride* solution; an emerald-green colour is produced immediately. On addition of 4 drops of dilute *ammonia* solution the colour changes to cherry-red.
- Reaction** : An aqueous solution is alkaline to solution of litmus.
- Melting range** : 205° to 212° with decomposition.
- Specific rotation** : Determined in 4 percent w/v solution in 1 N *hydrochloric acid* - 50 to 53, calculated with reference to the substance dried in vacuum over silica gel for 18 hours.
- Loss on drying** : Loses not more than 1.0 % of its weight, dried in vacuum over silica gel for eight hours.
- Sulphated ash** : Not more than 0.1 percent, HPI. Vol. I,
- Assay** : Weigh accurately about 0.3 g and dissolve in 50 ml of hot *glacial acetic acid*, cool and titrate with 0.1 N *perchloric acid*, using *crystal violet solution* as indicator until the colour changes from blue to greenish-blue. Each ml of 0.1 N *perchloric acid* is equivalent to 0.01832 g of  $C_9H_{13}NO_3$ .
- History and authority** : Proved by Gatman in 1904; Allen: *Mat. Med. of the nosodes*, 1.



- Preparation** : (a) Trituration 1x Drug strength 1/10  
Adrenalinum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI. Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,
- Storage** : All preparation below 6x to be kept in well-closed containers and protected from light.
- Caution** : Not to be dispensed below 3x.

**AEGLE MARMELOS**

(Aegle m.)

**Botanical name** : *Aegle marmelos* (Linn.) Cor. **Family:** Rutaceae

**Common name** : *Hindi:* Bel.

**Description** : A small or medium sized deciduous tree armed with straight sharp axillary thorns which are 2.5 cm long. Leaves alternate, three foliolate but sometimes five foliolate, leaflets ovate lanceolate, entire or crenate. Flowers in short lateral panicles, greenish-white, sweet scented, about 2.5 cm across. Petals 4 or 5, imbricate. Stamens 30 to 60, filaments short. Fruit a berry, 7.5 to 20 cm in diameter, usually globose, smooth, grey, yellow or greenish, rind woody, pulp sweet and aromatic.

**Part used** : Fresh pulp of unripe or half ripe fruit.

**Macroscopical** : Sub-globose berry, 7.5 to 20 cm in diameter, greenish when young, yellowish brown when ripe, with smooth surface. Epicarp forms a woody hard ring about 3 mm thick; pinkish in colour, inner portion fibrous. Mesocarp and endocarp adherent to the rind constitutes the pulp, pale pinkish, carpels 10 to 15, central, each containing several seeds with oblong flat multi-cellular woolly white hairs surrounded by colourless sticky mucilage. Odour faintly aromatic; taste mucilaginous.

**Microscopical** : Consist of soft pulp which in turn consists of oval, elongated parenchyma cells containing oily granular inclusions, numerous lignified multi-cellular fibres up to 10 to 14 cells wide. Numerous elongated multi-cellular hairs above the seeds each upto 9 cells wide, each cell 16 to 20  $\mu$  in diameter, made of lignified walls containing cup-like pits while simple pits in the lumen; numerous large highly sinuous lignified cells below the hairs, each containing pits on walls; polygonal cells; numerous rhomboidal crystals scattered in seed cell walls.

**Distribution** : The plant grows wild in sub-Himalayan tract ascending to 1200 m and also in Western Himalayas, central and south India. It is often planted all over India.

**History and authority** : Ghose: *Drugs of Hindoosthan*, Ed., 3rd, 87.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Aegle Marmelos, moist magma containing solids 100 g and plant moisture 130 ml | 230 g  |
| Purified Water  | 620 ml |
| Strong Alcohol  | 269 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**AGARICUS CAMPESTRIS**

(Ag. camp.)

- Botanical name** : *Agaricus campestris* L. ex. Fr. **Family:** Agaricaceae
- Synonym** : *Psalliota campestris* (L. ex. Fr.) Quel.
- Common names** : *Hindi:* Chatta, chatona; *English:* Common Mushroom; *French:* Agaric champitre, Psalliota; *German:* Brachpilz, Champigon.
- Description** : An edible mushroom, sporophores solitary, generally growing in field, usually centrally stipitate. Pileus or cap white when young and convex to flattened at maturity, firm and brownish surface smooth, sometime scaly, margin not curved, non-striate. Gills crowded, distinctly formed, unequal, free, separable pliable, at first white then pink, finally purple brown to sepia coloured at maturity, narrow to moderately broad, round towards the stipe. Super central cylindrical, tapering a little towards base 4 to 8 cm long, 0.8 to 1.5 cm thick, non hollow; annulus single, white inconspicuous with age, without volva, surface of pileus and stipe not becoming yellow when bruised. Flesh white, firm and thick; hymenophora trama regular.
- Part used** : Whole fungus.
- Microscopical** : Basidia broad and squat, usually 4 spored, 22.1  $\mu$  to 25.5  $\mu$  by 6.8  $\mu$  to 8.5  $\mu$ . Basidiospores purple brown, spherical to ellipsoidal, thick walled, smooth with distinct germ pores, 6.8  $\mu$  to 8.5  $\mu$  by 5.1  $\mu$  to 6.8  $\mu$ , spores sepia coloured.
- Distribution** : Punjab, West Bengal, Bihar, Nagpur, North Western Himalaya.
- History and authority** : Allen: *Encyclop. Mat. Med.*, Vol. I, 58.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Agaricus Campestris, moist magma containing  
                   solids 100 g and plant moisture 467 ml 567 g  
                   Strong Alcohol 568 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**AGAVE AMERICANA**

(Aga. amer.)

- Botanical name** : *Agave americana* Linn. **Family**: Amaryllidaceae
- Common names** : *Hindi*: Kantala; *English*: Century plant; *French*: Maguey; *German*: Agave.
- Description** : A perennial succulent plant with fibrous roots. Leaves stout, commonly variegated yellow, sharply constricted into neck just above the very swollen base, lanceolate, up to 1.82 m long, very thick fleshy with hard spines along the margins and at the apex. Scape often up to 9 m in height, branched, arborescents. Flowers yellow, in a pyramidal panicle at the top of a scape. Corolla tube contracted in the middle; pedicle as long as corolla. Fruit a pod, coriaceous and many seeded; seeds flattened.
- Part used** : Leaf.
- Microscopical** : Leaf in transection isobilateral, arch shaped, consists of thick walled upper and lower epidermis, covered with thick cuticle and sunken stomata. Stomatal index 4.1 to 8 for upper epidermis and 5.5 to 10.5 for lower epidermis. Mesophyll consists of 6 to 7 layers of palisade cells both below the upper and the lower epidermis and a central zone of compactly arranged parenchyma containing numerous scattered rectangular crystals of calcium oxalate. Vascular bundles collateral, arranged in 3 to 4 arches at the apex and middle of the leaf; bundles of middle arch comparatively larger than the others. Each vascular bundle is capped either on both sides of the bundle or over the phloem cells by patches of lignified cells.
- Distribution** : Native of China and America, extending up to Florida. Mexico, Central and tropical America, grown in India.
- History and authority** : Hale: *New Rem.* 2nd Ed., 52.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
     Agave Americana, moist magma containing  
     solids 100 g and plant moisture 800 ml 900 g  
     Strong Alcohol 222 ml  
     to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part of the Mother Tincture, six parts Purified Water, three parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**AGRAPHIS NUTANS**

(Agr. nut.)

- Botanical name** : *Agraphis nutans* Linn. **Family:** Liliaceae
- Synonym** : *Scilla nutans* Smith.
- Description** : Glabrous, bulb 2 to 3 cm, ovoid. Leaves linear, 20 to 45 cm in length and 7 mm wide. Scape 20 to 50 cm long. Raceme 4 to 16 flowered, unilateral; flowers erect in bud, nodding when fully open. Pedicels about 0.5 cm, afterwards elongating to about 3 cm and becoming erect. Bracts paired, bluish, the lower linear-lanceolate, longer than the pedicels, the upper smaller. Perianth segment 1.5 to 2 cm, violet-blue, rarely pink or white, erect so that the lower part of the flower appears cylindrical, the tips somewhat recurved; filaments narrow, outer inserted at about middle of perianth; anthers creamy. Fruit about 15 mm, ovoid, seeds several in each locule.
- Part used** : Whole plant.
- Identification** : Take 25 ml of 45 percent alcoholic extract. Evaporate on water-bath to remove *alcohol*, make it alkaline with *ammonia* solution and extract with *chloroform*.
- (1) Carry out TLC of chloroform extract on silica gel 'G' using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase. On spraying with *Dragendorff's reagent*, five red spots appeared at  $R_f$  0.45, 0.53, 0.60, 0.70 and 0.76.
- (2) Carry out TLC of aqueous extract on silica gel 'G' using *butanol : acetic acid : water* (4:1:1 v/v) as mobile phase. Under UV light four spots appear at  $R_f$  0.04, 0.54, 0.70 and 0.08 (blue fluorescence.) On spraying with *aniline phthalate* followed by heating one spot appears at  $R_f$  0.54 (brown).
- Distribution** : Throughout British Isle except Orkney and Shetland, Western Europe to Spain, Eastward to Central France along Mediterranean to Italy.
- History and authority** : Introduced by Cooper; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 48.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Agraphis Nutans in <i>coarse powder</i> | 100 g  |
| Purified Water                          | 550 ml |
| Strong Alcohol                          | 480 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts *Strong Alcohol*, five parts Purified Water; 3x and higher with *Dispensing Alcohol*.

**ALNUS SERRULATA**

(*Alnus s.*)

**Botanical name** : *Alnus serrulata* Wild. **Family:** Betulaceae

**Common names** : *English:* Smooth elder; *German:* Glatte Erle.

**Description** : A tall shrub or sometimes a small tree. Leaves elliptic to obovate, broadest usually above the middle, obtuse to rounded, simply serrate with very fine, sharp, nearly regular teeth, obtuse to cuneate at base, green beneath and glabrous above, thinly pubescent to glabrous on veins; catkins pistillate. Fruits ovoid to circular or somewhat quadrate, coriaceous narrowly-winged or merely thin-margined.

**Part used** : Bark.

**Identification** : Evaporate 20 ml alcoholic extract on a waterbath to 8 ml, add 5 ml 6N sulphuric acid and warm on a water bath for 30 minutes. Extract it with chloroform (3×20 ml). Wash the *chloroform* extract layer with 2×10 ml water and evaporate the consumed extract. Add 5 ml *dilute ammonia solution* to the residue; pink coloured solution is produced.

**Distribution** : U.S.A., in wet grounds, marshes and along streams.

**History and authority** : Introduced by Hale, *New remedies*, 2nd Ed., 1866; *H.P.U.S.*, 7th Ed., 35; Blackwood: *A manual of Mat. Med. Therap. and Pharmacology*, 102.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   *Alnus Serrulata in coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 635 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**ANAHALONIUM LEWINII**

(Anahal. 1.)

**Botanical name** : *Echinocactus williamsii* Lem. **Family:** Cactaceae

**Synonyms** : *Lophophora williamsii* Coulter; *Lophophora lewinii* Ch. Thompson;  
*Lophophora lewinii* Henning.

**Common name** : *English:* Mexican Payote.

**Description** : A succulent spineless cactus. Stem glaucous green, depressed globose to depressed cylindroid mostly 2.5 to 7.5 cm long, 5 to 10 cm in diameter, younger ones up to 5 mm in height, older ones flattening out, irregularly hexagonal, up to 2.5 cm in diameter. Tubercles inconspicuous and taproot tapering; tubercles occurring normally in longitudinal ribs but sometimes spirally or irregularly. Flower bearing areoles in centre of each tubercle, each areole being 2 to 4 cm in diameter, mature areole bearing a dense tuft of more or less silky white hairs, 7 to 10 cm long. Flowers 1 to 2, 2.5 cm in diameter, perianth sepaloid, greenish in middle and pinkish at margins, narrowly oblanceolate, 9 to 15 mm long, 3 mm broad, acute, strongly cuspidate, entire; anther yellow; style white tinged with pink; stigmas 5, thin and flattened. Fruit without tubercles, scales, spines, hairs or glochids; seed surface densely papillate, 1.3 m long, 1.11 mm broad, 0.8 mm thick. Taste bitter, nauseating; odour disagreeable when cut.

**Part used** : Whole plant.

**Distribution** : Indigenous to Maxico, Texas near Rio Grando.

**History and authority** : Proved by Mitchell; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 115.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Anahalonium Lewinii in *coarse* powder 100 g

Purified Water 283 ml

Strong Alcohol 754 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ANTHAMANTHA OREOSELINUM**

(Anth. or.)

**Botanical name** : *Anthamanta oreoselinum* Linn. **Family**: Umbelliferae (Apiaceae)

**Synonym** : *Peucedanum oreoselinum* Moench.

**Common names** : *English*: Mountain parsley; *French*: Parsil Sauvage; *German*: Bergpetersilie.

**Description** : A perennial, deciduous herb, up to 1.2 m in height. Stem striated. Leaves straggling, tripinnate with petiolate segments; segments ovate, pinnate, shining, nearly pointless. Flowers white. Fruit roundish oval.

**Part used** : Whole plant.

**Identification** : Extract 2 g of drug with 20 ml 50 percent *alcohol*.

1. To 2 ml of extract add one drop of *lead acetate solution*; a red precipitate is produced.
2. To 2 ml of the extract add 0.5 ml of *Mayer's reagent*; a cream colour precipitate is produced.
3. To 2 ml of the extract add *sodium hydroxide solution*; a dark red coloured precipitate is produced.
4. To 2 ml of the extract add one drop of *alcoholic ferric chloride solution*; a blackish green colour is produced.
5. Carry out TLC of the extract using *chloroform : methanol (7:3 v/v)* as mobile phase; when exposed to *iodine* vapour four spots at  $R_f$  0.11, 0.34, 0.65 and 0.96 are observed.

**Distribution** : Native of Germany, Hills of middle Europe and the Caucasus.

**History and authority** : Introduced and proved by Franz, *Archiv.*, 17, 3, 177; Allen: *Encyclop. Mat. Med.*, Vol. I, 607; Clarke: *A Dict. of Pract. Mat. Med.*, Vol. I, 220.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Anthamantha Oreoselinum in <i>coarse powder</i> | 100 g  |
| Purified Water                                  | 400 ml |
| Strong Alcohol                                  | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## ANTIMONIUM CHLORIDUM

(Ant. chlo.)

SbCl<sub>3</sub>

**Mol. wt.:** 228.13

- Common name** : *English:* Antimony trichloride.
- Description** : Colourless crystals or translucent crystalline masses; very deliquescent, very soluble in *alcohol*, in *chloroform* and undergoes hydrolysis in *water*. Contains not less than 99.0 percent of SbCl<sub>3</sub> calculated with reference to the substance dried to constant weight over *silica gel*.
- Identification** : Yields the reactions characteristic of *antimony*, HPI, Vol. I and of *chloride*, HPI, Vol. I.
- Melting point** : 72°.
- Sulphate** : 5 g complies with the limit test for sulphates, HPI, Vol. I.
- Arsenic** : Not more than 5 parts per million, HPI, Vol. I.
- Iron** : 2 g complies with the limit test for iron, HPI, Vol. I.
- Assay** : Dissolve about 0.5 g, accurately weighed in 5 ml of 10% *hydrochloric acid*. Add a solution of 4 g of *potassium sodium tartrate* in 20 ml of *water*, 2 g of *sodium bicarbonate* and titrate immediately with 0.1N *iodine* using *starch* as indicator. Each ml of 0.1 N *iodine* is equivalent to 0.01141 g of SbCl<sub>3</sub>.
- History and authority** : Allen: *Encyclop. Mat. Med.*, Vol. I, 362; Hering: *Guiding Symptoms*, Vol. I, 351.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |  |       |
|--|-------|
| Antimonium Chloridum in <i>coarse powder</i> | 100 g |
| Saccharum Lactis                             | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I
- Caution** : Not to be dispensed below 3x.
- Storage** : Preparation below 6x to be stored in a well closed container protected from moisture and light.

**AQUA MARINA**

(Aqua. mar.)

- Common name** : *English*: Sea-water.
- Description** : Clear colourless liquid with saline taste. Collected about 10 km away from the sea-shore and about 2 m below surface in sterile glass containers. Contains 8.51 g/l of sodium. 0. 405 g/l of sulphate and traces of bromides and of iodides. It is alkaline to litmus.
- Identification** : Yields the reactions characteristic of *calcium magnesium, potassium, sodium, iodides* and *sulphates*, HPI and of *bromides*, HPI.
- Residue on evaporation** : Not less than 36 percent.
- History and authority** : Proved by Wesselhoeft, *trans Am. Inst. of Hom.* Sec. 2, 170, 1871; Allen: *Encyclop. of Mat. Med.*, Vol. I, 431; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 150. Also proved by Shankaran; Julian: *Dictionary of Mat. Med.* 206.
- Preparation** : (a) Mother Solution Drug strength 1/10  
                   Aqua Marina 100 ml  
                   Purified Water in sufficient quantity  
                   to make one thousand millilitres of the Mother Solution.
- (b) Potencies: 2x and 3x to be freshly prepared with Purified Water; 4x and 5x with Dilute Alcohol; 6x and above with *Dispensing Alcohol*.

## ARSENICUM BROMATUM

(Ars. brom.)

AsBr<sub>3</sub>

**Mol. wt.:** 314.63

**Common names** : *English:* Arsenious bromide; *French:* Bromide d arsenic; *German:* Arseikbromur.

**Description** : Deliquescent, orthorhombic prisms. Soluble in *ether* and *benzene*. Decomposed by *water* with the formation of As<sub>2</sub>O<sub>3</sub> and HBr. Contains not less than 95 percent with reference to the substance dried over silica gel preferably under vacuum.

**Identification** : Yields the reactions characteristic of *arsenic*, HPI, Vol. I, 226 and *bromides*, HPI, Vol. III

**Assay** : Dissolve about 0.25 g accurately weighed in 100 ml *water*. Take 25 ml of this solution and titrate with 0.1N *potassium hydroxide solution* using *methyl orange* as indicator. Each ml of 0.1 N *potassium hydroxide* is equivalent to 0.01053.g of AsBr<sub>3</sub>.

**History and authority** : Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 187; Boericke: *Mat. Med. with Repertory*, 83.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Arsenicum Bromatum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**ASCLEPIAS INCARNATA**

(Asclep. i.)

- Botanical name** : *Asclepias incarnata* Linn. **Family:** Asclepiaceae
- Common names** : *English:* Swamp milkweed; *French:* Asclepia de incarnate; *German:* Fleisch-barbige schwalbenwurzel.
- Description** : A perennial deciduous herb with a thick deep root stock. Rhizome oblong, 2.5 cm in diameter, knotty, surrounded with rootlets, 10 to 15 cm long. Stem erect upto 1 m in height, branched above, very leafy; leaves opposite, petiolate, oblong-lanceolate, hairy, acute, cordate at base, 10 to 18 cm long, 2.5 to 5 cm wide. Flowers rose-purple, fragrant, in terminal-crowded umbels, 2 to 6 on a peduncle, 5 cm long consisting of 10 to 20 small flowers. Fruit a pod, glabrous and erect.
- Part used** : Root.
- Macroscopical** : Yellow-brown externally and whitish internally; 10 to 15 cm long. Bark thin. Wood with fine medullary rays, exudes a milky juice with a heavy odour, which is lost on drying.
- Identification** : Take 25 ml of 70 percent alcoholic extract of the drug. Evaporate on a water-bath to remove *alcohol* and divide in two equal parts. Extract first part with *chloroform* and separate the aqueous (test solution A) and reject the chloroform layer.
- Extract the second part with *chloroform* after making alkaline with *ammonium hydroxide* solution and separate the chloroform layer (test solution. B.)
- (i) Carry out TLC of test solution A on *silica gel 'G'* using *n-butanol : acetic acid : water* (4:1:1 v/v) as mobile phase and *aniline phthalate* as spray reagent. On heating at 100° for fifteen minutes two brown coloured spots appear at  $R_f$  0.13 and 0.70.
- (ii) Carry out TLC of test solution B on *silica gel 'G'* using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase. A spot gives blue fluorescence under UV light and red colour with *Dragendroff's reagent* at  $R_f$  0.85
- Distribution** : North America.
- History and authority** : Introduced by Hale, *New Rem.* 2nd Ed. 1966, 99, *Homoeopathic Pharmacopoeia of the United states* 7th Ed., 137.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Asclepias Incarnata in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 340 ml |
| Strong Alcohol                              | 735 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**ASPIDOSPERMA**

(Aspidos.)

- Botanical name** : *Aspidosperma quebracho blanco* Schlecht. **Family:** Apocynaceae
- Common names** : *English:* Quebracho blanco; *French:* Quebacho.
- Description** : An evergreen tree up to 33 m in height. Stem erect with wide spreading crown.
- Part used** : Bark.
- Macroscopical** : The drug occurs in broken, irregular, nearly flat or partially quilled pieces usually up to 10 cm in length, 7 cm in width and 3.5 mm in thickness. Cork layer from 3 to 25 m in thickness; greyish to reddish-brown, deeply furrowed, frequently netted with shallow transverse and longitudinal fissures; outer surface when deprived of cork in light-brown or reddish-brown; inner surface pale-yellowish or reddish brown, finally striated longitudinally often with adhering wood; fracture short fibrous with projecting bast-fibres. Odour indistinct; taste bitter and aromatic.
- Microscopical** : Transverse section shows: Cork, a very broad zone of polygonal somewhat lignified reddish-brown cells; cork cambium of meristematic cells. Cortex consisting of a matrix of starch and tannin containing parenchyma cells, amongst which are scattered large groups of stone cells and sclerenchyma fibres. Phloem a broad zone of sieve tubes, companion cells and parenchyma separated into irregular phloem patches by starch containing phloem rays of 1 to 5 cells in breadth. Embedded in phloem are large groups of stone cells with interspersed bast fibres. Sclerenchyma fibres groups of both cortex and phloem more or less surrounded by crystal fibres, the cells of which contain monoclinic prisms, starch grains in cortex and phloem rays simple or 2 to 4 compound grains in other regions of spheroidal, plane-convex or irregular outline and up to 25 µ in diameter.
- Identification** : Concentrate 5 ml alcoholic extract on a water bath to 1 ml and carry out Co-TLC with Yohimbine using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase and spray with *Dragendorff's reagent*; spot corresponding to Yohimbine appears.
- Distribution** : Indigenous to dry central and western district of Argentina.
- History and authority** : Proved and introduced by Hale; Clarke: *A Dict. of Practical Mat. Med.*, Vol. III, 941; Blackwood *Materia Medica, Therapeutics and Pharmacology*, 160; Anshutz: *New, Old and forgotten Remedies*.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Aspidosperma in *coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- (c) Trituration 1x Drug strength 1/10  
 Aspidosperma in *fine powder* 100 g  
 Saccharum Lactis 900 g  
 to make one thousand grammes of the Trituration.
- (d) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I

**ASTACUS FLUVIATILIS**

(Ast. flu.)

- Zoological name** : *Astacus fluviatilis* Fabricius. **Family:** Astacidae
- Synonym** : *Penaeus setiferus* Linn; *Litopenaeus setiferus* Linn.
- Common names** : *English:* Crawfish; *French:* Ecnevissa d’ pieds rouges.
- Description** : The body is divided in cephalothorax and an abdomen. The cephalothorax being anterior, unjointed, covered by a carapace, while the abdomen is divided into distinct mobile segments. The carapace forms a flap or gill cover. Branchiostegite one on each side of the thorax accommodating 8 gills on each side is composed of a laminated chitin protein complex strongly impregnated with calcium carbonate. The abdomen is made up of 6 segments and a terminal telson. Segments have a ring-like form presenting a broad dorsal region—the tergum, a narrow ventral region—the sternum and downwardly directed lateral processes the pleura. The telson is flattened horizontally and divided by a transverse groove into anterior and posterior portions. Below the telson are found two pairs of fin-like structures-uropodes, 1 on each side. Thoracic region is immovable due to carapace with no distinction of segments dorsally and laterally but on ventral aspect marked by transverse groove. The hindmost sternum slightly movable. Of the 8 thoracic segments the anterior three bear maxillipeds lying behind head appendages. Head with no sign of segmentation with sternal region formed largely of a shield-shaped plate, the epistoma, nearly vertical in position. Epistoma bounded laterally by free edge of the carapace. Cephalic region of the carapace is prolonged in front into a medium rostrum, immediately below which is a plate from which spring 2 movable articulated cylindrical eye-stalks bearing eyes at their ends.
- Part used** : Whole animal.
- Microscopical** : Powder shows elongated thin walled cells bearing numerous oval pits on their walls; numerous hexagonal chitinous cells; hard bony pieces totally absent. In cross sections chitinous coverings like carapace and that of abdominal tergum and sternum show several layers of elongated sinuate cells.
- Distribution** : Gulf of Mexico and Atlantic coast.
- History and authority** : Introduced and proved by Buchner in 1842; Hering: *Guiding Symptoms*, Vol. I, 237; Clarke: *A Dict. of Pract. Mat. Med.*, Vol. I, 216.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Astacus Fluviatilis in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

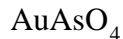
**ATISTA RADIX**

(Atis. rad.)

- Botanical name** : *Glycosmis pentaphylla* Correa. **Family:** Rutaceae
- Common name** : *Hindi:* Ban Nimbu.
- Description** : A small evergreen, glabrous, fragrant shrub. Leaves 3 to 5 foliate, rarely 1-foliate dark green. Flowers small, white, fragrant in erect terminal or lateral pubescent, panicles, ovary usually 5-celled, glabrous, covered with projecting glands and short style. Fruit a berry, 8 mm across. Subglobose or somewhat compressed, white pink or blue.
- Part used** : Root.
- Microscopical** : Transection shows a well defined rhytidome, a secondary cortex containing oval ducts; a wide secondary phloem containing patches of bast alternating with phloem parenchyma, a cylinder of xylem containing lignified 1 to 2 seriate ray cells containing starch grains, vessels and fibres.
- Distribution** : India in tropical and sub-tropical Himalayas particularly in Assam, West Bengal and Orissa.
- History and authority** : Ghose: *Drugs of Hindoosthan*, 181.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Atista Radix, moist magma containing solids 100 g and plant moisture 86 ml | 186 g  |
| Strong Alcohol   | 950 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**AURUM ARSENICICUM**

(*Aur. ars.*)



**Mol. wt.:** 335.92

- Common name** : *English:* Gold Arsenate.
- Description** : Brownish-yellow crystalline powder. Odourless; slightly soluble in *water*, soluble in *hydrochloric acid* and insoluble in *alcohol*. Contains not less than 98.0 percent of  $AuAsO_4$  with reference to the substance dried to constant weight at 105°.
- Identification** : Yields the reaction characteristic of *gold*, HPI, Vol. I and of arsenates.
- Chloride** : Not more than 20 parts per million HPI, Vol. I
- Heavy metals** : Not more than 10 parts per million, HPI, Vol. I
- Loss on drying** : Not more than 0.5 percent.
- Assay** : Dissolve about 0.3 g accurately weighed in 10 ml 1 N *hydrochloric acid*, add 1 N *sodium hydroxide* till alkaline and 20 ml of *hydrogen peroxide solution*, boil until excess *hydrogen peroxide* is decomposed; acidify with dilute *hydrochloric acid*. Filter the precipitate, wash with *water*, dry and ignite to constant weight and weigh. Each g of precipitate is equivalent to 1.7052 g of  $AuAsO_4$ .
- History and authority** : Proved by Chrestien; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 223.
- Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Aurum Arsenicum 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method; HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I

**AURUM IODATUM**

(Aur. iod.)

AuI<sub>3</sub>

**Mol. wt.:** 577.68

- Common names** : *English:* Gold triiodide; *French:* Iodure d or; *German:* Goldiodid.
- Description** : A dark green crystalline salt having a strong metallic taste. Sparingly soluble in *potassium iodide* solution. Highly unstable, decomposes to gold monoiodide and further decomposes on warming leaving a residue of metallic gold. Contains not less than 34 percent of Au.
- Identification** : Yields the reactions characteristic of *gold* and *iodides*, HPI, Vol. I,
- Arsenic** : Not more than 2 parts per million, HPI, Vol. I
- Lead** : Not more than 10 parts per million, HPI, Vol. I
- Heavy metals** : Dissolve 0.5 g in 5 ml of dilute *hydrochloric acid*, add *ammonium hydroxide* solution to bring pH between 3 to 4 and dilute to 25 ml. The *limit for heavy metals* is not more than 0.1 parts per million, HPI, Vol. I
- Assay** : Dissolve about 0.5 g accurately weighed in 50 ml of *water*, add 10 ml of 0.1 N *sodium hydroxide* and 10 ml of *hydrogen peroxide* solution. Boil until the excess of *hydrogen peroxide* is destroyed. Acidify with dilute *hydrochloric acid*, filter off the precipitated gold, wash with *water*, dry and ignite to constant weight. It should not weigh less than 0.170 g of Au.
- History and authority** : Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 224.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Aurum Iodatium   | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I
- Caution** : Preparation below 3x to be freshly made.
- Storage** : Preparation below 6x to be kept in cool and dry place protected from light.

**AVIAIRE**

(Aviaire)

**Microbiological name** : *Mycobacterium avium*. Chester 1901.

**Common name** : *Avian tubercle* Bacillus.

**Source for the preparation of Homoeo drug** : It is isolated from tubercles in fowls.

**Morphology cultural characteristic** : Short to long rods. Dilute inoculation inspissated egg media yield usually smooth non-pigmented colonies after 7 or more days of incubation at 37°. On aging, colonies may become yellow. On *oleic acid* albumin agar, smooth, thin, transparent lobed nonpigmented colonies. Occasionally rough strains are encountered.

**Resistance** : It is resistant to usual chemotherapeutic agents like isoniazid, PAS, streptomycin Thiosemicarbazone and ethionamide with partial exception of cycloserine.

**Biochemical** : Niacin test negative, fails to reduce nitrates, amidase test negative for urea, Acetamide, Benzamide. Neutral red reaction positive, Arylsulphatase test negative.

**History and authority** : Introduced by Cartier; Clarke: *A Dict. of Pract. Mat. Med.*, Vol. I, 235; Anshutz: *New, Old and forgotten remedies*, 41.

**Biological distribution** : It is widely distributed as the causal agent of tuberculosis in birds, rarely found in soil.

**Preparation** : (a) It comes under class II. It is obtained as suspension consisting of twenty billion bacteria per ml. Proceed according to General Instructions for preparation of Nosodes Group N 11 to obtain 1x.

(b) Trituration 2x	Drug strength 1/10
Aviaire	10 g
Saccharum Lactis	900 g
to make one thousand grammes of the Trituration.	

(c) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I

**Storage** : Preparation below 6x should be stored at a temperature about 5° but should not be allowed to freeze.

**Caution** : Handle with care and follow aseptic condition up to 6x.



**BOLDO**

(Boldo)

- Botanical name** : *Peumus boldus* Molin. **Family**: Monimiaceae
- Synonyms** : *Boldea fragrans* Gay; *Peumas fragran* Pers; *Ruizia fragrans* Ruiz & Pav.
- Common name** : *English*: Boldea.
- Description** : An evergreen tree or large shrub, up to 6 m in height. Leaves opposite, about 5 cm long, leathery, rough and warty, coriaceous with prominent midrib and a number of distinct small gland dots on their surface. Plant dioecious. Male flowers with 10 to 12 perianth lobes, overlapping in 2 to 3 series, the outer ones herbaceous or membranous; the inner ones more petal like, stamens numerous; female flower smaller, the lobes more unequal after anthesis circumsessile above the disc bearing base and deciduous. Fruit a drupe, in groups of 2 to 5, rarely solitary, stipitate on the receptacle; seed pendulous.
- Part used** : Leaf.
- Macroscopical** : About 5 cm long, entire, reddish-brown when dried, coriaceous with prominent mid-rib, a number of prominent oval dots on both surface. Odour peculiar aromatic when crushed; taste pungent.
- Microscopical** : Epidermis single layer of thick, walled papillose cells in the midrib, tangentially elongated cells in the lamina; stomata on lower epidermis; trichomes on both surfaces, 52 to 64 by 40 to 48, both unicellular and multicellular, latter articulated and branched; collenchyma 1 to 2 layered below the upper epidermis in lamina; mesophyll of 1 to 2 layered palisade and a spongy tissue of parenchyma cells with brown tannin matter and large characteristic oval, isodiametric air spaces. Midrib, collenchyma on both sides of the vascular bundle followed by thick-walled, oval parenchymatous cells, some with brown tannin contents; stele ensheathed by 2 to 3 layered sclerenchyma; central vascular bundle arc shaped with two accessory bundles one at each end of the arc. Accessory bundles with adaxial phloem.
- Petiole: Epidermis single layer of papillose cells bearing unicellular thick-walled trichomes in groups; collenchyma angular 2 to 3 layered, ground tissue of thick walled parenchymatous cells, several being characteristically large, oval. Vascular bundles in an arch and ensheathed by 1 to 2 layers of thick walled, mostly sclerenchymatous cells. Accessory bundles two, one at each end of the central bundle.

**Identification** : Evaporate 20 ml of 50 percent alcoholic extract on water-bath to remove alcohol. Make the aqueous residue alkaline with *ammonia* and extract with  $3 \times 20$  ml *chloroform*. Concentrate the combined *chloroform* extracts to 1 ml and carry out Co-TLC with boldine using *chloroform* : *methanol* (9:1 v/v) as mobile phase and *Dragendorff's reagent* as spray reagent. Spot corresponding to boldine is observed.

**Distribution** : Chile and Peru.

**History and authority** : Boericke: *Mat. Med. with Reportory*, 468.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Boldo in <i>coarse powder</i>	100 g
Purified Water	500 ml
Strong Alcohol	537 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## CADMIUM BROMATUM

(Cad. brom.)

CdBr<sub>2</sub>

Mol. wt.: 272.22

**Common names** : *English*: Cadmium bromide; *French*: Bromure de Cadmium; *German*: Brom Cadmium.

**Description** : Hexagonal, pearly flakes; highly hygroscopic. Soluble in *water* and in *alcohol*. Contains not less than 98.0 percent CdBr<sub>2</sub> with reference to the substance dried to constant weight at 105°.

**Identification** : Yields the reactions characteristic of *cadmium*, and of *bromide*, HPI, Vol. III.

**Water insoluble matter** : Dissolve 10 g in 50 ml *water* and heat on steam-bath for 1 hour. Filter any undissolved residue, wash and dry at 105°. The insoluble matter is not more than 0.5 mg.

**Sulphate** : Dissolve 2 g in 10 ml *water*; add 1 ml 0.1 N *hydrochloric acid* and 2 ml *barium chloride* solution. Any resulting turbidity is not greater than that compared in a blank to which 0.1 mg of *barium sulphate* has been added.

**Assay** : Dissolve about 0.3 g accurately weighed in 50 ml of *water*, add 3 drops of *xynol orange* indicator solution and one drop dilute *sulphuric acid*. The colour of the solution turns to yellow. Now add *hexamine* until the colour is deep red. Titrate with 0.05 M EDTA solution until the colour changes from red to yellow. Each ml of 0.05 M EDTA is equivalent to 0.01361 g of CdBr<sub>2</sub>.

**History and authority** : Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 327; Boericke: *Mat. Med. with Reportory*, 140.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
   Cadmium Bromatum 100 g  
   Saccharum Lactis 900 g  
   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I

**CAESALPINIA BONDUCELLA**

(Caes. bon.)

**Botanical name** : *Caesalpinia bonducella* Fleming.**Family:** Leguminosae (Fabaceae)**Synonym** : *Caesalpinia crista* Linn.**Common names** : *Hindi:* Karanju; *English:* Bonduc nut.**Description** : A climbing prickly shrub. Branches grey, downy, armed with hooked and straight hard yellow prickles. Leaves 30 to 60 cm long; petioles prickly; stipules in the form of a pair of reduced pinnae at the base of the leaf, each furnished with a long mucronate point; pinnae 6 to 8 pairs, 5 to 7.5 cm long. Leaflets 6 to 9 pairs, 2 to 3.8 by 1.3 to 2.2 cm, membranous, elliptic-oblong, obtuse, strongly mucronate, glabrous above, more or less puberulous beneath. Flowers in long-peduncled terminal and supra-axillary racemes, dense at the top, lax downwards, 15 to 25 cm long, pedicles 5 to 8 mm, brown, downy; bracts squarrose, linear, acute, 1 cm long, fulvous-hairy. Petals oblanceolate, yellow. Filaments declinate. Fruit a pod, shortly stalked, oblong, 5 to 7.5 cm × 4.5 cm, densely armed on the faces with wiry prickles. Seed 1 to 2, grey, oblong, 1.3 cm long.**Part used** : Seed.**Macroscopical** : Seed almost globular, 1.2 to 2 cm in diameter, grey, hard, with a smooth shiny surface. The shell is thick and brittle, enclosing a yellowish-white, bitter, fatty kernel.**Microscopical** : Testa in transection from above downwards consists of a single layer of conspicuous, straight, rod shaped, thick walled, suberised cells having narrow lumen; a wide zone of 40 to 50 layers of thick walled, oval, isodiametric, parenchymatous cells with brown cellular contents, upper 2 to 3 layers of which are compactly arranged; a small strip of vascular strands; a small zone of thin walled polygonal parenchyma cells. Embryo of two cotyledons, each of which is made up of polygonal parenchyma cells, containing oil globules.**Distribution** : Throughout India up to 2000 m. Most common particularly along the sea-coast of West Bengal, Southern India and up to 850 m on the hills.

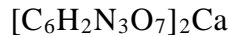
**History and authority** : Ghose: *Drugs of Hindoosthan*, 114; Basu, *Bharatiya Aushadhavaleeka*, 7th edition 62.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Caesalpinia Bonducella in *coarse powder* 100 g  
Purified Water 400 ml  
Strong Alcohol 635 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x with Dilute Alcohol; 3x and higher with *Dispensing Alcohol*.

**CALCAREA PICRATA**

(Cal. pic.)



**Mol. wt.** 496.00

**Common name** : *English*: Calcium trinitrophenolate.

**Description** : Yellow rhombic odourless crystals. Soluble in *alcohol*; slightly soluble in *water*. Contains not less than 90 percent of  $C_{12}H_4N_6O_{14}Ca$  with reference to the substance dried to constant weight on silica gel.

**Identification** : Yields the reactions characteristic of *calcium*, HPI, Vol. I and *picrates*.

**Sulphate** : Dissolve 2.5 g in 50 ml of boiling *water* containing 5 ml *dilute hydrochloric acid*, cool and filter; 20 ml of the filtrate complies with the limit test for *sulphate*, HPI, Vol. I

**Assay** : Dissolve 2 g in hot *water* and titrate with 0.5 N *sodium hydroxide*, using *phenolphthalein* solution as indicator. Each ml 0.5 N *sodium hydroxide* is equivalent to 0.1146 g of *picric acid*.

**History and authority** : Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 363.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Calcarea Picrata 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted liquid 8x, HPI, Vol. I,

**CALCAREA RENALIS**

(Cal. ren.)

- Common name** : *English*: Renal calculi.
- Description** : Consists of round ball shaped light brownish solid mass of variable size (1 mm to 10 mm); hard and brittle. Insoluble in *water*, soluble in mineral acids.
- Identification** : (i) A 1% *nitric acid* solution yields the reactions characteristic of *phosphate*, HPI, Vol. I
- (ii) A solution in dilute *hydrochloric acid* yields the reactions characteristic of *calcium* and *magnesium*, HPI, Vol. I
- (iii) Dissolve 0.1 g in dil. *sodium hydroxide solution*, add *copper sulphate solution* and *sodium bisulphite solution*; a white precipitate of cuprous urate appears.
- (iv) Mix one part of the solid with three parts by weight of *sodium carbonate* add 15 ml of *water* and boil for 10 minutes. Filter, acidify the filtrate with excess of *acetic acid* and add *calcium chloride* solution; a white precipitate of *calcium oxalate* is formed; filter, dissolve the precipitate in dilute *sulphuric acid* and warm. Now add a few drops of *potassium permanganate* solution and shake; the pink colour of solution is discharged.
- History and authority** : Proved by Bredenoll, *H. Recorder*, Aug, 1895; Clarke: *A Dict. of Pract. Mat. Med.*, Vol. I, 364.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Calcarea Renalis | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I

**CALCAREA SILICATA**

(Calc. sil.)

- Common names** : *English*: Calcium Silicate; *French*: Silicate de chaun.
- Description** : White or slightly cream coloured, free flowing powder. Practically insoluble in *water*. Forms monocalcium, dicalcium and tricalcium silicates in varying proportions. Contains not less than 31% w/w of calcium.
- Reaction** : Aqueous slurry is alkaline to litmus.
- Identification** : Yields the reactions characteristic of *calcium* and *silica*, HPI, Vol. I
- Assay** : Take about 0.5 g accurately weighed in a platinum crucible and fuse with 2 g fusion mixture. Dissolve the residue in 25 ml *dilute hydrochloric acid*; filter and wash the residue with *distilled water* and make up the volume to 100 ml. Pipette out 50 ml of the solution to a suitable container, add 100 ml *water* and neutralise with *sodium hydroxide solution* add 2 ml of buffer solution of pH-10 (*ammonia ammonium chloride buffer*), 1 ml of 0.1 M *magnesium sulphate* and 3 to 4 drop of Eriochrome black-T as indicator, titrate with 0.01 M EDTA solution until the colour changes from wine-red to clear blue. From the volume of 0.01 M EDTA subtract the volume of 0.01 M *magnesium sulphate*. Each ml of 0.01 M EDTA is equivalent to 0.00040 g of calcium.
- History and authority** : Introduced by Usher, *H.W.* XXXIV, 491; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 364.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                   |       |
|-------------------|-------|
| Calcarea Silicata | 100 g |
| Saccharum Lactis  | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I



**CAMPHORA BROMATA**

(Camph. b.)

$C_{10}H_{15}BrO$

**Mol. wt.:** 231.13

**Common name** : *English:* 3-bromo camphor.

**Description** : Colourless crystals or prismatic needles with persistent camphoraceous odour and taste. Freely soluble in *alcohol*, almost insoluble in *water*.

**Identification** : (i) *Sodium amalgam* reduces it to camphor melting range 174° to 177°.

(ii) When heated with *silver nitrate* and *nitric acid* it decomposes with production of yellow precipitate.

**Melting range** : 74° to 76°, HPI, Vol. I

**Ash value** : Not more than 0.50 percent, HPI, Vol. I

**Soluble bromides** : Shake 0.5 g with 10 ml *water*. Yields a filtrate which is neutral to *litmus* and produces no appreciable opalescence on the addition of *silver nitrate solution*.

**History and authority** : Introduced by Cooper; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 375.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Camphora Bromata 100 g

Saccharum Lactis 900 g

to make one thousand grammes of the Trituration

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted into liquid 8x, HPI, Vol. I

**Storage** : Preparations below 6x to be kept in well closed containers protected from light.

Revised Monograph Appeared in HPI Vol. IX

**CANNA**  
(Canna)

- Botanical name** : *Canna flaccid* Salisb. **Family**: Cannaceae
- Synonyms** : *Canna glauca* Walt; *Canna angustifolia* Walth.
- Common names** : *English*: Wild plantain; *French*: Salisier; *German*: Blumenrohr.
- Description** : Perennial herb, up to 2 m in height. Stem green and glabrous, very leafy below. Leaves ovate-lanceolate to narrowly elliptic, acute, green. Racemes simple, lax; bracts very small; sepals lanceolate or oblong, acuminate, 2.5 cm long, green; petals broadly linear-lanceolate to obovate and reflexed up to 7.5 cm long by 3.8 cm broad; lip large, yellow.
- Part used** : Leaf.
- Identification** : Evaporate 20 ml of 70 percent alcoholic extract on a water-bath to dryness. Extract it with petroleum ether, dissolve the residue in methanol. Carry out TLC of methanolic extract using *n-butanol* : *acetic acid* : *water* (4:1:1 v/v) as mobile phase and *aluminium trichloride* as spray reagent; three spots at  $R_f$  0.70 (yellow), 0.75 (greenish) and 0.92 (blue) appear under UV light.
- Distribution** : Brazil and other South American countries.
- History and authority** : Introduced by Mure; Allen: *Encyclop. Mat. Med.*, Vol. II, 447.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   *Canna* in *coarse powder* 100 g  
                   Purified Water 300 ml  
                   Strong Alcohol 730 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CARBONIUM HYDROGENISATUM**

(Carb. hyd.)

C<sub>2</sub>H<sub>4</sub>

**Mol. wt.:** 28.05

**Common names** : *English:* Ethylene; *French:* Etyhelene.

**Description** : Olefient gas, irrespirable; colourless; odour faint ethereal. Slightly soluble in *water*, soluble in *alcohol*. Alcoholic solution is colourless with faint odour. When mixed with oxygen and fired, explodes with extreme violence. Contains not less than 0.025 percent w/v of C<sub>2</sub>H<sub>4</sub>.

**Preparation** : Mix one volume of *alcohol* with four volume of *sulphuric acid* add sufficient quantity of sand to make thick paste in the flask, pass the evolved gas successively through wash bottles of *potassium hydride* and *sulphuric acid*. Reject the initial gases and dissolve the gas into a measured quantity of absolute *alcohol*.

**Identification** : 1. Mix equal volume of chlorine gas with it in dark; forms a heavy oily liquid having sweetish taste and ethereal odour.  
2. Take about 5 ml alcoholic solution; add a few drops of *bromine* solution; it decolourises.

**Assay** : Take about 10 g solution accurately weighed into a stoppered flask and add 25 ml *chloroform*, 25 ml *iodine mono chloride* and swirl the flask; keep it in dark for 15 to 20 minutes. Rinse the stopper with *chloroform* and add 20 ml 15 percent *aqueous solution of potassium iodide*. Determine the liberated *iodine* by titrating with 0.05N *sodium thiosulphate solution* using *starch* as indicator. Carry out blank determination omitting sample and find out the difference equivalent to 0.0014 g of C<sub>2</sub>H<sub>4</sub>.

**History and authority** : Introduced and proved by Davy; Allen: *Encyclop. Mat. Med.*, Vol. II, 686; Clarke: *A Dict. of Pract. Mat. Med.*, Vol. I, 497.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10000  
Carbonium Hydrogenisatum 400 ml  
Saturated solution in absolute alcohol  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 5x and higher with *Dispensing Alcohol*.

**CASSIA SOPHORA**

(Cass. sop.)

- Botanical name** : *Cassia sophera* L. **Family:** Fabaceae (Leguminosae)
- Synonym** : *Cassia sophera* Auct.
- Common names** : *Hindi:* Kasunda, Baner.
- Description** : A shrub, glabrous or nearly so, 3 m in height. Leaf compound, leaflets 8 to 12 paired, oblong-lanceolate, acute or tapering; rachis with a single gland at the base. Flowers yellow, corymbose racemes; bracts thin, ovate-acuminate, caducous; pedicel spreading, 1.25 to 2 cm; sepals obtuse glabrous, petals 6 to 7, 1.3 cm, yellow conspicuously veined. Fruit a pod, 2-valved, curved, thinly coriaceous, turgid subterete, 5 to 12 cm long 6 to 10 mm in diameter, transversely septate. Seeds 30 to 40, broadly ovoid, compressed and dark brown.
- Part used** : Root.
- Microscopical** : Transection shows 6 to 8 layers of cork cells followed by 10 to 14 layered cortical parenchyma scattered through which are found numerous groups of thick walled lignified cells, containing rhomboidal crystals; phloem small, cambium restricted at places and a solid cylinder of xylem made up of lignified fibres, tracheids and large oval vessels. Xylem vessels have reticulate thickenings and bordered pits while tracheids possess bordered pits.
- Identification** : Evaporate 20 ml of 55 percent *alcoholic* extract on a water bath to remove alcohol make it alkaline with *ammonia* solution and extract with chloroform (2 × 20 ml). Combine the *chloroform* extract and concentrate to 5 ml. Carry out TLC by using *chloroform* : *methanol* (95 : 5 v/v) as mobile phase. Under UV light, three spots appeared at  $R_f$  0.55 (grey), 0.63 (blue) and 0.97 (red). On spraying with *cupric acetate*; a red spot appears at  $R_f$  0.97.
- Distribution** : Throughout India.
- History and authority** : Basu: *Bhartiya Aushdhabalik*, 6th Ed., 218. Proved by Central Council for Research in Homoeopathy.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Cassia Sophora, moist magma containing solids 100 g and plant moisture 450 ml | 550 g  |
| Strong Alcohol  | 580 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CEREUS BONAPLANDI**

(Cer. bon.)

**Botanical name** : *Cereus bonaplandi* Parm. ex Pfeiff **Family:** Cactaceae

**Synonym** : *Cactus bonplandii* Kunth.

**Description** : An ever green under shrub. Stem first upright later clamoring, 2.25 to 3.37 cm in diameter, branching and spreading, young branches bluish or purplish-green, later grey-green, ribs 4 to 6, sharp, compressed, crenate, separated by broad, concave, faces, commonly running around the axis of stem, areoles 1.2 to 3.37 cm apart first considerably depressed, later shallower, white becoming grey. Radical spines 4 to 6, straight spreading 1.2 to 2.45 cm, stout, subulate, pointed; the under one needle-form and short; central one solitary, straight, 2.45 cm, long, deflexed or porrect; the stronger spines white on tips but bases brown, when young beautiful ruby-red, later grey with back tips and bulbous base. Flowers from lateral areoles, about 25 cm long, white nocturnal. Fruit nearly spherical, about 5 cm in diameter mammary, dark carmine red.

**Part used** : Stem.

**Distribution** : Paraguay, Brazil, Argentina and other Countries in tropical America.

**History and authority** : Introduced and proved by Fitch; Allen: *Encyclop. Mat. Med.*, Vol. III, 80; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 449; Boericke: *Mat. Med. with Reportory*, 9th Edn. 186.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Cereus Bonaplandi* in coarse powder 100 g  
Purified Water 567 ml  
Strong Alcohol 478 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CITRUS VULGARIS**

(Aurant.)

- Botanical name** : *Citrus vulgaris* Risso. **Family:** Rutaceae
- Synonym** : *Citrus aurantium* Linn.
- Common names** : *Hindi:* Khatta; *English:* Bitter orange peel; *French:* Ecorce or zeste oranges Ameres; *German:* Pomeranzenschale.
- Description** : Arboraceous, rarely shrubby, young shoots, glabrous, greenish-white. Leaves 1-foliolate, leaflet glabrous, 7 to 16 cm, elliptic or ovate, acuminate, petiole usually winged, wings often obovate as large as the leaflet or nearly so. Flowers large, pure white, strongly scented, bisexual; stamens 15 to 30. Fruit globose, often depressed 6 to 10 cm.
- Part used** : Fruit peel (with oil glands which are present below the epidermis).
- Identification** : Evaporate 20 ml of 70 percent alcoholic extract to remove alcohol, extract it with 3 × 20 ml *chloroform*, concentrate the chloroform extract to 2 ml and carryout Co-TLC with an authentic sample of hesperatin on silica gel ‘G’ using *chloroform : methanol* (9:1 v/v) as mobile phase and 1 percent *alcoholic aluminium chloride* as spray reagent. On Co-TLC one spot corresponding to standard hesperatin appears.
- Macroscopical** : Fresh peel consists of the outermost part of pericarp with as little as possible of the white pithy part or “zdst” which latter is devoid of volatile oil, but contains most of bitter principle, large about 0.3 to 0.5 mm in diameter, numerous small projections on the outer surface of the fresh peel.
- Distribution** : Cultivated throughout India.
- History and authority** : Proved and introduced by Goubeyre; Allen: *Encyclop. Mat. Med.* Vol. III, 337; Clarke: *A Dictionary of Pract. Mat. Med.* Vol. I, 223; Hering: *Guiding Symptoms*, Vol. II, 268.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
     Citrus Vulgaris, moist magma containing  
     solids 100 g and plant moisture 250 ml 350 g  
     Strong Alcohol 765 ml  
     to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

## Revised Monograph Appeared in HPI Vol. X

**CLERODENDRON INFORTUNATUM**

(Cler. in.)

- Botanical name** : *Clerodendron infortunatum* Gaertn. **Family:** Verbenaceae
- Synonyms** : *Clerodendron infortunatum* Linn.; *Clerodendron viscosum* Vent.
- Common name** : *Hindi:* Bhand.
- Description** : A gregarious shrub, upto 2.5 m in height, yellow or white-villose upwards; branches bluntly quadrangular, clothed with yellowish silky pubescence. Leaves large, 10 to 25 cm by 9 to 20 cm, base cordate or obtuse, varying from round ovate to oblong, acuminate entire or denticulate, reticulately veined, thin hairy on both surfaces more strongly so on the nerves beneath; petiole 3.8 to 10 cm long cylindrical, hairy. Flowers on long pubescent pedicles, in loose villose terminal stalked cymes forming large pubescent panicles 15.0 to 30.5 to 10.0 to 20.5 cm erect, bracteate, upper branches and calyces more or less red; bracts leafy, deciduous ; calyx 1.3 cm long but much enlarged in fruit, divided upto about 3 mm of the base, segment broadly lanceolate, very acute, sub-erect, silky pubescent; corolla densely pubescent outside, white, tinged with pink, tube 2 cm long, slender, lobes exceeding 1 cm, oblong obtuse, corolla tubes projecting beyond calyx; filaments glabrous; ovary and style glabrous. Fruit a drupe, 8 mm in diameter, black nearly globose, seated on enlarged pink calyx, containing 1 to 4 pyrenes.
- Part used** : Leaf.
- Microscopical** : Dorsiventral transection through the midrib shows the absence of palisade projecting in meristele, discontinuous ring of xylem, broken mainly near the origin of lamina, vascular bundles capped by pericyclic fibres above the phloem. Pith parenchymatous, few cells of which contain square and rectangular calcium oxalate crystals. Laminal mesophyll differentiated into a layer of palisade and spongy parenchyma with irregular cell walls. Trichomes both uniseriate, multicellular base; peltate glandular with 4 celled head and unicellular base only on the lower epidermis; stomata anomocytic.



**Distribution** : Common throughout India.

**History and authority** : Ghose: *Drugs of Hindoosthan*, Ed. V, 112.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Clerodendron Infortunatum,  
moist magma containing solids 100 g  
and plant moisture 220 ml 320 g  
Strong Alcohol 800 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**COLEUS AROMATICUS**

(Col. ar.)

- Botanical name** : *Coleus aromaticus* Benth.      **Family:** Labiatae (Lamiaceae)
- Synonyms** : *Coleus amboinicus* Lour; *Coleus crasifolious* Benth; *Coleus sunanda* Blance.
- Common names** : *Hindi:* Pathorchur; *English:* Indian borage.
- Description** : A perennial herb, woody below, large, succulent hispidly villous or tomentose. Stem up to 90 cm in height, fleshy. Leaves 2.5 to 5 cm, petiolate, broadly ovate or cordate, crenate, fleshy, aromatic. Flowers in densely many-flowered dutant clusters or whorls small, about 2 mm in length, pale-purple short pedicelled; upper calyx lip ovate, acute, membranous, lower lip acuminate; corolla pale purplish, tube short, throat inflated, lips short, stamens shortly exerted. Fruiting calyx suberect. Taste pungent; odour aromatic like *Ajoine*.
- Part used** : Leaf.
- Microscopical** : In transection isobilateral, epidermis covered both with non-glandular, uniseriate, multicellular and glandular trichomes. Each non-glandular trichome at the base encircled by 5 to 6 parenchyma cells. Glandular trichomes peltate, which on the upper epidermis have both sessile and 1-celled stalked with globose bi-celled head, while on the lower surface they are sessile each bearing a wide orifice. Stomata diacytic on both surfaces. Collenchyma in the mid rib region below the epidermis. Mesophyll of radially elongated parenchyma cells containing starch grains and air spaces. Pits present on cell walls between mesophyll parenchyma cells. Midrib shows a circle of 5 to 6 conjoint collateral vascular bundles.
- Petiole in transection arc shaped in outline and shows a single layer of epidermis covered with non glandular, unicellular, uniseriate trichomes and glandular peltate trichomes. Collenchyma 2 to 3 layered below the epidermis ground tissue parenchymatous containing starch grains and raphides. Raphides more frequent in the central region. Meristele an arc of 4 to 5 conjoint, collateral, open vascular bundles.
- Distribution** : Cultivated in gardens of India and Sri Lanka.

**History and authority** : Ghose: *Drug of Hindoosthan*, Ed. VIII, 14.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Coleus Aromaticus, moist magma containing  
solids 100 g and plant moisture 540 ml 640 g

Strong Alcohol 500 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four part of Purified Water, five parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CORALLIUM RUBRUM**

(Coral. ru.)

- Zoological name** : *Corollium rubrum* L. **Family:** Coralliidae
- Synonym** : *Corollium nobile*.
- Common names** : *Hindi:* Munga; *English:* Red Coral; *French:* Corail rough; *German:* Rothe Koralle.
- Description** : Red coral and calcareous exoskeleton secreted by polyp. Much branched compact, solid, colour pink or red. Hard and brittle. Contains 83.0 to 91.0 percent of calcium carbonate and 6.5 to 7.1 percent of *magnesium carbonate*.
- Identification** : (i) Yields the reactions; characteristic of *calcium magnesium, iron, carbonate, sulphate* and of *phosphates*, HPI, Vol. I  
(ii) Using lens or microscope with an over head light, delicate straight, colour bands are seen which distinguish it from other imitations.
- Specific gravity** : 2.6 to 2.7
- Loss on drying** : Not more than 0.50 percent.
- Acid insoluble ash** : Not more than 2.6 percent.
- Organic matter** : When heated to high temperature in weighed silica crucible, loses not more than 2.0 percent.
- Assay** : Dissolve about 2.5 g accurately weighed in 50 ml *water* containing 10 ml *hydrochloric acid*; filter and make up the volume to 100 ml with *water*.

For calcium carbonate: Pipette 5 ml of the solution and neutralise with 1 N *sodium hydroxide*, add 10 ml strong *ammonia-ammonium chloride solution* and titrate with 0.05 M *EDTA* solution using *mordant black mixture* as indicator. From the volume of 0.05 M *EDTA* required subtract the volume equivalent to the amount of magnesium carbonate. Each ml of the remainder is equivalent to 0.05 g of CaCO<sub>3</sub>.

For magnesium carbonate: Pipette another 50 ml of the solution and neutralise with strong ammonia solution in excess, add *ammonium oxalate solution* and filter. To the filtrate add 10 ml strong *ammonia-ammonium chloride solution* and titrate with 0.05 M *EDTA* solution using 0.1 g *mordant black mixture* as indicator. Each ml of 0.05 M *EDTA* is equivalent to 0.004215 g of MgCO<sub>3</sub>.

**Distribution** : Mediterranean, Red Sea, shores of Japan, Mauritius, Malaya archipelago and Lakshadweep.

**History and authority** : Proved and introduced by Attomyr; Allen: *Encyclop. Mat. Med.*, Vol. III, 561; Hering: *Guiding Symptoms*, Vol. IV, 457.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Corallium Rubrum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, 6x may be converted to liquid 8x; 9x and higher with *Dispensing Alcohol*.

**CORNUS CIRCINATA**

(Corn. c.)

**Botanical name** : *Cornus circinata* L' Herit **Family:** Cornaceae

**Synonym** : *Cornus rugosa* Lam.

**Common names** : *English:* Round leaved dogwood; *French:* Cornouillera feuilles arrondies; *German:* Canadisches (Rund blatteriger) Kornel.

**Description** : A deciduous shrub, upto to 3 m in height. Stem with greyish bark, branches opposite straight and slender, younger green, blotched purple, while older purplish and warted. Leaves opposite, orbicular or broadly ovate, acute or short acuminate, slightly pubescent beneath, 5 to 15 cm long. Flowers white, perfect, in terminal, open in very spreading cymes. Fruit light blue or greenish-white.

**Part used** : Bark.

**Identification** : Extract 10 g with 100 ml of 50 percent *alcohol*. Filter, add *ammonia* and extract with *chloroform*. Carry out TLC of *chloroform* extract on silica gel G using *chloroform* as solvent system. Under UV light three blue spots appeared at  $R_f$  0.35, 0.50 and 0.95 and greenish-yellow spots appeared at  $R_f$  0.21, 0.65 and 0.69.

With *antimony trichloride solution*, spots at  $R_f$  0.35, 0.69 and 0.95 turn light brown, spot at  $R_f$  0.65 turn pinkish violet and spots at  $R_f$  0.21 and 0.50 turn blue.

**Distribution** : North America.

**History and authority** : Proved by Marcy Crane, Fullgraff and Freeman; *N. Am. J. of Hom.* 3, 278; Allen: *Encyclop. Mat. Med.*, Vol. III, 505.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Cornus Circinata in *coarse powder* 100 g

Purified Water 400 ml

Strong Alcohol 635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, three parts of Purified Water, six parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**DATURA ARBOREA**

(Dat. arb.)

- Botanical name** : *Datura arborea* Linn. **Family:** Solanaceae
- Synonym** : *Bruomansia candida* Stend.
- Common name** : *English:* Tree stramonium.
- Description** : An ornamental evergreen tree, upto 3 m in height with pubescent stalks and branches. Leaves ovate-lanceolate, pubescent, in pairs, one shorter than the other; margin entire, petiole about 2.5 cm or more in length. Flowers pendulous with musk-like odour, axillary, white within and pale yellow outside; calyx tubular, spatulate, acuminate; corolla trumpet-shaped, tube-terete, the lobes of the limb very long; stamen 5, all perfect anthers distinct. Fruit a capsule, large, 2-celled, mostly prickly or spiny, 4-valved at the top with many seeds.
- Part used** : Flower.
- Macroscopical** : Flowers axillary pendulous, white within, pale yellow outside, with a musk-like odour. Calyx tubular entire, spathe-like, acuminate, corolla tube terete, the lobe of the limb very long, anthers distinct.
- Identification** : Take 25 ml of 75 percent alcoholic extract, make it alkaline with a few drops of *ammonium hydroxide* solution and extract three times with 20 ml of *solvent ether* each time. Wash with *water* the combined *ether* extract, evaporate the *ether* and dissolve the residue in 2 ml *alcohol*.
- Take one drop in a porcelain crucible and add one drop of fuming *nitric acid* and evaporate; residue is colourless. The residue when moistened with freshly prepared alcoholic potassium *hydroxide* solution shows purple colour.
- Distribution** : Indigenous to Peru and Chile, sometimes cultivated in gardens.
- History and authority** : Introduced by Poulscas, Med. Invest, 9, 261; Allen: *Encyclop. Mat. Med.*, Vol. IV, 68; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 688.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Datura Arborea containing solids 100 g |        |
| and plant moisture 300 ml              | 400 g  |
| Strong Alcohol                         | 730 ml |
- to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water; six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**DESMODIUM GANGETICUM**

(Desm. g.)

- Botanical name** : *Desmodium gangeticum* DC.      **Family**: Leguminosae (Fabaceae)
- Synonym** : *Hedysarum gangeticum* Roxb.
- Common name** : *Hindi*: Salparni.
- Description** : A nearly erect undershrub, up to 1.2 m in height. Stem pubescent. Leaves simple, ovate, 3.7 by 2.5 cm or oblong-ovate 10 by 5 cm entire, obtuse or acute, upper surface nearly glabrous, lower tomentose or thinly hairy. Racemes numerous upto 30 cm long. Flowers pink, hardly 0.8 cm long. Fruit a pod, sessile, pubescent, curved, 1.2 to 1.9 cm with upper margin slightly indented, lower deeply indented.
- Part used** : Root.
- Macroscopical** : Root varying in length, upto 8 mm in thickness, cylindrical, fibrous, usually branched; externally light-yellow or yellowish-white in colour. Fracture short and fibrous; taste sweet mucileginous.
- Microscopical** : Root in transection oval in outline and consists of 5 to 8 layers of cork cells, 2 to 3 layers of cork cambium; a secondary cortex of 6 to 8 layers of oval, elongated parenchyma cells and patches of wood fibrous; stele a ring with tetrarch, primary xylem at the centre and large secondary phloem narrowing towards the periphery. Phloem rays parenchymatous widening upwards; phloem consists of phloem parenchyma and patches of phloem fibres, cambium a ring of 2 to 3 layers; xylem consists of parenchyma cells containing starch grains, xylem ray thick walled containing starch grains. Rhomboidal crystals numerous, scattered throughout the cortical parenchyma.
- Identification** : Carry out TLC of concentrated Mother Tincture on silica gel ‘G’ using *chloroform : methanol* (9:1 v/v) as solvent system. Under UV light one spot appears at  $R_f$  0.96 (Red).
- Distribution** : Throughout India ascending to 1670 m in the Himalayas.
- History and authority** : Proved by Bhandari; Ghose: *Drugs of Hindoosthan*, Edn., 7th, 143.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Desmodium Gangeticum, moist magma containing solids 100 g and plant moisture approx. 110 ml | 210 g  |
| Strong Alcohol  | 900 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**ERECOTHITES**

(Erechth.)

**Botanical name** : *Erechthites hieracifolia* Linn. **Family**: Compositae (Asteraceae)

**Synonym** : *Senecio hieracifolius* Linn.

**Common name** : *English*: Fire weed.

**Description** : A coarse annual weed, up to 2 m in height, glabrous or sometimes more or less spreading, hairy throughout. Stem erect, striate and slightly succulent. Leaves up to 20 cm long, 8 cm wide, sharply serrate with callous tipped-teeth, sometimes irregularly lobed, the lower oblanceolate to obovate, the middle and upper becoming elliptic-lanceolate or oblong after auriculate clasping. Flowers both in panicle and the corymb heads. Involucre about 1 to 1.5 cm high, bract, glabrous, green with pale margin, striate, attenuate to merely acutish; denuded receptacle commonly 5 to 8 mm wide. Fruit an achene, 2 to 3 mm long, finely strigose, mostly 10 to 12 ribbed, provided with white annular ring at the summit. Pappus copious bright, white, eventually deciduous.

**Part used** : Whole plant.

**Distribution** : North and South America.

**History and authority** : Introduced and proved by Hale; Allen: *Encyclop. Mat. Med.*, Vol. IV, 210; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 709.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Erechthites* in *coarse powder* 100 g  
 Purified Water 500 ml  
 Strong Alcohol 537 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**EUONYMUS EUROPAEUS**

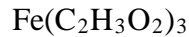
(Euon. eur.)

- Botanical name** : *Euonymus europaeus* Linn. **Family**: Celastraceae
- Synonym** : *Euonymus vulgaris* Mill.
- Common names** : *English*: Spindle tree; *French*: Bonnet de pretre.
- Description** : Much branched, glabrous, deciduous shrub; branches quadrangular. Buds 2 to 4 mm, ovoid. Leaves up to 10 by 3.5 cm, opposite ovate or lanceolate to elliptical, acute or acuminate. Flowers 3 to 8, in cymes, tetramerous, greenish-white. Fruit a capsule, 10 to 15 mm wide, angled, pink; seeds reddish-orange covered by scarlet aril.
- Part used** : Seed.
- Microscopical** : Transection shows outer 2 to 4 layers of parenchyma followed by a ring of palisade like sclereids, a layer of unorganised suberised cells, a wide zone of endosperm parenchyma containing oil globules. Embryo consists of an outer layer of thin walled epidermal cells, followed by polygonal and oval parenchyma cells.
- Identification** : 1. Take one ml of 50 percent alcoholic extract, add 5 drops of *dilute hydrochloric acid* and a few drops of *Mayer's reagent*; a brownish yellow precipitate appears.
2. Evaporate 20 ml of alcoholic extract on a water bath to remove *alcohol*, make it alkaline with *ammonia solution* and extract with *chloroform* (2 × 20 ml). Combine the *chloroform* extracts and concentrate to 5 ml. Carry out TLC of *chloroform* extract using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light two bluish violet spots appeared at  $R_f$  0.78 and 0.88. On spraying with *Dragendorff's reagent* one yellowish orange coloured spot appears at  $R_f$  0.78.
- Distribution** : Throughout Europe and East Asia.
- History and authority** : Proved by Graeser, Noack and Trinks; Allen: *Encyclop. Mat. Med.*, Vol. IV, 234, Vol. X, 518; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 725.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Euonymus Europaeus, moist magma containing               |        |
| solids 100 g and plant moisture 500 ml                   | 600 g  |
| Strong Alcohol   | 537 ml |
| to make one thousand millilitres of the Mother Tincture. |        |

- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water; five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**FERRUM ACETICUM**

(Fer. acet.)



**Mol. wt.:** 232.91

**Common names** : *English:* Ferric acetate; *French:* Acetate de fer; *German:* Basisches Eisenoxydacetac.

**Description** : Brownish-red amorphous powder; odour like acetic acid; taste strongly metallic. Freely soluble in *water* and in *alcohol*. Contains not less than 95.0 percent of ferric acetate with reference to the substance dried to constant weight over anhydrous calcium chloride.

**Identification** : 1. To 2 ml of the aqueous solution, add one drop of *potassium ferrocyanide*; a blue precipitate is produced.  
2. Yields the reactions characteristic of ferric salts; HPI, Vol. I and of acetates, HPI, Vol. I

**Assay** : Dissolve about 0.5 g accurately weighed in water, add about 5 ml *hydrochloric acid*, 1 ml *cuprous iodide* solution in water add sufficient quantity of 10.0 percent *potassium iodide* solution and shake well. Titrate after 3 to 5 minutes with 0.1N *sodium thiosulphate* using *starch* as indicator. Each ml of 0.1N sodium thiosulphate is equivalent to 0.23291 g of  $\text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_3$ .

**History and authority** : Introduced by Hahnemann and proved by Rasazemsky. Allen: *Encyclop. Mat. Med.*, Vol. IV, 303.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                     Ferrum Aceticum 100 g  
                     Saccharum Lactis 900 g  
                     to make thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I

**FERRUM BROMATUM**

(Fer. brom.)

FeBr<sub>2</sub>**Mol. wt.:** 215.65

- Common names** : *English*: Ferrous bromide; *French*: Bromure ferreux; *German*: Eisonbromide.
- Description** : Light yellowish-green to dark brown, hexagonal hygroscopic crystals; very soluble in *water* and in *alcohol*. Rapidly oxidises in moist air. Contains not less than 97 percent of FeBr<sub>2</sub> with reference to the substance dried to constant weight over *silica gel* under vacuum.
- Identification** : Yields the reactions characteristic of *iron*, HPI, Vol. I and of *bromides*, HPI, Vol. III
- Arsenic** : Not more than 2 parts per million, HPI, Vol. I
- Lead** : Not more than 10 parts per million HPI, Vol. I
- Chloride** : To a solution of 2 g in 25 ml *water*, add slowly 4 ml *nitric acid*, warm till evolution of reddish fumes has ceased, filter if necessary and divide in two parts. To one part add 0.5 ml *silver nitrate solution*. To other part add an equal volume of *water*. The two parts are equally clear after one minute.
- Alkaline Earth** : Dissolve 5 g in 70 ml *water*, 7 ml *nitric acid* and boil to expel brownish fumes. Pour the hot solution while stirring into a mixture of 50 ml of *water*, 20 ml of *ammonium hydroxide*, filter, wash with hot water and make up to 150 ml. Evaporate 60 ml of the filtrate and ignite. Not more than 1 mg of residue remains.
- Assay** : Dissolve about 0.2 g accurately weighed in 25 ml *water*, add a few drops of *nitric acid* and *silver nitrate solution*, till the precipitation is complete. Allow the precipitate to settle down, then filter through gooch crucible, wash with water till free from silver ions, dry at 105° to constant weight and weigh. Each g of precipitate is equivalent to 0.5743 g of FeBr<sub>2</sub>.
- History and authority** : Proved by Smith: Amer. Hom. XXI, 302; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 759; Blackwood: *A Manual of Mat. Med. Therapeutics and Pharmacology*, 336.

- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Ferrum Bromatum  | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x HPI, Vol. I,



**FICUS INDICA**

(Ficus. in.)

**Botanical name** : *Ficus bengalensis* Linn. **Family:** Moraceae

**Common names** : *Hindi:* Bor; *English:* Banyan tree.

**Description** : A very large, evergreen tree with spreading branches, up to 30 m in height giving rise to aerial roots hanging from branches, which penetrate the soil and form prop roots that help in lateral spread of the tree indefinitely. Leave 11 to 20.5 cm in length and 5 to 13 cm in width, ovate to elliptic, coriaceous, upper surface glabrous or minutely pubescent, leaf base rounded to subcordate, reticulation distinct, nerves about 5 pairs; petiole up to 60 mm, stout; stipules 60 to 80 mm, coriaceous. Inflorescence hypanthodium. Male flowers numerous, near the mouth of the receptacles; sepal 4, rather broad; stamen 1; gall flower with similar perianth, style short; female flowers with shorter perianth and elongated style. Fruit sessile; puberulose, scarlet when ripe.

**Part used** : Hanging aerial root.

**Macroscopical** : Younger aerial root very thin; older one very thick, penetrate the ground; bark thick. Lenticles present, brown, green after scraping with a scalpel; flakes off in long thread like pieces.

**Microscopical** : Transection oval in outline; well marked periderm of a few layers of phellem, 1 to 2 layers of phellogen and 2 to 5 layers of stony phelloderm. Secondary phloem a large zone of phloem fibres and a few parenchyma cells, 2 to multiseriate phloem rays which broaden towards the periphery; numerous unbranched laticiferous ducts present in phloem and secondary cortex; cambium indistinct; xylem wide, solid cylinder of vessels, alternate bands of xylem fibres and parenchyma rays. Pith small, parenchymatous.

**Distribution** : Throughout India.

**History and authority** : Ghose: *Drugs of Hindoosthan*, 7th ed., 164.

<b>Preparation</b>	: (a) Mother Tincture $\phi$	Drug strength 1/10
	Ficus Indica, moist magma containing solids 100 g and plant moisture 145 ml	245 g
	Purified Water	105 ml
	Strong Alcohol	790 ml
	to make one thousand millilitres of the Mother Tincture.	

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*.

**GUARANA**

(Guarana)

- Botanical name** : *Paullinia cupana* HB & Kunth. **Family**: Sapindaceae
- Synonym** : *Paullinia sorbiles* Mart.
- Common names** : *English*: Brazilian cocoa; *French*: Guarana; *German*: Guarana past.
- Description** : A climbing herb. Leaves compound. Flowers yellow in panicles. Fruit a capsule, pear-shaped. 3-sided 3-celled with thin partitions seed like a small horse chestnut, half enclosed in aril which is easily separated when dried. Seeds sub-spherical; testa reddish-brown, shining about 11 to 12 mm by 10 to 8 mm, somewhat flattened at the base; exalbuminous with two sub-hemispherical starchy cotyledons.
- Part used** : Seed.
- Macroscopical** : Occurs as hard, heavy, sausage shaped masses form 10 to 30 cm long and 2.5 to 4 cm thick. Outer surface almost smooth and chocolate-brown; internally pale irregular fragments embedded in a dark reddish mass. Odour not marked; taste slightly bitter.
- Microscopical** : Reddish-brown powder consisting of numerous, rounded or polygonal, parenchymatous, cells, filled with more or less gelatinized starch; fragments of dark brown epidermis of the seed consisting of palisade cells which in surface view have wavy outlines; the parenchymatous cells, with beaded or coarsely pitted walls of the inner portion of the seed.
- Identification** : Evaporate 20 ml of 60.0 percent alcoholic extract to remove *alcohol*; add 5 ml of 5.0 percent *sodium hydroxide* solution and extract successively 3 times with *chloroform*, using 20 ml each time, concentrate the *chloroform* extract to 2 ml and carry out Co-TLC with caffeine, using *chloroform* : *methanol* (9:1 v/v) as mobile phase and *chloramine-T* as spray reagent. One spot corresponding to caffeine is obtained.
- Distribution** : Venezuela, Brazil especially in the basins of the Amazon and its tributaries.
- History and authority** : Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 856; Blackwood: *Mat. Med. Therap. and Pharmacology*, 355; Allen: *Encyclop. Mat. Med.*, Vol. IV, 511.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                 |        |
|---------------------------------|--------|
| Guarana in <i>coarse powder</i> | 100 g  |
| Purified Water                  | 400 ml |
| Strong Alcohol                  | 635 ml |
- to make one thousand millilitres of the Mother Tincture .
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HEKLA LAVA**

(Hek. lava)

**Description** : Blackish brown, amorphous powder or porous mass, very light, odourless, tasteless but after some time acidic taste; insoluble in *water* and *alcohol* but slightly soluble in *hydrochloric acid*.

**Identification** : 1. Boil 0.5 g with 10 ml of *hydrochloric acid*, filter, evaporate the filtrate, dissolve the residue in 10 ml of *water* and add a few drops of *potassium ferrocyanide solution*, a blue colour develops.  
2. Boil 0.1 g with 5 ml *nitric acid*, filter, evaporate the filtrate to dryness and dissolve the residue in 5 ml *water* and add a few drops of *silver nitrate solution*, white precipitate appears.

**Alcohol soluble matter**: Not more than 5.0 percent.

**Water soluble matter** : Not more than 0.05 percent.

**Acid soluble matter** : Not more than 12.0 percent when 2 g dissolved in 100 ml hydrochloric acid.

**Ash value** : Not more than 92 percent when heated to 500° in silica crucible.

**Loss on drying** : Not more than 0.01 percent.

**History and authority** : Introduced and proved by Morris of University College, London; Hering: *Guiding Symptoms*, Vol. V, 525; *Homoeopathic Pharmacopoeia of United States*, 7th Ed., 319, *American Homoeopathic Pharmacopoeia* 1980, 245.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Hekla Lava 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**HELODERMA**

(Helod.)

**Zoological name** : *Heloderma horridus* **Family:** Helodermatidae

**Common name** : *English:* Gila Monster.

**Description** : A poisonous lizard, having yellow and black marks on body. Venom glands located in lower jaw. Body elongated, up to 60 cm in length and covered with ugly tubercles. Tail colourful, half the length of body, thick and club-like. Limbs short. Teeth fang-like and grooved with labial poison gland, osteroderms present.

**Part used** : Venom.

**Distribution** : Mexico and extreme south of U.S.A.

**History and authority** : Proved by Bocock; *Homoeo Recorder*, Vol. V to XI; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 885.

**Preparation** : (a) Trituration 2x Drug strength 1/100

Heloderma Horridus 10 g

Saccharum Lactis 990 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I,

**HURA BRASILIENSIS**

(Hur. bras.)

**Botanical name** : *Hura crepitans* Linn. **Family:** Euphorbiaceae

**Synonym** : *Hura brasiliensis* Willd.

**Common name** : *English:* Sand box tree.

**Description** : A tree up to 30 m in height. Leaves simple alternate, broad, ovate, cordate, acuminate; distantly repand-dentate petiolate hairy, petiole provided at its top with two large glands. Flowers small reddish, monoaceous, apetalous; calyx cupulate, truncate or denticulate; male flowers numerous, stamens covered with scaly bract; female flower infundibuliform (funnel shaped); style terminating in stellate stigma. Fruit a capsule, 7.5 cm long, 4 cm in diameter, deeply ribbed.

**Part used** : Sap.

**Distribution** : South America.

**History and authority** : Proved by Mure, *Pathogenesie Braziliensis*, 163; Allen: *Encyclop. Mat. Med.*, Vol. IV, 596; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 914.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Hura Brasiliensis 100 g  
                   Purified Water 500 ml  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HYDRASTININUM MURIATICUM**

(Hyd. mur.)

$C_{10}H_{13}NO_2$  HCl

**Mol. wt.:** 227.50

**Common name** : *English:* Hydrastine hydrochloride.

**Description** : Pale yellow crystals or crystalline powder. Very soluble in *alcohol* and *water*.

**Identification** : (i) To 1 ml of the alcoholic solution add a few drops of *ammonium vanadate solution*, a pale green colour is produced.

(ii) To 1 ml of the alcoholic solution add a few drops of *ammonium molybdate solution*, green, precipitate appears.

(iii) Carry out T.L.C. on silica gel 'G' by using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase and acidified iodoplatinate as spray reagent; a violet spot appears at  $R_f$  0.90.

**Melting point** : 212° (with decomposition).

**95 percent Ethanol Max** : 249, 306 and 363 mm.

**History and authority** : Clarke: *A Dictionary of Practical Mat. Med.*, Vol. I, 918.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Hydrastininum Muriaticum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,



**HYDROBROMIC ACID**

(Hydr. ac.)

HBr

**Mol. wt.:** 80.92

- Common names** : *English:* Hydrobromic acid; *French:* Acide brom hydrique.
- Description** : A clear, colourless or pale yellow liquid when freshly prepared, turning yellow to brown on storage. Contains not less than 47 percent w/w of HBr (limits 47.0 to 49.0 w/w). Miscible with *water* and with *alcohol*.
- Identification** : When neutralised yields the reactions characteristic of bromides; HPI, Vol. III
- Specific gravity** : 1.47 to 1.49.
- Residue on ignition** : When evaporated to dryness and gently ignited to constant weight leaves not more than 0.05 percent w/w of residue.
- Arsenic** : Not more than 4 parts per million, HPI, Vol. I,
- Chloride** : 1 ml complies with the limit test for chlorides, HPI, Vol. I,
- Heavy metals** : Not more than 4 parts per million, HPI, Vol. I,
- Iron** : Not more than 2 parts per million, HPI, Vol. I,
- Sulphate** : 5 ml complies with the limit test for sulphates, HPI, Vol. I,
- Assay** : Dilute about 4 ml with 15 ml *water* and weigh accurately. Titrate with 1 N *sodium hydroxide* using 2 drops of *methyl orange solution* as indicator. Each ml of 1 N *sodium hydroxide* is equivalent to 0.88092 g of HBr.
- History and authority** : Boericke: *Mat. Med. with Repertory*, 132.
- Preparation** : (a) Mother Solution Drug strength 1/10 w/w  
                   Hydrobromic Acid 100 g  
                   Purified Water in sufficient quantity  
                   to make one thousand millilitres of the Mother Solution.
- (b) Potencies: 2x with Purified Water; 3x and 4x with *Dilute Alcohol*; 5x and above with *Dispensing Alcohol*.
- Storage** : All preparation below 6x to be freshly prepared and kept in well closed containers protected from light.

**INDIGO**  
(Indigo)

**Common name** : *Hindi*: Neel.

**Description** : This is a blue dye stuff chiefly obtained from the species of *Indigofera tinctoria* L. and other related species of family Leguminosae (Fabaceae), indigenous to India. Plant is annual sometimes perennial, growing upto 1 m in height. Stem with numerous branches, downy, leaf alternate, pinnate, 7 to 10 cm long. Flower axillary purplish bluish. Inflorescence raceme.

The extract of this plant in water is subjected to fermentation and the liquid poured into shallow wats and repeatedly stirred. Indigo deposits separate from liquid collected and dried.

**Identification** : Dissolve 0.5 g in 10 ml *chloroform* and carry out following tests:

1. To 2 ml of the solution, add a few drops of *sodium hydroxide* solution; a yellow or olive brown colour appears.
2. To 2 ml of the solution, add 1 ml of *nitric acid* followed by the addition of *zinc* powder; blue colour disappears.
3. To 2 ml of the solution, add a few drops of concentrated *sulphuric acid*; a red colour appears which changes to crimson.

**History and authority** : Proved by Martin and Schules and introduced by Hartlaub and Trinks, *Annales of Hom. Kl.* III, 329, 1832; Allen: *Encyclop. Mat. Med.* Vol. V, 92.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Indigo	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**JACARANDA CAROBA**

(Jac. car.)

**Botanical name** : *Jacaranda caroba* DC. **Family**: Bignoniaceae

**Common names** : *English*: Caroba bark; *German*: Caroba rinde.

**Description** : A tree with white wood, up to 10 m in height. Leaves bi or quadri pinnate composed of 5 to 9 opposite sessile, glabrous and oval leaflets. Flowers large, pedicellate expanded at their extremities and forming racemose terminal panicles; calyx tubular with five segments; corolla tubular, slightly pubescent externally and expanded at its summit into a limb with five obtuse segments; stamens 5, one of which is rudimentary; ovary ovoid, bicarpellary, surmounted by a simple style terminating in a stigma.

**Part used** : Flower.

**Identification** : (a) To 2 ml of 60 percent of *alcoholic* extract add a few drops of *Mayer's reagent*; a light yellow precipitate is produced.

(b) To 2 ml of 60 percent *alcoholic* extract add a few drops of *methanolic hydrochloric acid*, a light green colour is produced.

**Distribution** : Brazil.

**History and authority** : Proved and introduced in 1849 by Mure, *Pathogenesis Bresil*, 279; Allen: *Encyclop. Mat. Med.*, Vol. V, 176; Hering: *Guiding Symptoms*, Vol. VI, 282.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Jacaranda Caroba in *coarse powder* 100 g

Purified Water 400 ml

Strong Alcohol 635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*, 3x and higher with *Dispensing Alcohol*.

**LATRODECTUS MACTANS**

(Lat. mac.)

**Zoological name** : *Latrodectus mactans* Fabricius **Family:** Theridiidae

**Common name** : *English:* Black widow spider.

**Description** : Female spider 5 to 8 cm, body shiny, coal black with a highly globular large abdomen on which is a conspicuous, bright scarlet hour glass which may be sometimes absent. A “comb” or row of toothed setae present on the torsus of the 4<sup>th</sup> pair of legs. A pair of extremely sharp, horny claws extending from the base of modified antennae lying in front of and above the mouth. Nocturnal, solitary, feeds by sucking juice from its victims. Only the female bites. Poisonous glands located in cephalothorax. Distinguishes from male spider which is 2.5 to 4 cm, striped with yellow oblique bands.

**Part used** : Whole female spider.

**Distribution** : Throughout western Hemisphere, commonly in many of the southern states and also subtropical part of U.S.A.

**History and authority** : Introduced by Jones and Tafol: *Homoeopathic recorder*, 7, 1889; Clarke: *A Dictionary of Pract. Mat. Med.* Vol. II, 253; *Committee Pacific Coast Journal of Homoeopathy* 44, 308-26, 1933.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Latrodectus Mactans* in *coarse powder* 100 g  
 Purified Water 300 ml  
 Strong Alcohol 724 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**LEUCUS ASPERA**

(Leuc. asp.)

- Botanical name** : *Leucas aspera* Spreng. **Family**: Labiatae (Lamiaceae)
- Common name** : *Hindi*: Chhota halkusa
- Description** : A herbaceous, much-branched, erect or diffuse annual, up to 60 cm in height. Leaves subsessile, linear or narrowly oblong-lanceolate, entire or crenate. Flowers small, white, in dense terminal or auxiliary whorls; nutlets small, oblong, smooth, brown.
- Part used** : Whole plant.
- Macroscopical** : Stem erect, usually much diffusely branched, below the branches rather leafy; sometimes taller with erect branches and larger leaves, up to 5 cm broad. Flowering whorls, up to 3 cm in diameter, hispid; calyx variable, the upper lip always protected and with short triangular teeth; corolla small. Whole plant fragrant.
- Microscopical** : Stem in transection rectangular in outline covered with uniseriate multicellular warty hairs; consists of 1 layered epidermis; a narrow zone of 6 to 10 layers of collenchyma cells; a single layered endodermis; stele a ring of phloem and xylem. Xylem consists of radially arranged vessels and abundant parenchyma. Pith large.
- Distribution** : Found throughout India in plains.
- History and authority** : Ghose: *Drugs of Hindoosthan*, 3rd Ed. 234; Basu: *Bhartiya Aushadhavaleeka*, 7th Ed., 126.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Leucus Aspera, moist magma containing solids 100 g and plant moisture approx. 310 ml | 410 g  |
| Purified Water   | 100 ml |
| Strong Alcohol   | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**LINARIA VULGARIS**

(Lin. vulg.)

- Botanical name** : *Linaria vulgaris* Mill. **Family:** Scrophulariaceae
- Synonym** : *Antirrhinum linaria* Linn.
- Common names** : *English:* Yellow toad-flax; *French:* Linaria vulgaire; *German:* Loinkraut.
- Description** : Perennial, with creeping roots giving rise to slender erect and glaucous colonies. Stem 30 to 80 cm in height. Leaf pale green, glaucous, 2 to 5 cm long and 2 to 4 cm wide, linear, lanceolate, narrowed below to a petiole-like base. Flowers numerous in a compact spike, 2 to 3 cm long including long spur. Fruit a capsule, round, avoid, 8 to 12 mm long; seeds winged.
- Part used** : Whole plant.
- Identification** : 1. Extract 10 g drug with 100 ml of 60 percent alcohol. Evaporate 5 ml of the above extract add 1 ml of water and filter. To the filtrate add 2 drops of concentrated *sulphuric acid*; a yellow solution is produced.
2. To 2 ml of the extract add 1 or 2 drops of *alcoholic ferric chloride* solution; a bluish black colour is produced which disappears on the addition of dilute *sulphuric acid* forming yellow colour.
3. To 2 ml of the extract add a few drops of *sodium hydroxide* solution, shake well for 5 minutes; a brown colour is produced.
- Distribution** : Europe, naturalised in U.S.A. and United Kingdom.
- History and authority** : Boericke: *Mat. Med. with Repertory*, 403.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Linaria Vulgaris on <i>coarse powder</i> | 100 g  |
| Purified Water                           | 400 ml |
| Strong Alcohol                           | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LOBELIA SYPHILITICA**

(Lob. syph.)

- Botanical name** : *Lobelia syphilitica* Linn. **Family**: Complanulaceae
- Common names** : *English*: Blue cardinal flower: *French*: Lobelia antisypilitique.
- Description** : A deciduous, perennial herb. Stem stout, up to 1.5 m in height, angular, glabrous or sparsely hirsute. Leaves alternate, unequally serrate, thin, narrowly oblong or elliptic, lanceolate or oblanceolate, usually 8 to 12 cm long, acuminate to obtuse narrowed to a sessile base, glabrous to hirsutus. Flower light blue, solitary axillary, crowded in a dense raceme or a long spike, bracteolate; lower bracts lanceolate foliaceous, up to 5 cm long, upper ones reduced, sepals lanceolate to ovate, 8 to 12 mm long with foliaceous auricle; pedicels ascending, 4 to 12 mm long, smooth to hirsute, bracteolate about the middle.
- Part used** : Whole plant.
- Microscopical** : Leaf: Transection shows a single layered epidermis, anomocytic stomata on both the surfaces; uniseriate multicellular trichomes on the epidermis; mesophyll differentiated into a single layer of palisade and spongy parenchyma. Midrib contains 1 to 2 layers of chlorenchyma below the upper epidermis; a parenchymatous ground tissue in which an arc shaped meristele surrounded by a parenchymatous sheath and phloem.
- Stem: in transection more or less triangular in outline with 2 to 4 parenchymatous protuberances and consists of an outer layer of epidermis, 8 to 12 layered parenchymatous cortex; a single layered endodermis of barrel shaped cells, a small zone of phloem and a continuous ring of xylem and a large parenchymatous pith.
- Root: in transection shows a single layer of epiblema; a large parenchymatous cortex; a single layered endodermis; indistinct pericycle; stele pentarch to polyarch; pith large and parenchymatous.
- Distribution** : Western U.S.A. and Canada. Common in low grounds, marshy borders.
- History and authority** : Proved by Williamson and Jeanes, *Hahn. Mon.*, VI, 520; Allen: *Encyclop. Mat. Med.*, Vol. V, 618; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. II, 314.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Lobelia Syphilitica in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 435 ml |
| Strong Alcohol                              | 600 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, Six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**LUFFA AMARA**

(Luf. am.)

- Botanical name** : *Luffa acutangula* (Linn.) Roxb. **Family:** Cucurbitaceae  
*Var, amara* (Roxb) Clarke.
- Common name** : *Hindi:* Karvi tori.
- Description** : A fairly large climber. Leaves small, whitish and softly villose when young, become scarbid at maturity, palmately lobed or 5 to 7 angled. Fruit obovoid, 8 to 10-ribbed, obtusely conical at both ends, of variable size; seeds small. Flowers during the end of the rainy season and fruits during winter. Whole plant very bitter.
- Part used** : Fully developed unripe fruit.
- Macroscopical** : Ovoid to obovoid; of variable size; pale brownish-yellow on maturity, 8 to 10 prominent longitudinal ribs, operculum conical to round. Three chambered internally, the inner part fibrous and easily detachable as whole from the outer part. Odour not characteristic; taste very bitter.
- Microscopical** : In transection angular with prominent ribs and consists of a single layer papillose epidermal cells covered by thick cuticle, followed by 4 to 6 layers of parenchyma cells, few of which have brownish content near the ribs; a continuous band of 6 to 12 layers of thick walled lignified cells of which cells of upper 6 to 8 layers are narrow lumened while the cells of the lower 2 to 4 layers are wide lumened; a zone of parenchymatous ground tissue bearing bicollateral vascular bundles, each distributed below the ribs, Each vascular bundle capped above by fibrous sclerotic cells. Few accessory conducting elements also found in the ground tissue just above the vascular bundles. Innermost layers of ripe fruit consists of interwoven fibres.
- Distribution** : Throughout India.
- History and authority** : Ghosh: *Drugs of Hindusthan*, 223.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Luffa Amara, moist magma containing solids 100 g and plant moisture 270 ml | 370 g  |
| Strong Alcohol   | 800 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**LUFFA BINDAL**

(Luf. bin.)

- Botanical name** : *Luffa echinata* Roxb. **Family:** Cucurbitaceae
- Common name** : *Hindi:* Bindali.
- Description** : A climber, stem pale brownish or yellow in colour, slender, branches slightly hairy furrowed with 4 to 5 prominent ridges; tendrils 2-fid. Leaves 3.5 to 6.3 cm long usually a little broader than long, orbicular reniform obscurely 5-angled or less deeply 5-lobed, the lobes rounded or rarely subacate in the apex, margin minutely denticulate; petiole 2.5 to 5.0 cm long, striate puberulose or sometime slightly scabrid. Flowers usually dioecious. Male peduncles 7.5 to 15.0 cm long usually in pairs, one flowered while the other with a raceme of 5 to 12 flowers at the apex; pedicels 1 to 2 cm long, bracteate near the base; calyx hairy, 6 mm long, tube very short, lobes ovate lanceolate, acute; petals white, spreading, ovate, twice as long as the calyx, veined; stamens 3, two with 2-celled anther; female flowers solitary, peduncles 1.3 to 5 cm long. Fruits ellipsoid, oblong or globose, 2.5 to 3.8 cm long, not ribbed, clothed with 4 to 6 mm long ciliate bristles operculum conical, without bristles; seeds numerous, 5.0 mm long.
- Part used** : Fruit or whole plant and riping fruit.
- Macroscopical** : Pale yellowish-brown, broadly ellipsoid, oblong or globose, 2.5 to 3.8 cm long without ribs, clothed with 4 to 6 mm long ciliate bristles; fruit consists of 3 chambers inner part fibrous and easily separable as a whole from the outer part; seeds numerous, 5.0 mm long; taste bitter.
- Microscopical** : Transection shows a single layer of thick walled cells of epidermis, few cells of which are tangentially elongated, followed by 5 to 7 layers of mesocarp containing square to rectangular thin walled parenchyma cells, a few of which especially near the epicarp are lodged with brownish contents. A continuous band of 2 to 3 layers of fibres or stone cells and conducting elements is found in the middle of the mesocarp. The inner most region is composed of interover fibres.
- Seeds in transection shows testa a square lignified thick walled cells followed by a zone of lignified palisade cells, 156 to 161  $\mu$  in length and an endosperm of 5 to 7 layers of thin walled cells, containing oil globules and aleurone grains. Cotyledon consists of thin walled palisade cells containing aleurone grains and oil globules.
- Distribution** : Common in U.P., Bihar, West Bengal and Gujrat.

**History and authority** : Introduced by Sen; Ghose: *Drugs of Hindoosthan*, VIII Ed., 224.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Luffa Bindal, moist magma containing  
solids 100 g and plant moisture approx. 200 ml 320 g  
Strong Alcohol 820 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**MELILOTUS OFFICINALIS**

(Mel. off.)

- Botanical name** : *Melilotus officinalis* Linn.      **Family:** Leguminosae (Fabaceae)
- Common names** : *English:* Yellow Melilot; *French:* Melilot; *German:* Steinklee, Melilotenkee.
- Description** : A perennial herb up to 1.20 m in height. Leaves pinnately 3-foliolate; leaflets toothed and narrow. Flower small, 5 to 7 mm long, yellow, in slender long stalked axillary racemes, papilionaceous, the standard oblong or oblong-obovate, keel obtuse and comparatively shorter; pedicel 1 to 2 mm long. Fruit a pod, glabrous, small, ovoid, few seeded, more or less reticulate; transversely rugose, compressed brown when ripe.
- Part used** : Flowering top.
- Microscopical** : The characteristic feature of petiole includes a widely open arc of separate vascular bundles forming the main vascular strand.
- Identification** : Carry out TLC of 50 percent alcoholic extract on silica gel 'G' plate using *cyclohexane : ethyl acetate* (9:1 v/v) as mobile phase. Under UV light four spots appeared at  $R_f$  0.10 (green), 0.35, 0.54 and 0.63 (blue). On spraying with 2 N *ethanolic potassium hydroxide*, four spots appeared at  $R_f$  0.20 (blue), 0.35 (green), 0.54 (violet) and 0.76 (green) under UV light.
- Distribution** : Native of Europe, naturalised in USA and England, a common weed found in waste places, Ladakh.
- History and authority** : Proved by Bowen; *U.S. Med. and Surg. Jour.* V, 317; Allen: *Encyclop. Mat. Med.*, Vol. VI, 176.
- Preparation** : (a) Mother Tincture  $\phi$       Drug strength 1/10
- |   |        |
|---|--------|
| Melilotus Officinalis in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 500 ml |
| Strong Alcohol                                | 537 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MITCHELLA REPENS**

(Mit. rep.)

**Botanical name** : *Mitchella repens* Linn. **Family**: Rubiaceae

**Common name** : *English*: Checker berry.

**Description** : A trailing perennial herb with cylindrical, branched, horizontal root. Stem rooting at nodes; 10 to 32 cm long, forming mats. Leaves 1 to 2 cm long, evergreen, petioled round ovate. Flowers mostly terminal, the common peduncle shorter than the substanding leaves, corolla 10 to 14 mm long, occasionally with 3.5 or 6 lobes. Fruit a berry, scarlet red, edible, consists of two united ovaries, containing several stony insipid seeds, 5 to 8 mm in diameter, crowned with short sepals, persistent through wide.

**Part used** : Whole plant.

**Identification** : 1. To 1 ml of 80 percent alcoholic extract, add 2 or 3 drops of *sodium hydroxide solution*, a brown red colour with turbidity is produced.

2. To 1 ml of 80 percent alcoholic extract, add 2 drops of *hydrochloric acid* followed by 1 ml of *Mayer's reagent*; a precipitate appears.

3. Take 25 ml of 80 percent alcoholic extract, evaporate on a water-bath to remove alcohol, then extract with 20 ml *chloroform*.

(a) Carry out TLC of chloroform layer on silica gel 'G' using *chloroform : methanol* (98:2 v/v) as mobile phase Under UV light three spots appeared at  $R_f$  0.72 (violet), 0.84 (blue) and 0.90 (greenish blue). On spraying with *antimony trichloride* and heating, two red spots appeared at  $R_f$  0.07 and 0.72.

(b) Carry out TLC of chloroform layer on silica gel 'G' using *cyclohexance : ethyl acetate* (7:3 v/v) as mobile phase. Under UV light four spots appeared at  $R_f$  0.15 (blue) 0.21 (violet), 0.34 (yellow) and 0.60 (Bluish green). On spraying with *antimony trichloride* reagent followed by heating, two red spots appeared at  $R_f$  0.14 and 0.45.

**Distribution** : Indigenous to North America and Canada, found also in Mexico and Japan.

**History and authority** : Introduced and proved by Duncan: *U.S. Med. and Surg. Jour*, 1, 1252; Allen: *Encyclop. Mat. Med.*, Vol. VI, 373; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. II, 494.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Mitchella Repens in *coarse powder* 100 g  
 Purified Water 200 g  
 Strong Alcohol 824 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**MORPHINUM**

(Morph.)

$C_{17}H_{19}NO_3.H_2O$

**Mol. wt.:** 303.34

**Common names** : *English:* Morphin; *French:* Morphine, *German:* Morphin.

**Description** : Fine, colourless or white needle-shaped crystals or white crystalline powder; odourless; taste bitter. Darkens on exposure to light and loses its water of crystallisation at 105°C. Very slightly soluble in *water*; sparingly soluble in *alcohol*. Contains not less than 98.0 percent of morphin with reference to the substance dried to constant weight over *silica gel*.

**Identification** : 1. Dissolve about 0.01 g in *dilute sulphuric acid*. Add slight excess of *sulphuric acid* and a saturated solution of *potassium iodate*; a brown colour is produced on standing for a few minutes, which is intensified by the addition of excess of *ammonium hydroxide*.

2. Dissolve about 0.01 g in *dilute hydrochloric acid*, divide into two parts; (a) To one part add *sodium nitrite* solution and excess of *ammonium hydroxide*, yellowish brown colour is produced, (b) To the second part, add *potassium ferricyanide* solution and a drop of neutral *ferric chloride*; a deep blue solution is produced which gives a blue precipitate on standing.

**Loss on drying** : Loses not more than 7.0 percent of its weight when dried to constant weight at 105°.

**Reaction** : 5 percent solution in water is alkaline to *litmus*.

**Assay** : Weigh about 0.8 g of the substance, previously dried at 105° to a constant weight. Add 30 ml of 0.1 N *sulphuric acid*, boil and cool. Titrate with 0.1N *sodium hydroxide*, using *methyl red* solution as indicator. Each ml of 0.1 N *sulphuric acid* used up with morphin is equivalent to 0.030334 g of morphinum.

**History and authority** : Introduced by Sorturner and proved by L. Thursten, *H.P.I.*, XV, 563; Allen: *Encyclop. Mat. Med.*, Vol. VI, 370; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. II, 496.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Morphinum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**Storage** : Preparations below 6x should preferably be kept in neutral glass containers protected from light.

**Caution** : Not to be dispensed below 3x.



**NARCISSUS PSEUDO NARCISSUS**

(Nars. pse.)

- Botanical name** : *Narcissus pseudo narcissus* Linn. **Family**: Amaryllidaceae
- Synonym** : *Ajax pseudo narcissus* Haw.
- Common names** : *English*: Trumpet Daffodil, Common Daffodil.
- Description** : Robust plant, up to 1 m in height; bulb about 5 cm in diameter. Leaves glaucous, 4 to 6 in number, narrow but flat erect usually reaching in the bossom. Scape 20 to 40 cm long, generally equalling leaves. Flower solitary, horizontal or ascending, about 5 cm long, up to 6 cm in diameter (up to 10 cm in cultivated plants), pale yellow; corona generally as long as the perianth, the segment and corona usually of different shades, the corona deeply crenate or almost crenate fimbriate, more or less plicate, usually frilled at the margin; stamens inserted near the base of the perianth, much shorter than crown; style, little longer than stamens. (There are also full double forms of flowers in which the corona disappears as a separate body and supernumerary segments are present).
- Part used** : Whole plant.
- Microscopical** : Elongated raphides of calcium oxalate and starch grains present in parenchymatous cells in bulb.
- Distribution** : U.K., Sweden, Spain and Austria.
- History and authority** : Introduced and proved by Ringer; Clarke: *A Dict. of Pract. Mat. Med.*, Vol. II, 532.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Narcissus Pseudo-Narcissum in *coarse powder*                   100 g  
                   Purified Water   500 ml  
                   Strong Alcohol   537 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five part, *Strong Alcohol*, 3x and higher with *Dispensing Alcohol*.

**NATRUM SILICOFLUORICUM**

(Nat. sfl.)

$\text{Na}_2\text{SiF}_6$

**Mol. wt.:** 188.09

- Common name** : *English:* Sodium silicofluoride.
- Description** : White granular powder, slightly soluble in *water*. Insoluble in *alcohol*. Contains not less than 98 percent of  $\text{Na}_2\text{SiF}_6$  calculated with reference to the substance dried to constant weight at  $105^\circ$ .
- Identification** : 1. Yield reactions characteristic of *sodium*, HPI, Vol. I, and of *fluoride*.
2. Take 1 g in 100 ml *water*. To 5 ml of the suspension, add 1 ml *barium chloride solution*, white precipitate is produced, which is insoluble in *dilute hydrochloric acid*.
3. Mix 0.5 g with 1 ml of concentrated *sulphuric acid* to make a thick slurry, heat to boiling; white fumes evolves which etches the glass tube.
- Reaction** : 1 percent aqueous solution is neutral to litmus.
- Arsenic** : Not more than 5 parts per million, HPI, Vol. I,
- Chloride** : Dissolve 0.1 g in 10 ml *water* and 1 ml *nitric acid*. The solution complies with the limit test for *chlorides*, HPI, Vol. I,
- Lead** : Not more than 5 parts per million, HPI, Vol. I,
- Assay** : Take about 0.5 g accurately weighed into a platinum crucible, add six times the fusion mixture and mix the solid thoroughly by stirring with a glass rod. Heat the mixture gradually until after a tranquil melt is obtained. Maintain the temperature for about 30 minutes. Allow to cool, cover it with *water*. Warm on the water bath until the contents are well disintegrated. Add slowly about 10 ml *concentrated hydrochloric acid*, warm on the water bath until the effervescence ceases. Transfer the content to a breaker and evaporate to dryness. Warm at  $100^\circ$  to  $110^\circ$  for 1 hour. Moisten the residue with 5 ml *concentrated hydrochloric acid*, mix thoroughly with glass rod. Add 75 ml *water* and heat on a steam bath for 10 to 20 minutes. Filter on a whatman filter paper No. 41. Wash the precipitate first with warm *dilute hydrochloric acid* and then with hot *water* until free from chlorides. Dry the residue and burn the filter paper in platinum crucible, heat the crucible to constant weight and weigh. Each g of residue is equivalent to 3.13242 g of  $\text{Na}_2\text{SiF}_6$ .

**History and authority** : Introduced by Cooper; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. II, 571.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Natrum Silicofluoricum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**NICCOLUM SULPHURICUM**

(Nic. su.)

$\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$

**Mol. wt.:** 262.0

- Common names** : *English:* Nickel sulphate; *German:* Schwefelaures funfcentstuck.
- Description** : Emerald green crystals or crystalline powder. Soluble in *water*, sparingly soluble in *alcohol*.
- Reaction** : The aqueous solution (5 percent in carbon dioxide free water) is acidic.
- Insoluble matter** : Dissolve 25 g in *water* to produce 250 ml, filter through a weighed filtering crucible, wash with *water* and dry at 105°; the residue weighs not more than 0.75 mg.
- Chloride** : Dissolve 1 g in 50 ml of *water* and add 1 ml of *silver nitrate* solution; no opalescence is produced.
- Assay** : Dissolve 2.126 g in 100 ml *water*. Add 5 to 6 drops of freshly prepared *murexide indicator*, followed by 10 ml 1 M *ammonium chloride* solution. Adjust the pH to 7.0 by adding *concentrated ammonia* solution. Titrate with 0.1 M *EDTA* solution until the end point is approached, render the solution strongly alkaline with about 10 ml *concentrated ammonia* solution and continue the titration until the colour changes from yellow to bluish violet. Each ml of 0.1 M *EDTA* is equivalent to 0.02620 g of  $\text{NiSO}_4 \cdot 6\text{H}_2\text{O}$ .
- History and authority** : Introduced by Simpson and Hale; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. II, 584.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                      |       |
|----------------------|-------|
| Niccolum Sulphuricum | 100 g |
| Saccharum Lactis     | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**NUPHAR LUTEA**

(Nuph. lut.)

- Botanical name** : *Nuphar luteum* Sibth & Smith. **Family:** Nymphaeaceae
- Common names** : *English:* European Yellow Pond lily; *French:* Numphar Jaune; *German:* Gelbe Wasserlilie.
- Description** : An aquatic plant with stout root stock creeping in the mud. Submerged leaves very thin and roundish; floating leaves oval, generally with narrow or closed sinus; petiole triangular. Flowers yellow, about 1 cm across, somewhat fragrant; sepals 5, nearly equal; petals numerous, longer than sepals and dilated upwards; stigmas 10 to 30 rayed with entire margin. Fruit globular, with a short narrow neck.
- Part used** : Rhizome.
- Macroscopical** : Occurs as circular pieces up to 2.5 cm in diameter, brown with a circular air space in the centre surrounded by 9 to 10 air spaces in a ring; taste starchy.
- Microscopical** : A single layered epidermis with prominent papilose radially elongated cells followed by 9 to 10 air spaces in a ring surrounding a central air space; ground tissue consists of loose parenchymatous cells except near periphery; starch grains abundant with star shaped hilum and eccentric lamellae; scattered conjoint collateral vascular bundles and patches of sclerenchyma; vascular bundles capped on one or both sides by sclerenchyma.
- Distribution** : Europe and temperate Asia.
- History and authority** : Introduced by Pitet, *Journ. de l'arsoe Gal*, 3, 129 in 1852; Allen: *Encyclop. Mat. Med.*, Vol. VII, 59; Hering: *Guiding Symptoms*, Vol. VIII, 78.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Nuphar Lutea in *coarse powder* 100 g  
                   Purified Water 567 ml  
                   Strong Alcohol 468 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four Parts Purified Water, five parts *Strong Alcohol*, 3x and higher with *Dispensing Alcohol*.

**OCIMUM CANUM**

(Oci. can.)

- Botanical name** : *Ocimum canum* Sins. **Family:** Labiatae (Lamiaceae)
- Synonym** : *Ocimum americanum* Linn.
- Common name** : *Hindi:* Kalatulsi.
- Description** : A herb. Stem and branches sub-quadrangular, younger ones pubescent. Leaves 2.5 to 3.0 cm by 1 to 1.5 cm elliptical lanceolate, acute at both ends, gland dotted, glabrous or nearly so with its margins entire or shallowly serrate, petioles 1.3 to 2.5 cm long, slender, hairy. Flowers about six in a close whorl in spiciform racemes, 7.5 to 20 cm long, white, pubescent; calyx 3 mm long; corolla 4 mm long, 2.5 to 3 mm broad, white, upper lip oblong, obtuse, 1.25 mm broad with 4 lanceolate, subulate teeth of which the central two are longer than the laterals; stamens much exerted with slender filament, the upper two having a tooth at the base; style exerted beyond the filaments. Pedicel short. Fruit a nutlet, 1.25 mm long, black.
- Part used** : Leaf.
- Microscopical** : Dorsiventral. Stomata and hairs absent on upper epidermis, but present on lower epidermis. Upper epidermal cells bigger than lower epidermal cells. Palisade 2 to 4 cells wide, followed by isodiametric parenchymatous cells. In mid-rib 'C' shaped stele is present which conjoint, collateral, open with its convexo-dorsal surface towards the lower epidermis and encircled by sclerenchyma patches; cambium 2 to 3 layered with phloem towards dorsal side; numerous aggregates of microcrystals present in parenchymatous tissue. Laticiferous ducts also present below palisade tissue. Lateral vein bundles surrounded by parenchymatous sheath and cambium is absent. Stomata paracytic, stomatal index 88.76 to 91.68; vein islet number 10 to 13 per sq mm; palisade ratio 4.25 to 6.00.
- Distribution** : India, Sri Lanka, Java, West Asia, Tropical Africa, Madagascar. Cultivated in America.
- History and authority** : Introduced and proved by Mure; Allen: *Encyclop. Mat. Med.*, Vol. VII, 128.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Ocimum Canum, moist magma containing solids 100 g and plant moisture 150 ml | 250 g  |
| Strong Alcohol  | 880 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**OCIMUM GRATISSIMUM**

(Oci. grat.)

- Botanical name** : *Ocimum gratissimum* Linn. **Family:** Labiatae (Lamiaceae)
- Synonyms** : *Ocimum citratum* Buch & Ham; *Ocimum robustum* Heync.
- Common names** : *Hindi:* Ban tulsi; *English:* Shrubby basil.
- Description** : A tall, much branched shrub, woody below, glabrescent, up to 2.5 m in height. Leaves 5 to 10.5 cm long, petiole 2.5 to 5 cm long, acute, coarsely crenate-serrate, gland-dotted, pubescent on both surfaces. Inflorescence simple or much branched raceme, moderately close whorled, raceme stick slender. Flowers with short pedicel, pale-greenish-yellow, bracts sessile, lanceolate, awned from a rounded base, longer than the calyx; calyx pubescent, two lower calyx-teeth minute, much shorter than the rounded upper, lateral triangular, broader than the lower; corolla 4.5 cm, hardly exceeding the calyx, pale yellow; filaments exerted, knee bearded. Fruit a nutlet, subglobose, not mucilaginous when moistened, rugose with glandular depressions. Odour strong characteristics.
- Part used** : Whole plant.
- Microscopical** : Stem, quadrangular in outline. Epidermis single layered with glandular and uniseriate, 2 to 9 celled non-glandular trichomes. Collenchyma at angles only, 3 to 6 layered, followed by few layers of compressed parenchyma cells; a zone of sclerenchyma, 3 to 5 layered, almost in continuous ring, interrupted at places by patches of parenchyma. Phloem and xylem in continuous rings. Pith large, parenchymatous, containing numerous raphides. Leaf in transection shows single layer of sinuous epidermal cells, both glandular and non-glandular trichomes. Non-glandular trichomes stout, slender, uniseriate, 2 to 9 celled. Glandular ones with 12 celled head and uniseriate stalk. Stomata diacytic on both the surfaces. Mesophyll differentiated into single layer of palisade and spongy parenchyma. Midrib collenchyma below both the epidermis, 3 to 4 celled. Meristele arc shaped.
- Distribution** : Found throughout India and in Laccadive Island.
- History and authority** : Ghose: *Drugs of Hindoosthan*, 246.



- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Ocimum Gratissimum, moist magma containing solids 100 g and plant moisture 165 ml | 265 g  |
| Strong Alcohol  | 850 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**OLEUM CAJUPUTI**

(Oleum c.)

- Common names** : *English*: Cajuputi oil; *French*: Huile de cajeputi; *German*: Cajeputol.
- Description** : Oleum cajuputi is the essential oil obtained by steam distillation from the fresh leaves and twigs of *Melaleuca cajuputi* Powell and *M. leucadendron* Linn and other *Melaleuca* species of Myrtaceae. Contains not less than 50.0 percent and not more than 65.0 percent w/w of cineole.
- Colourless, yellow or green liquid; odour agreeable and camphoraceous; taste bitter, aromatic. It is highly volatile. Freely soluble in *alcohol*.
- Refractive index** : At 20°, 1.46 to 1.47, HPI, Vol. I,
- Optical rotation** : At 20°, + 1 to – 4, HPI, Vol. III,
- History and authority** : Hering: *Guiding Symptoms*, Vol. VIII,
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Oleum Cajuputi 100 ml  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- Storage** : All preparations below 6x to be kept in a well closed containers and protected from light.

**OPUNTIA**

(Opuntia)

- Botanical name** : *Opuntia vulgaris* Mill. **Family:** Cactaceae
- Synonyms** : *Opuntia humifusa* Rafin; *Cactus opuntia* Linn.; *Opuntia martima* Rafin.
- Common names** : *Hindi:* Nagphani; *English:* Prickly poar; *French:* Figuier de Barbarie; *German:* Indische Feige.
- Description** : A diffuse, prostrate plant up to 30 cm in height, joint usually resting or the ground and rooting from the lower margin, obovate or suborbicular, thick, 5 to 10 cm in diameter, pale-green areoles with greyish wool and fine short greenish-yellow bristle; spines rarely present, when present usually one, stout, erect, less than 2.5 cm long, yellow often variegated. Flowers 5 cm wide, pale or chrome yellow. Fruit obovate to spherical, 2.5 cm in diameter, red; fresh insipid.
- Part used** : Whole plant excluding root.
- Microscopical** : Spines on the stem are made up of fibres in the centre and covered by chitinous scales and fibres bearing numerous gland dots. Numerous multicellular thin walled hairs present at the base of the spines. Stem in transection shows single layer of epidermal cells containing rosette calcium oxalate crystals. Epidermis followed by 2 to 3 layers of collenchyma; spongy parenchyma, scattered through which are wide mucilage ducts. Vascular bundle conjoint, collateral in a row.
- Identification** : Take 10 g and extract with 100 ml of 45 percent *alcohol* and proceed as follows:
- (i) To 2 ml of extract, add approximately 50 mg of *magnesium* powder and sufficient *hydrochloric acid*; a pink colour is produced gradually.
  - (ii) Evaporate 2 ml of the extract to 1 ml and place a few drops on the filter paper, the moistened filter paper when exposed to *ammonia* vapour, turns yellow.
  - (iii) To 2 ml of the extract, add one drop of neutral *lead acetate* solution; a yellow-coloured precipitate is produced.
- Distribution** : Indigenous to Brazil and Argentine, introduced in India.

**History and authority** : Proved by Burdick, *Allg. Hom. Zeit.* XIX, 128; Allen: *Encyclop. Mat. Med.*, Vol. VII, 237; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. II, 674.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Opuntia Vulgaris, moist magma containing	
solids 100 g and plant moisture 657 ml	667 g
Strong Alcohol	468 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**OSMIUM METALLICUM**

(Os. met.)

Os

At. wt.: 190.20

**Description** : A bluish white lustrous metal. The finely powered metal is slowly oxidised by air at room temperature. It is best dissolved by alkaline oxidizing fusion mixture with *potassium hydroxide* and *sodium peroxide* or *potassium chlorate*. Contains not less than 99 percent of *Osmium* with reference to the substance dried to constant weight on silica gel under vacuum.

**Identification** : Dissolve a small amount of *Osmium* in alkaline oxidizing *fusion mixture*. Neutralise the solution with *dilute hydrochloric acid*. Take 1 to 2 drops of *potassium chlorate : potassium iodide solution*, acidified with a drop of dilute (1:100) *sulphuric acid*. Add a drop of 1 percent *starch* solution and a drop of neutral test solution; a bluish stain is formed.

**Non-volatile matter** : Heat 1 g of the metal in silica crucible at 200°, leaves residue not more than 0.1 mg.

**Heavy metal** : 1 g complies with the limit test for heavy metals, HPI, Vol. I,

**Assay** : Weigh accurately about 0.5 g, heat on a water bath in open air till yellow coloured mass forms. Dissolve the yellow coloured mass in 20 ml 1 N *sodium hydroxide* in a glass stoppered flask, dissolve 5 g of *potassium iodide* in it, slowly add 50 ml of 25 percent *sulphuric acid*, then stopper it and allow to stand for 20 minutes in dark. Titrate the liberated *iodine* with 0.05 N *sodium thiosulphate solution* using *starch* as indicator. Each ml of 0.05 ml sodium thiosulphate is equivalent to 0.002378 g of osmium.

**History and authority** : Proved by Berzelius, Poggendorff's, *Annals*, 1835; Allen: *Encyclop. Mat. Med.*, Vol. VII, 241.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Osmium 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**OXYTROPIS**

(Oxytr.)

- Botanical name** : *Oxytropis lamberti* Pursh. **Family:** Papilionaceae
- Synonym** : *Aragallus lambertii* Greene.
- Common name** : *English:* Locoweed.
- Description** : A tufted perennial herb, with strong tap root and several 10 to 50 cm tall erect scapes bearing spike. Leaflets usually ascending, linear to narrowly oblong, 1 to 2.5 cm long, thinly strigose canescent with malpighian hairs. Spikes loose 4 to 10 cm long. Calyx campanulate, densely villous, the tube 6 to 8 mm long; corolla purple, 1.5 to 2 mm long. Fruit a pod, 2-celled, 2 to 2.5 cm long, silky pubescent with a prominent beak.
- Part used** : Whole plant excluding root.
- Distribution** : Dry prairies and plains, found in Minnosota, Texas and Arizona region of U.S.A.
- History and authority** : Introduced and proved by Gee; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. II, 702.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                   |        |
|-----------------------------------|--------|
| Oxytropis in <i>coarse powder</i> | 100 g  |
| Purified Water                    | 200 ml |
| Strong Alcohol                    | 824 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**PHASEOLUS**

(Phas.)

**Botanical name** : *Phaseolus vulgaris* Linn. **Family:** Papilionaceae

**Common names** : *Hindi:* Fresh bean; *English:* Kidney bean.

**Description** : An erect or twining annual. Mature plant more or less pubescent. Leaves trifoliate; leaflets rhombic-ovate or ovate, acuminate; primary leaves entire, cordate deeply auriculate, dull green, slightly rough with fine scattered hispid pubescence, petioles distantly pubescent. Flowers small, white to yellowish or violet purple. Fruit a pod, flat or rounded or slender, 10 to 26 cm long, somewhat curved provided with a straight or curved tip, fleshy when young and light green, glabrous or slightly pubescent. Seeds more or less kidney shaped elongated or nearly globular or somewhat compressed, white or fawn coloured, no conspicuous line radiating from the hilum.

**Part used** : Dried ripe pod.

**Microscopical** : In transection elliptical outline, with notch at one end. Epidermis single layered, cuticularised, made up of irregular cells, occasionally containing rectangular calcium oxalate crystals, few cells papillose. Epidermis is followed by 2 to 3 layers tangentially elongated parenchymatous cells which more often become collenchyma at nodular end; and a zone of 8 to 12 layers of roundish parenchymatous cells which contain starch grains and oil droplets. Small vascular strands present at about regular intervals; a well developed vascular bundles present on notch end, its opposite end, vascular bundles arc shaped; 2 to 3 layers of sclerenchyma present capping the phloem, phloem scanty xylem well developed having protoxylem towards seed.

Seed coat: Testa and tegmen fused. Transection shows thick cuticle followed by single layer of elongated macrosclereid and 2 to 3 layers of branchysclereid, followed by parenchyma zone of which outer 4 to 6 layers of cells oval, containing small vascular strands and inner 1 to 2 layers of elongated parenchymatous cells; below this a few layers of disintegrated cells present attached to cotyledon.

Cotyledon: two; in transection plano-convex in outline; epidermis single layered enclosing parenchyma containing huge starch and oil droplet.

**Distribution** : Native of tropical America and cultivated in India.

**History and authority** : Proved by Cushing: *Homoeo. Recorder*, Vol. III, 743. Anshutz: *New, old and forgotten remedies*, 326; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. I, 753; Blackwood: *Mat. Med. Therapeutics and Pharmacology*, 494.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Phaseolus in moderately *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.  
  
(b) Potencies: 2x and higher with *Dispensing Alcohol*.



**PIX LIQUIDA**

(Pix liq.)

- Common name** : *English*: Pine-tar.
- Description** : Dark brown or blackish viscous liquid heavier than water. Odour empyreumatic; taste sharp. Almost insoluble in *water*, soluble in *alcohol*, in fixed and essential oils.
- Identification** : (1) To 5 ml of 10 percent alcoholic solution, add a few drops of *alcoholic ferric chloride solution*; it becomes darken.  
(2) Shake with light petroleum ether (60° to 80°), separate the *petroleum ether* extract and shake with *copper acetate solution*; the layer becomes green.
- Wt. per ml.** : 1.02 to 1.15 g 10 percent alcoholic solution.
- Reaction** : Saturated aqueous solution is acidic to *litmus*.
- Coaltar** : Shake about 0.5 g vigorously with 10 ml of *light petroleum ether* (40° to 60°); no fluorescence is produced.
- History and authority** : Introduced by Jeans; Hering: *Guiding Symptoms*, Vol. VIII, 444; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. III, 836.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Pix Liquida 100 ml  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.  
(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**PLATINUM MURIATICUM NATRONATUM**

(Pt. mur. n.)



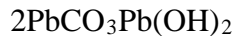
**Mol. wt.** 525.80

- Common name** : *English*: Sodioplatinic Chloride.
- Description** : Light-red prisms, readily soluble in *water* and in *alcohol*. It is prepared by evaporating aqueous solution of *chloroplatinic acid* with *sodium chloride*.
- Identification** : (1) To 1 ml of 0.1 percent solution in *water*, add 0.5 ml *silver nitrate solution*; a white turbidity appears.
- (2) To 1 ml of 0.1 percent solution in *water*, add 1 ml *uranyl zinc acetate solution*; a yellow crystalline precipitate appears.
- (3) Take a drop of saturated *thallium nitrate solution* on filter paper, add a drop of 0.1 percent solution in *water* followed by the addition of one more drop of *thallium nitrate solution*. The paper is washed with *ammonium hydroxide solution*. Now add one drop of *stannous chloride solution* in concentrated *hydrochloric acid*; a yellow to orange red stain is formed on filter paper.
- Assay** : Dissolve about 0.5 g accurately weighed in 100 ml *water*, add 3 g *anhydrous sodium acetate* and 1 ml *formic acid*. Heat on water-bath for several hours. Filter, add a little more *sodium acetate* and *formic acid* to the filtrate and heat again. Filter it again through the same filter paper. Wash the precipitate with water, dry and ignite the filter paper to constant weight. Each g of residue is equivalent to 2.6295 g of  $PtCl_4 \cdot 2NaCl \cdot 4H_2O$ .
- History and authority** : Proved by Hofer, *Gaz. Med. de Paris*, 1840, *Archiv. F. Hom.*, 19, 99; Allen: *Encyclop. Mat. Med.*, Vol. VII, 589.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                                |       |
|--------------------------------|-------|
| Platinum Muriaticum Natronatum | 100 g |
| Saccharum Lactis               | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

- (c) Mother Solution Drug strength 1/10  
Platinum Muriaticum Natronatum 100 g  
Purified Water in sufficient quantity  
to make one thousand millilitres of the Mother Solution.
- (d) Potencies: 2x with *Dilute Alcohol*, 3x and higher with *Dispensing Alcohol*.

**PLUMBUM CARBONICUM**

(Pb. carb.)



**Mol. wt.:** 775.633

**Common name** : *English:* Basic Lead Carbonate; *French:* Carbonate de plomb naturate; *German:* Bleicarbonat.

**Description** : A white, heavy non-gritty, amorphous powder or a white easily pulverisable mass; odourless; tasteless. Soluble in *acetic acid* and in *dilute nitric acid* with effervescence; insoluble in *water* and in *alcohol*. Contains not less than 79.0 percent and not more than 83.0 percent of lead.

**Identification** : Yields the reactions characteristic of *lead* and of *carbonates*, HPI, Vol. I,

**Alkaline earths and alkalis** : Dissolve 0.5 g in 4 ml *acetic acid*, add 50 ml of *water*; completely precipitate and pass *hydrogen sulphide*, precipitate and filter. The residue weighs not more than 0.01 g, on evaporating the filtrate to dryness.

**Insoluble matter** : Dissolve 0.1 g in 2 ml *nitric acid* and 4 ml *water*; filter and wash with *water*; the residue after drying at 105° weighs not more than 0.001 g.

**Assay** : Dissolve about 0.2 g accurately weighed in a mixture of 5 ml of *acetic acid* and 100 ml *water*; heat on a water-bath to about 85°; add 5 ml *potassium chromate solution* and continue the heating for half an hour. Collect the precipitate on a gooch crucible, wash with hot *water* until the washings are colourless; dry to constant weight at 120°. Each g of residue is equivalent to 0.6411 g of Pb.

**History and authority** : Introduced and proved by Hartlaub, Trinks, Hering and Nenning; Allen: *Encyclop. Mat. Med.*, Vol. I; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 855; Hering: *Guiding Symptoms*, Vol. VIII, 475.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Plumbum Carbonicum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**QUASSIA**  
(Quas.)

- Botanical name** : *Quassia amara* Linn. **Family:** Simarubaceae
- Common names** : *English:* Bitter wood; *French:* Boisamer; *German:* Quassianholz.
- Description** : A shrub or tree, upto 10 m in height with white light wood and spreading branches. Leaves, opposite, odd pinnate, dark green with bright dark veins; leaflets 4 to 5 narrow obovate, elliptical-oblong pointed, entire tapering towards the base sessile at the petiolar strictures, petiole articulate winged. Flowers large, crimson, hermaphrodite appear in June and July in long terminal racemes; corolla never fully expanded, spiral, twisted curling round one another; ovary 5 carpellary. Fruit a druplet sometimes by an aggregate of five druplets in the form of star. Druplets big, glandular, ovoid, black with pale spot at the base.
- Part used** : Wood.
- Macroscopical** : Dried wood usually in yellowish white chips, shavings or raspings occasionally in thin billets, fracture tough, fibrous; odour slight, taste very bitter.
- Microscopical** : Wood contains narrow vessels, single or in pairs, occasionally in groups of 3 to 4; pitted, lignified about 10 to 30 rows deep medullary rays, of which about 60.0 percent are uniseriate; a ring of pericyclic sclerenchyma slightly interrupted at places; calcium oxalate crystals very few or entirely absent; alternate bands of parenchyma and wood fibres.
- Distribution** : Guiana, North Brazil; cultivated in Columbia, Panama, West Indies, Native of Surinam.
- History and authority** : Introduced by Muller and Fidherr; Allen: *Encyclop. Mat. Med.*, Vol. VIII, 254; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III,
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                             Quassia in *coarse powder* 100 g  
                             Purified Water 200 ml  
                             Strong Alcohol 824 ml  
                             to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

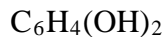
**QUILLAYA SAPONARIA**

(Quill. s.)

- Botanical name** : *Quillaya saponaria* Molina. **Family:** Rosaceae
- Common names** : *English:* Soap tree-bark; *French:* Ecorce de Quillaya; *German:* Seifenrinde.
- Description** : A glabrous, evergreen, monoecious tree with thick bark up to 18 mm in height. Leaves alternate, ovate, simple, slightly serrate, coriaceous lowers white in axillary cluster. Fruit a follicle, 5 leathery follicles cohering at the base along with adherent calyx.
- Part used** : Bark.
- Macroscopical** : Occurs in tough, flat pieces upto about 1 m in length, 10 to 15 cm or more wide and 3 to 10 mm but usually about 6 mm thick, often with small brownish patches of cork attached; inner surface light yellowish-orange to yellowish-white nearly smooth, crystalline, with occasional circular depressions and conical projections or transverse channels; fracture uneven, tough and strongly fibrous; odour slight, taste acrid.
- Microscopical** : In transection consists of a few layered cork cells; a wide cortex of oval isodiametric dark reddish-brown parenchyma-cells, traversed by numerous sinuous radiating 4 to 6 seriate parenchymatous ray cells, containing numerous scattered elongated rhomboid calcium oxalate crystals, 80 to 144 by 8 to 2, a wide phloem consisting of alternate groups or bands of sclereids and parenchyma traversed radially parenchymatous ray cells. Powder consists of characteristic knotted, twisted sinuous fibres, a few with characteristic bifurcated ends; oval elongated, rhomboidal, reddish-brown parenchyma cells; macrosclereids.
- Distribution** : Grown in botanical gardens, Ootacamund. Native of Western slopes of Andes in Chile and Peru.
- History and authority** : Boericke: *Mat. Med. with Reportory*, 543. Blackwood: *Mat. Med., Therapeutics and Pharmacology*, 517.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
     *Quillaya Saponaria in coarse powder* 100 g  
     Purified Water 500 ml  
     Strong Alcohol 530 ml  
     to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**RESORCINUM**

(Resorc.)



**Mol. wt.:** 110.10

- Common names** : *English:* Resorcinol; *French:* Resorcin.
- Description** : Almost colourless, needle shaped crystals; odour slight but characteristic; taste disagreeably sweetish and then bitter. It becomes reddish on exposure to air and light. It burns with bright flame without residue. Very soluble in *water*; freely soluble in *alcohol*. Contains not less than 98.0 percent with reference to the substance dried to constant weight at 80° on anhydrous *calcium chloride*.
- Identification** : (a) To 10 ml of a 1 percent w/v solution, add 2 drops of *ferric chloride solution*; a bluish violet colour is produced which on the addition of dilute *ammonia* solution change to brownish yellow.
- (b) Dissolve 0.1 g in 2 ml *sodium hydroxide solution*, add 1 drop *chloroform* and heat, on addition of slight excess of *hydrochloric acid*, an intense crimson colour is produced which changes to pale-yellow.
- Melting range** : 109° to 111°, HPI, Vol. I,
- Acidity** : A 5 percent solution is not acidic to methyl orange.
- Loss on drying** : Not more than 1 percent when dried over silica gel for 4 hours at 100°.
- Sulphated ash** : Not more than 0.1 percent, HPI, Vol. I,
- Catechol** : To 10 ml of a 5 percent w/v solution, add 0.1 ml *dilute acetic acid* and 0.5 ml *lead acetate solution*, no turbidity is produced.
- Phenol** : A 5 percent w/v solution, when gently warmed does not emit the odour of phenol.
- Assay** : Weigh accurately about 1.5 g and dissolve in *water* to make 500 ml. Transfer 25 ml of this solution to an iodine flask, add 50 ml 0.1 N *bromine*, dilute with 50 ml of *water*, add 5 ml *hydrochloric acid* and immediately stopper the flask. Shake the flask, allow it to stand for 1 minute. Remove the stopper momentarily to introduce quickly 5 ml *potassium iodide solution*, being careful that no bromine vapour escapes. Rinse with 20 ml water, taking care that all the rinsing runs into the flask. Titrate the liberated iodine with 0.1 N *sodium thiosulphate* using *starch* as indicator. Repeat the experiment with the same quantities of the same reagents in a

similar manner, omitting the resorcinol. Each ml of 0.1 N *bromine* is equivalent to 0.001835 g of C<sub>6</sub>H<sub>6</sub>O<sub>2</sub>.

**History and authority** : Boericke: *Mat. Med. with Repertory*, 557.

- Preparation** :
- (a) Mother Tincture  $\phi$  Drug strength 1/10  
     Resorcinol in *fine powder* 100 g  
     Strong Alcohol in sufficient quantity  
     to make one thousand millilitres of the Mother Tincture.
  - (b) Potencies: 2x and higher with *Dispensing Alcohol*.
  - (c) Trituration 1x Drug strength 1/10  
     Resorcinol 100 g  
     Saccharum Lactis 900 g  
     to make one thousand grammes of the Trituration.
  - (d) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to 8x, HPI, Vol. I,



**RHAMNUS CALIFORNICA**

(Rham. cal.)

**Botanical name** : *Rhamnus californica* Eschscholz. **Family:** Rhamnaceae

**Common name** : *English:* Californica coffee tree.

**Description** : An evergreen shrub. Stem terete, fuscous, nearly glabrous, branches angular, greyish tomentose. Leaves oblong to oblong-lanceolate with 8 to 10 pairs of veins, margin entire or serrulate glabrous on both sides, yellowish green beneath. Flowers fasciculate-umbelled; each fascicle about 3-flowered; pedicells tomentosed and as long as petiole; calyx 5-cleft; corolla 5, scale like; style 5 cleft. Fruits red to purplish black.

**Part used** : Bark (gathered in spring or early summer and kept for at least one year before use).

**Microscopical** : Distinguishing features are broader medullary rays in tangential section; inner cambium surface distinctly crenate.

**Distribution** : California, Mexico.

**History and authority** : Blackwood: *Mat. Med. Therap. and Pharmacology*, 520; Boericke: *Mat. Med. with Repertory*, 548.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Rhamnus Californica in <i>coarse powder</i>	100 g
Purified Water	200 ml
Strong Alcohol	824 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**SALVIA OFFICINALIS**

(Sal. off.)

- Botanical name** : *Salvia officinalis* Linn. **Family:** Labiatae (Lamiaceae)
- Common names** : *Hindi:* Salvia Sefakuss; *English:* Garden sage; *French:* Sauge; *German:* Salbeiblater.
- Description** : A hard low herb, up to 30 cm in height. Stem woody, white-woolly. Flowering branches tomentose pubescent. Leaves opposite entire, up to 10 cm in length, petiolate, oblong, based narrowed or rotund, tomentose beneath or on both surfaces; the base membranous, striate. Floral whorls few, many fid, distinct, calyx campanulate, membranous, striate, pubescent or villous, the teeth acuminate; corolla purple, blue or white.
- Part used** : Fresh leaves and flowering tops.
- Macroscopical** : Opposite, long petioled; petiole pubescent, grooved above up to 4.5 cm in length; lamina elliptical, ovate-oblong or oblong-lanceolate, 2 to 10 cm in length. 1 to 3 cm in breadth; acute or obtuse; cuneate, uneven or lobed; slightly crenulate, upper surface with depressed mid rib, light olive-grey to yellowish-green and densely pubescent; venation pinnate-reticulate, the reticulations being very small; mid-rib and veins prominent; texture velvet like; odour strongly aromatic on crushing; taste aromatic and bitter.
- Microscopical** : Upper epidermis undulate with thick-walled, cutinized epidermal cells, polygonal and slightly wavy with beaded walls in vertical view; glandular and non-glandular hairs, non-glandular type predominating; palisade parenchyma of 1 to 2 layers of irregular columnar cells with chloroplast; spongy parenchyma of 3 to 4 layers of rounded cells with chloroplast and few cells containing resin; lower epidermis, undulate, wavy with numerous stomata and glandular and non-glandular hairs. Non-glandular hairs of both epidermis uniseriate; head 1 celled, 2 to 5 celled and even 8 celled; stalk 2 to 4 celled or absent. Mid-rib shows 1 to 5 layers of collenchyma beneath each epidermis and a concave-convex group of open collateral bundles, the latter separated from each other by medullary rays usually 1 celled, rarely 2 celled in width. Some of the cells contain resin.
- Distribution** : Cultivated in India.
- History and authority** : Clarke: *A Dict. of Pract. Mat. Med.*, Vol. III, 1070; Blackwood: *Mat. Med. Therapeutics and Pharmacology*, 532; Anshutz: *New, Old and Forgotten Remedies*, 354.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Salvia Officinalis, moist magma containing solids 100 g and plant moisture 400 ml | 500 g  |
| Strong Alcohol  | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SAMBUCUS CANADENSIS**

(Samb. can.)

- Botanical name** : *Sambucus canadensis* Linn. **Family:** Caprifoliaceae
- Common names** : *English:* American or sweet elder; *French:* Sureau de Canada; *German:* Canadische Hollunder.
- Description** : Shrub up to 4 m in height. Stoloniferous, pale, yellowish-grey, slightly lenticellate. Leaves bright green; leaflets 5 to 11, usually 7, shortly petioled, elliptic to lanceolate, acute or acuminate, sharply serrate, sometimes pubescent on the veins beneath, 5 cm to 12.5 cm long. Cymes 5-rayed from its base, flat or convex, 5 to 15 cm wide, flowers white, 3 to 5 mm wide. Fruit a berry, about 5 mm in diameter; purple black and edible.
- Part used** : Flower.
- Macroscopical** : Flowers small and shriveled, 2 to 3 mm broad; calyx superior, 5-lobed; corolla light-yellowish, yellowish-orange to moderate yellow, urn-shaped, 5-lobed, regular; stamens 5, epipetalous, each possessing a slender filament and yellow oblong anther; pollen mostly rounded to ellipsoidal, occasionally tetrahedral, covered with finely punctate markings and showing 3 pores in the exosporium, up to 15 µ in diameter. Odour faintly sweet and aromatic; taste slightly bitter.
- Distribution** : Eastern North America to Florida and Texas.
- History and authority** : Introduced by Uebelacker; Allen: *Encyclop. Mat. Med.*, Vol. VIII, 476; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. III, 1071.
- Preparation** : (a) Mother Tincture φ Drug strength 1/10
- |   |        |
|---|--------|
| Sambucus Canadensis in moderately coarse powder | 100 g  |
| Purified Water                                  | 500 ml |
| Strong Alcohol                                  | 537 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SANGUINARINUM NITRICUM**

(Sang. nit.)

(C<sub>10</sub>H<sub>14</sub>NO<sub>4</sub>)NO<sub>3</sub>

**Mol. wt.** 394.00

**Description** : Orange to red crystalline powder; odourless. Soluble in *water* and in *alcohol*. Practically insoluble in solvent *ether* and *chloroform*. Contains not less than 99.0 percent of C<sub>20</sub>H<sub>14</sub>N<sub>3</sub>O<sub>7</sub> with reference to the substance dried to constant weight at 105°.

**Identification** : (1) Yields the reactions characteristic of nitrates, HPI, Vol. I,  
  
(2) Dissolve 0.1 g in 10 ml *water*, add *ammonia* solution to make it alkaline, extract with 3x 10 ml *chloroform*, concentrate to 2 ml and carry out Co-TLC with standard sanguinarine on silica gel 'G' using *chloroform : methanol* (9 : 1 v/v) as mobile phase and *Dragenaroff's reagent* as spray reagent. One spot appears corresponding to standard sanguinarine.

**Sulphated ash** : Not more than 0.1 percent, HPI.

**Loss on drying** : Not more than 1 percent when dried at 110° for 3 hours.

**Assay** : Weigh accurately about 0.2 g and add 25 ml of *water* and 10 ml of *dilute ammonia solution*. Extract 3 times with *chloroform* by using 20 ml each time, wash the chloroform layer with *ammoniacal water*; then extract the chloroform layer with 20 ml of 0.1 N *hydrochloric acid* and titrate excess of acid with 0.1 N *sodium hydroxide* using *methyl-red* as indicator. Each ml of 0.1 N *hydrochloric acid* is equivalent to 0.0394 g of (C<sub>20</sub>H<sub>14</sub>NO<sub>4</sub>)NO<sub>3</sub>.

**History and authority** : Proved by Owens; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1086.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Sanguinarinum Nitricum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x be converted to 8x, HPI, Vol. I,

Revised Monograph Appeared in HPI Vol. VII & VIII

**SAPONARIA OFFICINALIS**

(Sap. off.)

- Botanical name** : *Saponaria officinalis* Linn. **Family:** Caryophyllaceae
- Common name** : *English:* Bouncing bet.
- Description** : A perennial herb, up to 80 cm in height. Stem erect, arising from a horizontal rhizome and form extensive colonies. Stem coarse, simple often branched, leafy, clustered, glabrous. Leaves 7 to 10 cm long and 2 to 4 cm wide, elliptic to oblong-lanceolate, acute, glabrous, 3 nerved rarely puberulent. Inflorescence compact, subcapitate to open, corymbose, paniculate cyme, up to 15 cm long, primary bracts coriaceous, ultimate ones scarious. Flowers fragrant, frequently double (in horticultural varieties). Calyx 1.5 to 2.5 cm long, 20 nerved, glabrous, calyx tube toothed, triangularly acuminate. Petals 5, white or pinkish, petal lobes oblong to oblong-ovate, 8 to 15 mm long, entire, notched at the apex, auricles lacking, appendages conspicuous. Stamens 10, exserted. Ovary 1 celled. Fruit a capsule, elliptic-oblong.
- Part used** : Root.
- Identification** : Evaporate 2 ml of 60 percent alcoholic extract on a water bath to dryness; dissolve the residue in *chloroform*, add a few drops of *acetic anhydride* and 2 ml of *sulphuric acid* through the side; pink colour is produced.
- Distribution** : Europe, occasionally in Asia.
- History and authority** : Boericke: *Mat. Med. with Repertory*, 9th Ed., 573.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Saponaria Officinalis in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 400 ml |
| Strong Alcohol                                | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SCROPHULARIA NODOSA**

(Scro. nod.)

**Botanical name** : *Scrophularia nodosa* Linn. **Family**: Scrophulariaceae

**Common names** : *English*: Figwort; *French*: Scrofulaire; *German*: Braunwurz.

**Description** : A smooth deciduous herb, up to 1.2 m in height, often foul smelling with whitish root beset with fleshy knots. Stem four angled with blunt angles. Leaves opposite or upper alternate often bellucil-punctated. Flowers in terminal cyme, small, greenish purple to yellow; calyx deeply 5-lobed or oblong; posterior two, mostly longer, perfect; stamens 4, didynamous, inserted on the tube, included or exerted posteriorly, staminode at the apex of the tube scale like or absent; anther-locule confluent transversely into one; style slender, stigma minute or rarely capitate. Fruit a capsule, septicidally dehiscent, valves entire or 2 lobed. Seeds rugose.

**Part used** : Whole plant.

**Identification** : (a) Evaporate 20 ml of 50 percent alcoholic extract on a water-bath to remove *alcohol* and extract with 20 ml of *chloroform*. Concentrate chloroform layer, to 5 ml and carry out TLC of chloroform layer, using *chloroform* : *methanol* (9:1 v/v) as mobile phase and spray with *antimony trichloride* solution; four spots appeared at  $R_f$  0.25 (blue), 0.47 (blue), 0.85 (greenish-blue) and 0.93 (red).

(b) Carry out TLC of aqueous layer on silica gel 'G' using *n-butanol* : *acetic acid* : *water* (4:1:1 v/v) as mobile phase and spray with *aluminum chloride* solution followed by heating; five spots appeared at  $R_f$  0.58 (green), 0.67 (blue), 0.72 (yellow), 0.81 (blue) and 0.88 (red).

**Distribution** : Europe, wild in Poland.

**History and authority** : Introduced and proved by Franz: *Archiv. J. Hom.*: 17.3.184; Blakeley: *N. Am. J. of Hom.* 1866, 187; Allen: *Encyclop. of Pure Mat. Med.*, Vol. III, 1127.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Scrophularia Nodosa in <i>coarse powder</i>	100 g
Purified Water	500 ml
Strong Alcohol	537 ml

to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water, five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**SEDUM ACRE**

(Sed. acr.)

- Botanical name** : *Sedum acre* Linn. **Family:** Crassulaceae
- Synonym** : *Sedum neglectum* Ten.
- Common names** : *English:* Stonecrop, Wall pepper; *German:* Mauerfeffer.
- Description** : A perennial, freely branched, glabrous, caespitose (matted) herb. Non-flowering branches creeping, branched, about 5 cm long. Flowering branches erect, 5 to 10 cm in height. Leaves crowded, imbricate, minute, 2 to 5 mm long, leaf blade broader as compared to length, terete, ovoid, fleshy, blunt, gibbose (a swelling or bulging one side) at base sessile. Inflorescence few, short, branched, one sided cyme. Flowers yellow; about 1.25 cm across; sepals leaf-like, petals lanceolate, spreading about twice as the sepals. Leaves taste acid.
- Part used** : Whole plant.
- Distribution** : Cultivated in U.K., naturalized in North Africa. North America.
- History and authority** : Boericke: *Mat. Med. and Repertory*, 9th Ed., 58.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                             *Sedum Acre* in *coarse powder* 100 g  
                             Purified Water 500 ml  
                             Strong Alcohol 537 ml  
                             to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SEMPERVIVUM TECTORUM**

(Semp. tec.)

- Botanical name** : *Sempervivum tectorum* Linn. **Family:** Crassulaceae
- Common names** : *English:* House leek; *French:* Grande Joubarbe; *German:* Hauswurz.
- Description** : An evergreen perennial herb, up to 30 cm in height with fibrous root having several tufts of leaves. Stem arising from one of these tufts, round, pubescent and terminates in a many flowered pubescent cyme with spiked branches. Leaf narrowly obovate, sessile, alternate, acute, keeled, fringed and exceedingly succulent. Flower pink-purple, 12 to 16, appearing from June to September; odourless.
- Part used** : Leaf.
- Identification** : Take 5 ml of 45 percent alcoholic extract and add 1 ml *hydrochloric acid*, boil on a water-bath for five minutes and cool; add a few drops of *alcoholic solution of resorcinol* and 8 ml of *sulphuric acid*. Warm the mixture for a moment and cool. Add *water* and *sodium hydroxide solution* till alkaline, an intense blue fluorescence is produced.
- Distribution** : Indigenous to the Alps; grows throughout Europe and cultivated in the U.S.A.
- History and authority** : Introduced by Kallen bach; *Allg. Hom. Zeit.* 50, 126; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. III, 1144.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Sempervivum Tectorum* in *coarse powder* 100 g  
Purified Water 567 ml  
Strong Alcohol 470 ml  
to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part of Mother Tincture, five parts of Purified Water, four parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## SHIGELLA DYSENTERIAE

(Shig. dys.)

**Microbiological name** : *Shigella dysenteriae* (shiga) Castellani and Chalmers 1919.

**History and authority** : Proved by Juliun: *Treatise on Dynamised micro-immunotherapy*, 209.

**Biological distribution** : The genus shigella comprises a group of parasitic bacteria of intestinal tract of man, occasionally monkeys and a few other mammals. They produce symptoms characteristic of diarrhoea with blood and mucus in liquid stools associated with severe abdominal pain and fever. Shigellae are rarely present in organs other than the intestine.

**Source for the preparation of homoeopathic drug** : Organism is isolated from faeces of man or monkeys.

**Morphology** : It is gram negative, non-motile, rod 0.4 to 0.6  $\mu$  broad and 1 to 3  $\mu$  long, nonsporing and easily stained by *aniline dyes*.

**Cultural characteristics** : It grows well on general purpose culture media but on Mac. Conkey's agar, desoxycholate agar of salmonella shigella agar. They appear as pale colonies (i.e. non-lactose fermenting) after incubation at 37°C for 18 hours. On XLD media (xylose, lysine, desoxycholate agar) they appear as red colonies.

**Resistance and metabolism** : They are not specially resistant. They are killed at 55°C in 1 hr, by 0.5 percent *phenol* in 6 hours and by 1 percent *phenol* in about 15 to 30 minutes. When dried on linen and kept in the dark at room temperature they survive for 5 to 46 days. In garden earth at room temperature in the dark they survive for 9 to 12 days. The organism in infected faeces kept alkaline and prevented from drying remain alive for some days but in stools that are allowed to become acid through growth of coliform or other bacilli, they often perish in a few hours. They are aerobic and facultative anaerobe. They grow between 15° to 42° but optimum temperature is 37°C. *Shigella* will not grow in a medium containing only salts and a simple *carbon* source. Most strains grow when glucose and nicotinic acid are added.

**Biochemical** : Reduces nitrates to nitrites, produces acid but no gas from solutions of dextrose and glycerol; does not ferment xylose, lactose, sucrose.

- Preparation** : (a) Under Nosode, Group N-11, suspension of 20×10 micro-organism germs/ml is obtained. Proceed according to general instructions for preparation of Nosodes Group-II to obtain 1x.
- (b) Trituration 2x Drug strength 1/100  
 Shigella Dysenteriae 1x 1.0 ml  
 Saccharum Lactis 99.0 g  
 to make one hundred grammes of the Trituration.
- (c) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**Storage** : Preparation below 6x to be kept at about 5°C and not to be allowed to freeze.

- Caution** : (a) Not to be dispensed below 6x.
- (b) 6x should be free from live germs and should pass the test for sterility as mentioned in the Drug Act.

All purpose culture medium	0
Yeast extract	2.0 g
Beef extract	1.0 g
Peptone	5.0 g
Sodium chloride	5.0 g
Agar	15.0 g
Distilled Water	1.0 litre
pH 7.4 (approximately)	

Mac Conkey's Agar

Peptone	20.0 g
Lactose	10.0 g
Bile salts	1.50 g
Sodium chloride	5.00 g
Neutral red	0.03 g
Crystal violet	0.001 g
Agar	15.00 g
Distilled Water	1.00 litre
pH 7.1 (approximately)	

Desoxycholate Agar

Peptone	10.00 g
Lactose	10.00 g
Sodium desoxycholate	1.00 g
Sodium chloride	5.00 g
Dipotassium hydrogen Phosphate	2.00 g
Ferric citrate	1.00 g
Sodium citrate	1.00 g
Neutral red	0.03 g
Agar	15.00 g
Distilled Water	1.00 litre
pH 7.3 (approximately)	

Salmonella Shigella agar

Beef extract	5.00 g
Peptone	5.00 g
Lactose	10.0 g
Bile salts	8.50 g
Sodium citrate	8.50 g
Sodium thiosulfate	8.50 g
Ferric citrate	1.00 g
Neutral red	0.025 g
Brilliant green	0.330 g
Agar	13.50 g
Distilled Water	1.00 litre
pH 7.0 (approximately)	

XLD Medium

Xylose	3.5 g
L-Lysine	5.00 g
Lactose	7.50 g
Sucrose	7.50 g
Sodium chloride	5.00 g
Yeast extract	3.00 g
Phenol red	0.08 g
Sodium desoxycholate	2.50 g
Sodium thiosulphate	6.80 g
Ammonium citrate	0.80 g
Agar	13.50 g
Distilled Water	1.00 litre
pH 7.4 (approximately)	

**SILPHIUM LACINIATUM**

(Sil. lac.)

**Botanical name** : *Silphium laciniatum* Linn. **Family**: Compositae (Asteraceae)

**Common name** : *English*: Compass plant.

**Description** : Coarse, deciduous, perennial herb, up to 3 m in height with a woody tap root, containing resinous juice. Stem hispid or hirsute with spreading hairs, sometimes slightly glandular. Leaves alternate, edges deeply bi-pinnatifid, hirsute chiefly along the mid rib and beneath main veins, the lower leaves very large, sometimes 25 to 50 cm long, progressively reduced upwards. Flowers bright yellow, appears from July to September in heads. Heads sometimes in the narrow racimiform inflorescence, disk large, the dark commonly 2 to 3 cm wide; involucre hispid-hirsute or scabrous-hispid, commonly 2 to 4 cm long, exceeding the disk, its bracts ovate acuminate, squarrose, not much imbricate; rays about 15 to 30, 2 to 5 cm long.

**Part used** : Whole plant.

**Identification** : Take 25 ml of 80 percent *alcoholic* extract, evaporate on a water-bath to remove *alcohol*, extract it with petroleum ether and dissolve the residue in *methyl alcohol*. Carry out TLC of methanolic extract on silica gel 'G' using *n-butanol* : acetone : *water* (4:1:1 v/v) as mobile phase. Under UV light five spots appear at  $R_f$  0.23, 0.55, 0.62, 0.75, 0.85 and on spraying with *aniline phthalate*; three brown spots appear at  $R_f$  0.45, 0.75 and 0.85.

**Distribution** : Western U.S.A.

**History and authority** : Introduced and proved by Hale, *New Rem.*, 1854; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1190.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Silphium Laciniatum in <i>coarse powder</i>	100 g
Purified Water	150 ml
Strong Alcohol	874 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**SOLANUM XANTHOCARPUM**

(Sol. xan.)

- Botanical name** : *Solanum surratense* Burm. f. **Family**: Solanaceae
- Synonym** : *Solanum xanthocarpum* Schrad and Wendl.
- Common names** : *Hindi*: Kateli; *English*: Yellow-berried night shade.
- Description** : A very prickly, diffuse, bright-green perennial herb, somewhat woody at the base. Stem zig-zag, branches numerous, the younger ones clothed with dense stellate tomentum; prickles compressed, straight, yellow, glabrous and shining, often exceeding 1.3 cm in length. Leaves 5 to 10 cm in length and 2.5 to 5.7 in breadth ovate or elliptic, sinuate or sub-pinnatifid, obtuse or subacute, stellately hairy on both sides, sometimes becoming nearly glabrous with maturity, armed on the mid-rib and often on the nerves with long yellow sharp prickles, base usually rounded and unequal sided; petioles 1.3 to 2.5 cm long, stellately hairy. Calyx nearly 1.3 cm long, densely hairy and prickly, tube short, lobes 11 mm long, linear lanceolate, opening small pores. Ovary ovoid, glabrous, style glabrous. Fruit a berry, 1.3 to 2 cm in diameter, yellow or white with green veins, surrounded by the enlarged calyx. Seeds 2.5 mm in diameter, glabrous.
- Part used** : Whole plant.
- Macroscopical** : Stem very prickly, woody, spreading, ridged or furrowed having several trailing branches, furrows becoming indistinct in the lower part and the stem appears almost circular at base. Branches, when young, covered with hairs, becoming glabrous when mature. Roots usually 2 cm in diameter at upper extremities; cylindrical, tapering, bearing longitudinal and transverse surface shows thin bark and a wide compact cylinder of wood. Internally the bark is pale and starchy, while externally yellowish-brown. Fracture is short in case of root, while short and fibrous in case of stem. Taste of roots, bitter.
- Microscopical** : Young stem: Composed of single layered epidermis of cubical to barrel shaped cells, covered externally by thick cuticle and stellate trichomes, cortex wide parenchymatous with a middle zone of 2 to 4 layers of collenchyma; endodermis with barrel shaped cells showing casparian dots on radial walls; pericycle single layered enclosing a dissected siphonostele with internal phloem; pith large, parenchymatous.

Mature stem: Consists of 6 to 12 layered cork cells; phelloderm parenchymatous, 7 to 11 layered, a few becoming lignified forming stone cells, parenchyma and stone cells. Trachea with bordered pits, while tracheids have bordered pits and reticulate thickenings. Xylem rays conspicuous by bearing pitted thickenings. Microspheroidal crystals of calcium oxalate, starch grains 4 to 5 in diameter with central hilum also present.

Young root: Composed of epidermis of cubical to radial elongated cells. Cortex parenchymatous, 3 to 5 layered; endodermis single layered; pericycle single layered enclosing a di-to triarch stele. Mature root 5 to 7 mm in diameter; cork cells 3 to 6 layered; phellogen single layered; phelloderm 6 to 15 layered parenchymatous with a few scattered stone cells; secondary phloem with patches of stone cells in outer and middle region; cambium 3 to 5 layered of rectangular cells; wood composed of vessels and tracheids, fibres, fibre-tracheids, ray cells all lignified.

**History and authority** : Ghose: *Drugs of Hindoosthan*, 291.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Solanum Xanthocarpum, moist magma containing solids 100 g and plant moisture approximately 330 ml	430 g
Purified Water	220 ml
Strong Alcohol	480 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**SPARTEINUM SULPHURICUM**

(Sp. sulph.)

$C_{15}H_{26}N_2.H_2SO_4.5H_2O$

**Mol. wt.:** 422.50

**Common name** : *English:* Sparteine sulphate.

**Description** : It is a salt of diabolic alkaloid spartein, obtained from scoparium. *Sarothamnus scoparius* (*Cytisus scoparius*) (Leguminasae). Colourless crystals or white crystalline granules or powder, sometimes in the form of greenish crystals; taste bitter saline; odourless. Freely soluble in *water* and in *alcohol*.

**Identification** : (i) To 1 ml of 10 percent solution in *water*, add 1 ml of *sodium hydroxide solution*; a white precipitate is formed which soon changes into oily drops and is soluble in solvent *ether* and in *alcohol*.

(ii) To about 0.1 g add 25 ml of *solvent ether*, a few drops, but not in excess of *dilute ammonium hydroxide* solution and sufficient quantity of 2 percent *iodine solution* in solvent *ether*, until the colour of the solution on shaking changes from orange to dark reddish-brown; dark greenish-brown crystals appear in short time on the sides of the test tube.

(iii) It gives the reactions characteristic of *sulphates*, HPI, Vol. I,

**Loss on drying** : When dried to constant weight at 100° loses 20 to 22 percent of its weight.

**Ash** : Not more than 0.1 percent.

**Melting point** : Material dried at 100°, not lower than 150°.

**Reaction** : 5 percent solution in *water* is slightly acidic to *methyl red* solution.

**Specific rotation** : In 10 percent w/v solution of the hydrated salt in *water* and calculated for *anhydrous sparteine sulphate*, –26.5 to –28.5.

**History and authority** : Boericke: *Mat. Med. with Repertory*, 599; Blackwood: *Mat. Med. Therapeutics and Pharmacology*, 553.

**Preparation** : (a) Trituration 1x

Drug strength 1/10

Sparteinum Sulphuricm	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I,

**Storage**

: Preparation below 6x to be kept in neutral (alkali free) containers protected from light.

**STIGMATA MAYDIS-ZEA**

(Zea mays)

- Botanical name** : *Zea mays* Linn. **Family**: Gramineae (Poaceae)
- Common names** : *Hindi*: Makai; *English*: Maize, Indian corn; *French*: Filament de Mois; *German*: Maispistille.
- Description** : An annual, monoecious herb with fibrous roots. Stem erect jointed with soft path in the internodes. Leaves long, lanceolate, alternate on opposite side of the stem, each with a tightly fitting ligule which closely invests the stem. Staminate inflorescence consists of a panicle of spike-lets at the top of the stem called the tassel. Each normal spikelet bears 2 flowers, each of which has 3 perfect stamens and a rudimentary pistil. Pistillate inflorescence is a close axillary spike, called the “ear” which is borne on a short branch or “shank”. The shank consists of a number of nodes and short internodes, the nodes bearing modified leaves in the form of leaf-sheaths on the shank constitute the “husk” of the ear.
- Part used** : Corn silk.
- Macroscopical** : Occurs in masses consisting of more or less tangled slender filaments from 10 to 20 cm length, light green, greenish-yellow, brown, reddish-orange, pink or purplish red in colour. Each filament consists of a long style (up to 30 cm) and a bifid stigma, the segments being slender and 3 mm in length. Odour slight; taste slightly sweet.
- Microscopical** : Shows rectangular epidermal cells, surrounding a matrix of parenchyma through which traverse parallel vascular bundles possessing slender and spiral trachea. Many of the epidermal cells, particularly of multidistal region show outgrowths in the form of multicellular hairs from 200 to 300 long. The basal portion of each of these hairs comprises two to five united cells, the distal portion grains are also evident either adhering to the style or upon the stigmatic surfaces. The purplish-red style contain a purplish-red sap.
- Distribution** : Widely cultivated in India.
- History and authority** : Clarke: *A Dict. of Pract. Mat. Med.*, Vol. III, 1582, Anshutz: *New, Old and Forgotten Remedies*, 389.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Stigmata maydis-zea, moist magma containing |        |
| solids 100 g and plant moisture 610 ml      | 710 g  |
| Strong Alcohol                              | 430 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, five parts Purified Water and four parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**STRYCHNINUM**

(Strych.)

$C_{21}H_{22}N_2O_2$

**Mol. wt.:** 334.40

**Common name** : *English:* Strychnine.

**Description** : A white crystalline powder; odourless; taste extremely bitter. Very slightly soluble in *water*, slightly soluble in *alcohol* and freely soluble in *chloroform*. Obtained from the seeds of *Strychnos nuxvomica* and other *Strychnos* species.

**Identification** : 1. Dissolve 1 mg in 2 ml *chloroform*, add 0.5 g of *ammonium vanadate*; a blue colour appears which changes to purple and finally to red.

2. Dissolve 0.1 mg in 2 ml *chloroform* and carryout Co-TLC with an authentic sample of strychnine on silica gel 'G' using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase and *iodoplatinate* as spray reagent; one spot appears at  $R_f$  0.22 corresponding to Strychninum.

**Melting range** : 286° to 288° (d).

**History and authority** : Introduced and proved by Noack and Trinks; Allen: *Encyclop. Mat. Med.*, Vol. IX, 233; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1289.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Strychninum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I,

**SWERTIA CHIRATA**

(Chirata)

- Botanical name** : *Swertia chirata* Buch (Ham.) **Family**: Gentianaceae
- Common name** : *Hindi*: Chirayata.
- Description** : An erect, annual herb with robust stem upto 1.5 m in height. Branches opposite, decussate, terete except near the top. Leaves opposite, sessile lanceolate, 10 by 3.8 cm, acute. Flowers small in panicles; calyx and corolla greenish-yellow, tinged with purple, two glands on each lobe, green, fringed with long hairs. Fruit a capsule, 0.6 cm and upwards, ovoid. Seeds 0.5 mm; polyhedral, smooth. Contains not less than 1.3 percent bitter principle.
- Part used** : Whole plant excluding root.
- Macroscopical** : Chirata consists mostly of stem with leaves, flowers, fruits and roots, a peculiar yellowish tinge all over the herb; stem up to one meter and 6 mm broad, glabrous, yellowish-brown to purplish, faintly quadrangular above and cylindrical below, a large continuous easily separable yellow pith. Leaf, opposite, cauline. Broad at the base, ovate or lanceolate, entire, acuminate, glabrous; usually with 5 to 7 prominent lateral veins; branching from the axils of the leaves which ramify further into paniculate inflorescence. Flower, tetramerous 2 to 3 mm broad, ovoid, with 2 glandular depressions near the base of each of the corolla lobes. Fruit superior, bicarpellary, unilocular, ovoid and pointed capsules, with numerous minute reticulated seeds, which are about 0.25 to 0.55 mm long and 0.16 to 0.45 mm broad, irregular ovoid.
- Assay** : Extract 20 g in boiling water containing 0.5 g of *calcium carbonate* till the last portion of the extract is devoid of bitterness; concentrate in vacuum and dissolve the residue in hot *strong alcohol*.
- Filter while hot and wash the residue three times with 10 ml portions of hot alcohol; remove the alcohol from the filtrate and wash the residue repeatedly with hot *water* (25, 20, 15 and 10 ml). Shake the filtrate repeatedly with 25, 20, 15 and 10 ml of *ethyl acetate* shakings; evaporate, dry and weigh. Should contain not less than 1.40 percent w/w of the residue.
- Distribution** : Temperate Himalayas at altitude, between 1200 m and 3000 m from Kashmir to Bhutan and in Khasia hills.

**History and authority** : Proved by Bhattacharya; Ghose: *Drugs of Hindoosthan*, 286.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Swertia Chirata containing solids 100 g  
and plant moisture 260 ml 360 g

Strong Alcohol 775 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**TARENTULA CUBENSIS**

(Tar. cub.)

**Zoological name** : *Tarentula cubensis* **Family:** Lycosidae

**Synonym** : *Lycosa cubensis*

**Common names** : *English:* Cuban spider; *German:* Tarentel.

**Description** : A large, dark brown, hairy spider; body about 9.0 cm long while legs span can be much greater. The convex carapace usually bears eight eyes anteriorly; a large sternum. The female pedipalps are short and leg like, but in male they are modified into copulatory organs. Last segment greatly enlarged and knob-like resembling a boxing glove. Legs variable in length and usually consists of 8 segments viz. a basal coxa, a small trochanter, a long femur, a short patella, a long tibia, a metatarsus, a tarsus and a distal minute pretarsus bearing 2 to 3 claws. Abdomen unsegmented, globe shaped or elongated.

**Part used** : The entire living spider.

**Distribution** : Cuba and Mexico.

**History and authority** : Proved by Monge, *American Journal of Hom. N. S.* Vol. 2, 387; Hering: *Guiding Symptoms*, Vol. X, 249.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Tarentula Cubensis	100 g
Purified Water	300 ml
Glycerine	200 ml
Strong Alcohol	500 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water, five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*



**TRICHOSANTHES DIOICA**

(Tri. dio.)

- Botanical name** : *Trichosanthes dioica* Robx. **Family:** Cucurbitaceae
- Common name** : *Hindi:* Parwal.
- Description** : A dioecious climber with a perennial rootstock. Stem slender, more or less wooly and hispid; tendrils 2-fid. Leaves 7.5 by 5.0 cm, ovate-oblong to cordate, acute to sinuate-dentate, not lobed; rigid, rough on both surfaces, petiole 1.9 cm, scabrous wooly. Flowers deciduous, female solitary; male flowers often paired, one short and the other long peduncled, wooly outside; anthers free; calyx tube 3.8 cm narrow. Fruit 5 to 8.8 cm long acute, orange, nearly spherical, orange-red when ripe, compressed, corrugate on margin.
- Part used** : Root.
- Macroscopical** : Cream-coloured, bearing longitudinal wrinkles; fracture tough and mealy.
- Microscopical** : In transection, phellum 2 to 3 layered; phellogen single layered; secondary cortex wide with oval starch bearing parenchyma cells and numerous brachysclereides present in interrupted layers just below the cork or sometimes in groups of 2 to 4 and scattered; stele tetra to hexa-arch with small secondary phloem, cambium at places, 2 to 3 layered; xylem in small bundles of trachea and abundant wood fibres separated from each other by wide zone of starch parenchyma cells; pith absent.
- Identification** : (i) Take 2 ml of 60 percent alcoholic extract and evaporate to dryness. To the residue add two drops of concentrated *sulphuric acid*; a red colour appears which changes dark red after some time.
- (ii) Take 25 ml of 60 percent alcoholic extract. Evaporate on a water-bath to remove *alcohol*; carry out the TLC on silica gel 'G' using *n-butanol : acetone : water* (8 : 10 : 3 v/v) as mobile phase and *aniline phosphoric acid* as spraying reagent, heat the plate at 105°C; one spot appears at  $R_f$  0.55.
- (iii) Carryout TLC of residue, obtained in test (ii) on silica gel 'G' using *n-butanol : acetic acid : water* (4 : 1 : 1 v/v) as mobile phase and 2 percent *ninhydrin solution* as spray reagent; heat the plate at 110° for ten minutes six pink spots appear at  $R_f$  0.07, 0.11, 0.17, 0.21, 0.34 and 0.42.

**Distribution** : India, especially Bihar and West Bengal.

**History and authority** : Proved by Biswas; Ghose: *Drugs of Hindoosthan*, 9th Edition, 209.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Trichosanthes Dioica, moist magma containing  
solids 100 g and plant moisture 400 ml 500 g

Strong Alcohol 635 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture and two part Purified Water and three parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**TUSSILAGO FRAGRANS**

(Tuss. fra.)

**Botanical name** : *Petasites fragrans* Presl. **Family**: Compositae (Asteraceae)

**Synonym** : *Tussilago fragrans* Vill.

**Common name** : *English*: Winter Heliotrope.

**Description** : A hardy perennial herb, up to 20 cm in height having underground runner. Leaves large, orbicular, margined with small cartilaginous teeth with a deep heart-shaped base, glabrous above, pubescent below usually appearing during or after anthesis. Scapes usually covered with many scales, usually fragrant, dioecious flower heads. Marginal flowers of the female heads in the form of short rays; flowers small, varying from pale lilac to purple; odour delightful vanilla like; bloom in winter. It differs from common coltsfoot (*Tussilago farfare*) in having darker colour and evergreen foliage.

**Part used** : Whole plant.

**Distribution** : Mediteranean region.

**History and authority** : Proved by Demeures, *Journ de la Soc. Gall*, Vol. IV, 109; Allen: *Encyclop. Mat. Med.* Vol. X, 32; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1470.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Tussilago Fragrans in *coarse powder* 100 g  
                   Purified Water 567 ml  
                   Strong Alcohol 468 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**TYLOPHORA INDICA**

(Tyl. ind.)

- Botanical name** : *Tylophora indica* Burn. (Merill) **Family**: Asclepiadaceae
- Synonyms** : *Tylophora asthamatica* Wight and Arn; *Asclepias asthamatica* Merill.
- Common names** : *Hindi*: Antamul, Jungli pikvan.
- Description** : A twinning perennial herb. Stem densely tomentose, slender, longitudinally striated with branches arising from axil of leaves. Leaves thick, cauline, opposite, simple entire, acute and base cordate; glabrous ventrally and pubescent dorsally. Flowers greenish-yellow outside, purplish within, in many flowered umbels (dichasial cyme). Fruit a follicle, fusiform, divaricate, up to 10 cm, striate; seed ovate, elongated into a coma, 2 to 2.5 cm; silky hairs at one end.
- Part used** : Leaf.
- Microscopical** : Dorsiventral. Stomata and multicellular hairs absent on upper epidermis but present on lower epidermis. Trichomes striated, upper epidermal cells longer than lower epidermal cells. Palisade 2 to 4 cell wide, followed by isodiametric parenchymatous cells. In mid-rib arch-shaped, stele conjoint, collateral, open, encircled by sclerenchyma patches; cambium 2 to 3 layered with phloem towards dorsal side; numerous scattered aggregates of microcrystals, collenchyma present below the epidermis in the midst and at the margins below the epidermis. Laticiferous ducts also present below palisade tissue. Lateral vein bundles surrounded by parenchymatous sheath but without cambium. Stomata paracytic. Stomatal index 88.76 to 91.68; vein islet number 10 to 13 per sq. mm. Palisade ratio 4.25 to 6.00. Petiole circular in outline in transection. Epidermis 1 layered with 2 to 4 celled hairs. Collenchyma 5 to 7 layered followed by isodiametric parenchymatous tissues. Vascular bundle arc-shaped and dorso-convex; sclerenchyma patches on both sides.
- Identification** : 1. Take 5 ml 60.0 percent alcoholic extract, add a few drops of *hydrochloric acid* and *Mayer's reagent*; brown coloured precipitate appears.
2. Take 5 ml 60.0 percent alcoholic extract, add 100 mg *magnesium powder* and a few drops of *hydrochloric acid*; brownish pink colour develops.

**History and authority** : Short proving was conducted in CCRIM & H; *Hahnemannian Gleaning*, Vol. XIII, No. 3 (1976), also proved by Kishore: *Indian J. of Homoeopathic medicine*, Vol. I, 2, No. 1 (1978).

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Tylophora Indica, moist magma containing  
 solids 100 g and plant moisture 400 ml 500 g  
 Strong Alcohol 630 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x with dilute Alcohol. 3x and higher with *Dispensing Alcohol*.

**ULMUS FULVA**

(Ulmus f.)

- Botanical name** : *Ulmus fulva* Mishaux. **Family:** Ulmaceae
- Synonym** : *Ulmus rubra* Muhlenberg.
- Common names** : *English:* Slippery Ela; *French:* Ecorce d' Orma; *German:* Ulmcnrinde.
- Description** : Tree up to 20 m in height. Twigs scabrously pubescent; winter buds densely covered with reddish-brown hairs. Leave ovate to obovate, alternate, thick and stiff, 10 to 20 cm long, acute, unequal at base, very tough above. Flowers perfect, fascicled, short pedicelled to nearly sessile, in short racemes. Fruit a samara, broadly winged, nearly circular, slightly notched at the apex, 15 to 20 cm wide entire, the sides smooth on the wing, pubescent over the seed, scarcely reticulate.
- Part used** : Inner Bark.
- Macroscopical** : Consist entirely of secondary phloem as large flat strips of 0.5 to 1 mm long and 1 to 4 mm thick, outer surface light yellowish with occasional dark brown patches of adhering cork; longitudinally striated; the inner surface light yellowish-orange, smooth and longitudinally striated. It is extremely tough and fibrous. The transversely cut surface is completely by phloem rays, between which small tangential bands of phloem fibres and phloem parenchyma are arranged alternately, giving the surface a chequered appearance. The transverse section is moistened, it yields mucilage. Odour strong, aromatic and spicy, resembling fenugreek; taste mucilaginous.
- Microscopical** : The phloem fibres up to 20  $\mu$  in width and cellulose except for lignified middle lamella in bundles, each of which is accompanied by a crystal sheath and prisms of calcium oxalate, about 10 to 20 to 30  $\mu$  long, 8 to 10  $\mu$  thick; the sieve tubes very large with sieve plate, having a coarse network but without companion cells; the large mucilage cells measure radially 65 to 100  $\mu$ , tangentially 100 to 160  $\mu$ , longitudinally 115 to 204  $\mu$ ; the mucilage stains with ruthenium red, the parenchyma contains starch granules, measuring 11 to 15 to 22  $\mu$ .
- Distribution** : Mountains of Canada and Sylvania in U.S.A.

**History and authority** : Clarke: *A Dict. of Pract. Mat. Med.*, Vol. III, 1473; Boericke: *Mat. Med. with Repertory*, 675.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Ulmus Fulva in *coarse powder* 100 g  
Purified Water 400 g  
Strong Alcohol 635 g

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**VACCINIUM MYRTILLUS**

(Vac. myrt.)

- Botanical name** : *Vaccinium myrtillus* Linn. **Family:** Ericaceae
- Common name** : *English:* Bule berry.
- Description** : A small glabrous shrub with sharply angled branches. Leaves 1.2 to 1.7 cm long, ovate or oval, serrate conspicuously, reticulately-veined, glabrous, green, thin and shining; calyx-limb almost entire; corolla globular, ovate. Fruit a berry, bluish-black, tetra or pentalocular, up to 8 mm in diameter.
- Part used** : Berry.
- Macroscopical** : Occurs as bluish-black, shapeless, wrinkled berries becoming globular when steeped in water; about 3 to 5 mm in diameter; remains of a calyx appear as small annular edging on the apex of the fruit surrounding a swollen disc with remnant of style in the center of a small pit as if it has fallen. Pulp dark, reddish-violet containing numerous small, ovoid seeds of reddish-brown colour when chewed and teeth and oral mucosa becomes blue-violet; odour faint.
- Microscopical** : Epidermal cells contain colouring matter; stomata present at the apex only; mesocarp parenchymatous containing sclereids; the septa thick-walled and sclerous.
- History and authority** : Introduced by Croucher, *Homoeopathic Review*; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1635.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   *Vaccinium Myrtillus* in *coarse powder* 100 g  
                   Purified Water 350 ml  
                   Strong Alcohol 687 ml  
                   to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.



**VERBENA OFFICINALIS**

(Verb. off)

- Botanical name** : *Verbena officinalis* Linn. **Family:** Verbenaceae
- Common names** : *English: Vervain; French: Verveine commune; German: Eisenhart, Eisenkraut.*
- Description** : An erect or decumbent perennial with a deep fusiform woody rootstock, up to 1.5 cm in height. Stem quadrangular, furrowed. Leaves opposite or terrate, oblong or ovate, coarsely toothed, pinnatifid or variously lobed, lobes acute or obtuse. Flowers lilac, in dense, slender, elongate spikes. Fruit a pyrene, oblong, 3 ribbed, dorsally smooth.
- Part used** : Whole plant.
- Microscopical** : Stem: Quadrangular in outline. Epidermis followed by chlorenchyma except at the corners and some ridges where collenchymatous tissue present; phloem in a continuous ring. Above the phloem and beneath the collenchyma, patches of sclernchymatous tissue present; pith wide and distinct.
- Distribution** : Found throughout India.
- History and authority** : Hale, *New Remedies*, 4th Edition, 655.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Verbena Officinalis, moist magma containing solids 100 g and plant moisture 233 ml | 333 g  |
| Purified Water   | 167 ml |
| Strong Alcohol   | 635 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**VERNONIA ANTHELMINTICA**

(Ver. anth.)

**Botanical name** : *Centratherum anthelminticum* Kuntz.

**Family:** Compositae (Asteraceae)

**Synonym** : *Vernonia anthelminatica* Wild.

**Common names** : *Hindi:* Somraj; *English:* Purple Fleabana; *French:* Herb ause mouches.

**Description** : A tall robust, erect, leafy, annual, up to 1 m in height. Stem branched, pubescent. Leaves 5 to 9 cm by 2.5 to 3.2 cm, lanceolate or elliptic-lanceolate, acute, coarsely serrate, more or less pubescent on both sides, rather membranous, base tapering into the petiole. Flower heads 1.2 to 3 cm in diameter, pale-violet; subcorymbose many flowered (about 40) with a linear bract near the top of the peduncle, outer involucre bracts linear, hairy, herbaceous, shorter than those of the inner rows; intermediate bracts herbaceous with hairy tips, linear, acute or sub obtuse, often constricted or shorter (rarely longer) than the innermost; innermost bracts usually the longest, linear, subacute, scarious, often tipped with purple. Pappus reddish, the exterior rows very short, sub-paleaceous, persistent, the inner hairs somewhat flattened, deciduous, much shorter than the glabrous corollas. Fruit an achene, 5 to 5.6 mm long, oblong-cylindric, 10 ribbed, pubescent. Seeds very bitter.

**Part used** : Seed.

**Microscopical** : In transection consists of 8 to 9 dome shaped ridges, each alternating with a convexity. Epidermis single layer of flattened thin walled cells, curved with (i) unicellular simple trichomes over the ridges, (ii) glandular peltate, sessile trichomes in furrows and corners with globose unicellular heads. Epidermis in ridges is followed by a zone of thick walled parenchyma cells, while in convexities by thick walled crystal bearing parenchyma cells. Thick walled parenchyma in each ridge is followed by an armed central column of brachysclerieds surrounded on lateral sides by oval, isodiametric crystal bearing thick walled cells. Parenchyma in each convexity is transversed by scleriedal bands on the central scleriedal column of the adjoining ridges. The zone of sclerenchyma is followed by 2 to 4 layers of disorganised cells, a layer of cubical cells with thickening on lateral aspects showing characteristic transverse scalariform thickening in surface view and two layers of horizontally oriented parenchyma cells. Cotyledons two consisting of oval, isodiametric parenchyma cells, full of starch grains.

**Distribution** : Throughout India, often cultivated.

**History and authority** : Ghose: *Drugs of Hindoosthan*, 8th Ed., 334.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Vernonia Anthelmintica in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**VESPA CRABRO**

(Ves. crab.)

**Zoological name** : *Vespa crabro* Linn. **Family:** Vespariae

**Common names** : *English:* European hornet, Wasp; *French:* Frelon.

**Description** : European hornet insects are of three types, the perfect and fertile female, the male and so called neuter or worker which is merely an undeveloped female. They have membranous wings and chewing lapping mouth parts. They are social or parasitic on other insects. Neuters have prominent wings and a thorax similar to male females. Females have a poison sting. Head free, antennae variable, eyes large, mouth parts modified for biting and licking, hind wings reduced and connected with the front wings by smaller hooks. Abdomen female usually ends in a saw-like piercing ovipositor or sting.

**Part used** : Whole female insect.

**Distribution** : Europe.

**History and authority** : Proved by Dufreshe, *Biblio theque Hom. de Genava* Vol. II; Allen: *Encyclop. of Mat. Med.*, Vol. X, 119; Hering: *Guiding Symptoms*, Vol. X, 451; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1532.

**Preparation** : Live wasp are put into a bottle and after being agitated by shaking are covered with five times their weight of *Strong Alcohol* and the whole allowed to macerate for 8 days in a dark and cool place, being shaken twice a day.

(a) Mother Tincture $\phi$	Drug strength 1/10
Vespa Crabro	100 g
Strong Alcohol in sufficient quantity	
to make one thousand milliliters of the Mother Tincture.	

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**WYETHIA HELENIoidES**

(Wyet. hel.)

- Botanical name** : *Wyethia helenioides* Nuttl.      **Family**: Compositae (Asteraceae)
- Synonym** : *Metarhiza inuloides* Kellong.
- Common name** : *English*: Poison Weed.
- Description** : A perennial herb, upto 60 cm in height. Stem soft tomentose or becoming almost glabrous with age. Radical leaves 30 cm or more long and 10 to 15 cm wide, acute at base and apex, often undulate, long petioled; cauline leaves and bracts much smaller. Head 6 to 8 cm broad, outer bracts of the involucre mostly subtended by 1 or 2 conspicuous, bracts like short petioled leaves. Rays 12 to 18, 2 to 2.5 cm long, upper portion of achenes slightly pubescent when young. Pappus paleae short and unequal.
- Part used** : Root.
- Distribution** : Common near San Fransisco (U.S.A) and through the valley of the Sacramento .
- History and authority** : Introduced and proved by Selfridge; Allen: *Encyclop. Mat. Med.*, Vol. X, 168; Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1569.
- Preparation** : (a) Mother Tincture  $\phi$       Drug strength 1/10
- |  |        |
|--|--------|
| <i>Wyethia Helenioides</i> in <i>coarse powder</i> | 100 g  |
| Purified Water                                     | 400 ml |
| Strong Alcohol                                     | 635 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ZINCUM CYANATUM**

(Zinc. cy.)

 $Zn(CN)_2$ **Mol. wt.:** 117.42

- Common names** : *English:* Zinc cyanide; *French:* Cyanura dezinc.
- Description** : White crystalline powder, insoluble in *water*; soluble in solution of alkali cyanides or hydroxides. Not appreciably attacked by organic acids but readily attacked by dilute mineral acids with evolution of *hydrogen cyanide*. Contains not less than 84 percent of  $Zn(CN)_2$  with reference to the substance dried to constant weight at 105°.
- Identification** : Dissolve 0.1 g in 5 ml *sodium hydroxide solution* and add a few crystals of *ferrous sulphate*. Boil and acidify the solution with *dilute hydrochloric acid*; a blue colour or precipitate is produced.
- Reaction** : The aqueous suspension is alkaline to *litmus*.
- Arsenic** : Not more than 4 parts per million, HPI, Vol. I
- Heavy metals** : Dissolve 1 g in 10 ml of *water*, add 4 ml of *dilute hydrochloric acid* apply *limit test* for heavy metals, HPI, Vol. I. Heavy metal not more than 20 parts per million, HPI, Vol. I
- Chloride** : 0.5 g complies with *limit test for chlorides*, HPI, Vol. I
- Sulphates** : 0.5 g complies with *limit test for sulphates*, HPI, Vol. I
- Assay** : Dissolve about 0.15 g accurately weighed in 25 ml 0.1N *potassium hydroxide solution*. Neutralise this with *dilute hydrochloric acid* to bring the pH of the solution to approximately 6. Add 3 g of *hexamine* followed by 4 drops *xylene orange indicator* and titrate with 0.05 M EDTA to the bright yellow colour. 1 ml of 0.05 M EDTA is equivalent to 0.005871 g of  $Zn(CN)_2$ .
- History and authority** : Introduced by Kopp; Allen: *Encyclop. Mat. Med.*, Vol. X, 215; Clarke: *A Dictionary of Pract. Mat. Med.*, Vol. III, 1597.
- Preparation** : (a) Trituration lx Drug strength 1/10  
                   Zincum Cyanatum 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I
- Caution** : Preparation below 6x to be freshly made.

**ZINCUM IODATUM**

(Zin. iod.)

ZnI<sub>2</sub>

**Mol. wt.:** 319.22

- Common names** : *English:* Zinc iodide; *French:* iodurs de zinc; *German:* Jodzink.
- Description** : White or almost white, hygroscopic, granular powder, odourless, taste sharp, saline; becomes brown on exposure to air and light due to liberation of iodine. Very soluble in *water*, freely soluble in *alcohol*. Contains not less than 98.0 percent of ZnI<sub>2</sub> with reference, to the substance dried to constant weight at 105°.
- Identification** : Yields the reactions characteristic of *zinc*, HPI, Vol. I and of *iodide*, HPI, Vol. I
- Reaction** : A 5.0 percent aqueous solution is acidic to *litmus*.
- Assay** : Dissolve about 0.3 g accurately weighed in 25 ml *water*, add about 3 g *hexamine* followed, by 4 to 5 drops of *xyleneol orange indicator* and titrate with 0.05 M EDTA to bright yellow colour. Each ml of 0.05 M EDTA is equivalent to 0.01595 g of ZnI<sub>2</sub>.
- History and authority** : Clarke: *A Dictionary of Practical Mat. Med.*, Vol. III, 1599.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Zincum Iodatum   | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I
- Storage** : Keep in well-closed containers protected from light.

**LIST OF FINISHED PRODUCT STANDARDS**

1. *Abroma augusta*
2. *Abrotanum*
3. *Acalypha indica*
4. *Acidum aceticum*
5. *Acidum muriaticum*
6. *Acidum nitricum*
7. *Acidum phosphoricum*
8. *Acidum sulphuricum*
9. *Aconitum napellus*
10. *Aesculus hippocastanum*
11. *Aethusa cynapium*
12. *Agaricum muscarius*
13. *Agnus castus*
14. *Allium cepa*
15. *Allium sativum*
16. *Aloe socotrina*
17. *Alumina*
18. *Ammonium carbonicum*
19. *Ammonium causticum*
20. *Ammonium muriaticum*
21. *Amyl nitrosum*
22. *Anacardium orientale*
23. *Andrographis paniculata*
24. *Antimonium arsenicosum*
25. *Antimonium crudum*
26. *Antimonium tartaricum*
27. *Apis mellifica*
28. *Apocynum cannabinum*
29. *Aralia racemosa*
30. *Argentum metallicum*
31. *Argentum nitricum*
32. *Arnica montana*



33. *Arsenicum album*
34. *Arsenicum iodatum*
35. *Arsenicum sulphuratum flavum*
36. *Arsenicum sulphuratum rubrum*
37. *Artemisia vulgaris*
38. *Arum triphyllum*
39. *Asafoetida*
40. *Aurum metallicum*
41. *Aurum muriaticum*
42. *Avena sativa*
43. *Azadirachta indica*
44. *Baptisia tinctoria*
45. *Baryta carbonica*
46. *Baryta muriatica*
47. *Belladonna*
48. *Bellis perennis*
49. *Berberis vulgaris*
50. *Borax*
51. *Bryonia alba*
52. *Cactus grandiflorus*
53. *Calcarea arsenicosa*
54. *Calcarea carbonica*
55. *Calcarea fluorica*
56. *Calcarea phosphoric*
57. *Calcarea sulphurica*
58. *Calendula officinalis*
59. *Calotropis gigantea*
60. *Camphora*
61. *Cannabis indica*
62. *Cantharis*
63. *Carduus marianus*
64. *Caulophyllum thalictroides*
65. *Ceanothus americanus*

66. Chamomilla
67. Chelidonium majus
68. Chininum arsenicosum
69. Chininum sulphuricum
70. Cicuta virosa
71. Cimicifuga racemosa
72. Cina
73. Cinchona officinalis
74. Coffea cruda
75. Colchicum autumnale
76. Colocynthis
77. Conium maculatum
78. Crataegus oxycantha
79. Croton tiglium
80. Cuprum arsenicosum
81. Cuprum metallicum
82. Digitalis purpurea
83. Dioscorea villosa
84. Drosera rotundifolia
85. Dulcamara
86. Echinacea
87. Eupatorium perfoliatum
88. Euphrasia officinalis
89. Ferrum metallicum
90. Ferrum phosphoricum
91. Geranium maculatum
92. Graphites
93. Gymnema sylvestre
94. Hamamelis virginica
95. Helleborus niger
96. Holarrhena antidysentrica
97. Hydrastis canadensis
98. Hydrocotyl asiatica

99. *Hyoscyamus niger*
100. *Hypericum perforatum*
101. *Ignatia amara*
102. *Iodium*
103. *Ipecacuanha*
104. *Justica adhatoda*
105. *Kali bichromicum*
106. *Kali carbonicum*
107. *Kali iodatum*
108. *Kali muriaticum*
109. *Kali phosphoricum*
110. *Kali sulphuricum*
111. *Kreosotum*
112. *Ledum palustre*
113. *Lycopodium clavatum*
114. *Magnesia carbonica*
115. *Magnesia muriatica*
116. *Mercurium corrosivus*
117. *Mercurium dulcis*
118. *Mercurium iodatus flavus*
119. *Mercurium iodatus ruber*
120. *Mezereum*
121. *Myrica cerifera*
122. *Natrum carbonicum*
123. *Natrum muriaticum*
124. *Natrum phosphoricum*
125. *Natrum sulphuricum*
126. *Nux moschata*
127. *Nux vomica*
128. *Ocimum sanctum*
129. *Phosphorus*
130. *Phytolacca*
131. *Platinum metallicum*

132. *Plumbum metallicum*
133. *Podophyllum peltatum*
134. *Psoralia corylifolia*
135. *Pulsatilla nigricans*
136. *Rauvolfia serpentina*
137. *Rhus toxicodendron*
138. *Ruta graveolens*
139. *Sabadilla*
140. *Sabina*
141. *Sanguinaria canadensis*
142. *Secale cornutum*
143. *Selenium*
144. *Senega*
145. *Sepia*
146. *Silica*
147. *Spongia tosta*
148. *Stannum metallicum*
149. *Staphysagria*
150. *Sulphur*
151. *Sulphur iodatum*
152. *Syzygium Jambolanum*
153. *Tabacum*
154. *Terminalia arjuna*
155. *Thuja occidentalis*
156. *Tribulus terrestris*
157. *Veratrum viride*
158. *Withania somnifera*
159. *Zincum metallicum*

<b>ABROMA AUGUSTA</b>	: Mother Tincture
<b>Alcohol content</b>	: 42.0 to 46.0 percent v/v
<b>pH</b>	: 5.5 to 6.9
<b>Wt. per ml</b>	: 0.930 g to 0.950 g.
<b>Total solids</b>	: Not less than 1.0 percent w/v
<b>Identification</b>	: (i) To 1 ml add a drop of <i>dilute hydrochloric acid</i> ; a pink colour is produced. (ii) Carry out TLC using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light spots appear at $R_f$ 0.08, 0.68 and 0.85.
<b>ABROTANUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v
<b>pH</b>	: 5.2 to 6.0
<b>Wt. per ml</b>	: 0.850 g to 0.920 g.
<b>Total solids</b>	: Not less than 1.130 percent w/v
<b><math>\lambda</math> max</b>	: 290 and 320 nm.
<b>Identification</b>	: Carry out TLC using <i>n-butanol : acetic acid : water</i> (4:1:1 v/v) as mobile phase. Under UV light, three spots appear at $R_f$ 0.43, 0.83 (blue) and 0.94 (red).
<b>ACALYPHA INDICA</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: 5.8 to 6.8
<b>Wt. per ml</b>	: 0.884 g to 0.912 g.
<b>Total solids</b>	: Not less than 0.50 percent w/v
<b><math>\lambda</math> max</b>	: 265 nm
<b>Identification</b>	: (i) To 2 ml add a few crystals of <i>phloroglucinol</i> followed by <i>hydrochloric acid</i> ; a cherry red colour is produced which changes to brown. (ii) Carry out TLC of Mother Tincture using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>alcoholic aluminium chloride solution</i> as spray reagent; six spots appear at $R_f$ 0.20, 0.55, 0.68, 0.78 (all blue), 0.88 and 0.93 (both red).

**ACIDUM ACETICUM**

- Potency** : 1x (0)  
Colourless liquid; odour vinegar like and sharp. Contains not less than 9.40 percent v/v to not more than 10.40 percent v/v of C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Compiles with the assay method given under Acidum Aceticum.
- Potency** : 2x  
Colourless liquid, odour vinegar like and sharp. Contains not less than 0.94 percent v/v to not more than 1.04 percent v/v C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Compiles with the assay method given under Acidum Aceticum.
- Potency** : 3x  
Colourless liquid, odour vinegar like. Contains not less than 0.09 percent v/v to not more than 0.10 percent v/v C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Weigh accurately about 50 g into stoppered flask and titrate with 0.05 N *sodium hydroxide* using *phenolphthalein solution* as indicator. Each ml of 0.05 N *sodium hydroxide* is equivalent to 0.003g of C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>.

**ACIDUM MURIATICUM**

- Potency** : 1x (0)  
Colourless liquid, taste acrid. Contains not less than 9.50 percent v/v to not more than 10.50 percent v/v of HCl.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Muriaticum
- Potency** : 2x  
Colourless liquid, taste acidic. Contains not less than 0.95 percent v/v to not more than 1.05 percent v/v of HCl.
- Reaction** : Acidic to litmus.
- Assay** : Weigh accurately about 4.0 g into stoppered flask and titrate with 0.1N sodium hydroxide using methyl orange as indicator. Each ml of 0.1N sodium hydroxide is equivalent to 0.00365 g of HCl.
- Potency** : 3x  
Colourless liquid. Contains not less than 0.095 percent v/v to not more than 0.105 percent v/v of HCl.
- Reaction** : Acidic to litmus.
- Assay** : Weigh accurately about 25 g into a stoppered flask and titrate with 0.1N sodium hydroxide using methyl orange as indicator. Each ml of 0.1N sodium hydroxide is equivalent to 0.00365 g of HCl.

**ACIDUM NITRICUM**

- Potency** : 1x (0)  
Colourless liquid, odour characteristic, irritating. Contains not less than 9.50 percent v/v to not more than 10.50 percent v/v of HNO<sub>3</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Nitricum.
- Potency** : 2x  
Colourless liquid. Contains not less than 0.95 percent v/v to not more than 1.05 percent v/v of HNO<sub>3</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Nitricum.
- Potency** : 3x  
Colourless liquid. Contains not less than 0.095 percent v/v to not more than 0.105 percent v/v of HNO<sub>3</sub>.
- Reaction** : Acidic to litmus
- Assay** : Weigh accurately about 40 g into a stoppered flask and titrate with 0.1N sodium hydroxide using phenolphthalein as indicator. Each ml of 0.1N sodium hydroxide is equivalent to 0.006301 g of HNO<sub>3</sub>.

**ACIDUM PHOSPHORICUM**

- Potency** : 1x (0)  
Colourless liquid. Contains not less than 9.50 percent w/v to not more than 10.50 percent w/v of H<sub>3</sub>PO<sub>4</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Phosphoricum.
- Potency** : 2x  
Colourless liquid. Contains not less than 0.95 percent w/v to not more than 1.05 percent w/v of H<sub>3</sub>PO<sub>4</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Phosphoricum.
- Potency** : 3x  
Colourless liquid. Contains not less than 0.095 percent w/v to not more than 0.105 percent w/v of H<sub>3</sub>PO<sub>4</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Weigh accurately about 25 g into stoppered flask, containing about 0.5 g sodium chloride and titrate with 0.01 N sodium hydroxide using phenolphthalein as indicator Each ml of 0.01 N sodium hydroxide is equivalent to 0.00049 g of H<sub>3</sub>PO<sub>4</sub>.

**ACIDUM SULPHURICUM**

- Potency** : 1x (0)  
 Colourless liquid: taste sharp and acidic. Contains not less than 9.00 percent w/w to not more than 10.00 percent w/w of H<sub>2</sub>SO<sub>4</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Sulphuricum.
- Potency** : 2x  
 Colourless liquid, taste acidic. Contains not less than 0.90 percent w/w to not more than 1.00 percent w/w H<sub>2</sub>SO<sub>4</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Complies with the assay method given under Acidum Sulphuricum.
- Potency** : 3x  
 Colourless liquid. Contains not less than 0.09 percent w/w not more than 0.10 percent w/w of H<sub>2</sub>SO<sub>4</sub>.
- Reaction** : Acidic to litmus.
- Assay** : Weigh accurately about 25 g into a stoppered flask and titrate with 0.01N Sodium hydroxide using phenolphthalein as indicator. Each ml of 0.01N sodium hydroxide is equivalent to 0.00049 g of H<sub>2</sub>SO<sub>4</sub>.

**ACONITUM**

**NAPELLUS**

- : Mother Tincture
- Alcohol content** : 61.0 to 65.0 percent v/v
- pH** : 5.5 to 7.00
- Wt. per ml** : 0.896 g to 0.904 g
- Total solids** : Not less than 0.50 percent w/v
- λ max** : 285 nm.
- Identification** : (a) Take one drop on a filter paper and dry, place one drop of acetic anhydride on the spot and dry again. Examine under UV light, greenish blue fluorescence is produced.
- (b) Evaporate 20 ml on a water-bath to remove alcohol. Extract the aqueous part with 3 × 20 ml chloroform, concentrate the chloroform extract to 2 ml and carryout Co-TLC with aconitine using *chloroform : methanol* (9:1 v/v) as mobile phase and Dragendorff's reagent for spray. Orange spot corresponding to aconitine appears.



**AESCLUS**

**HIPPOCASTANUM**

- : Mother Tincture
- Alcohol content** : 57.0 to 61.0 percent v/v
- pH** : 5.0 to 6.0
- Wt. per ml** : 0.905 g to 0.925 g.
- Total solids** : Not less than 1.7 percent w/v
- $\lambda$  max** : 260 nm
- Identification** : (a) Evaporate 2 ml tincture to dryness and treat the residue with Hydrochloric Acid; a lemon yellow colour is produced.
- (b) Carry out TLC of Mother Tincture using *n-butanol: acetic acid: water* (4:1:1 v/v) as mobile phase; three brown spots appear at  $R_f$  0.22, 0.36 and 0.48 on spraying with *methanolic sulphuric acid* and heating for 25 minutes at 105°.

**AETHUSA**

**CYNAPIUM**

- : Mother Tincture
- Alcohol content** : 57.0 to 61.0 percent w/v
- pH** : 5.3 to 6.2
- Wt. per ml** : 0.894 g to 0.918 g.
- Total solids** : Not less than 0.5 percent w/v
- $\lambda$  max** : 310 nm
- Identification** : (i) Take carbon-tetra chloride extract, evaporate on a water bath and leach the residue with a little water followed by addition of a drop of potassium permanganate solution; the solution is decolourised.
- (ii) Carry out TLC using chloroform: methanol (9:1 v/v) as mobile phase. Under UV light three spots appear at  $R_f$  0.13, 0.65 and 0.85 (all blue).

<b>AGARICUS MUSCARIUS</b>	: Mother Tincture
<b>Alcohol content</b>	: 40.0 to 45.0 percent v/v.
<b>pH</b>	: 5.00 to 5.50
<b>Wt. per ml</b>	: 0.925 g to 0.950 g.
<b>Total solids</b>	: Not less than 0.28 percent w/v.
<b><math>\lambda</math> max</b>	: 280, 320 nm.
<b>Identification</b>	: Carry out Co-TLC with <i>muscarine</i> using <i>n-butanol : acetic acid : water</i> (4:1:1 v/v) as mobile phase. In iodine vapour spot corresponding to <i>muscarine</i> appears.

<b>AGNUS CASTUS</b>	: Mother Tincture
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 5.60 to 6.2.
<b>Wt. per ml</b>	: 0.812 g to 0.838 g.
<b>Total solids</b>	: Not less than 0.20 percent w/v.
<b><math>\lambda</math> max</b>	: 280, 320 nm.
<b>Identification</b>	: (a) Carry out TLC using toluene: ethyl acetate (95:5 v/v) as mobile phase and 1 percent vanillin <i>sulphuric acid</i> as spray reagent. Five violet brown spots appear at $R_f$ 0.25, 0.39, 0.51, 0.82 and 0.92 on heating at 105° for 20 minutes

OR

(b) Evaporate 20 ml on water-bath to remove *alcohol*, extract the aqueous part with 3 × 20 ml *chloroform*. Concentrate the chloroform extract to 10 ml. To 5 ml add a few drops of acetic anhydride followed by 2 ml concentrated *sulphuric acid* through the side of the test tube; brown ring forms at the junction of two layers.

<b>ALLIUM CEPA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 41.0 to 45.0 percent v/v.
<b>pH</b>	: 5.00 to 6.00.
<b>Wt. per ml</b>	: 0.960 g to 0.975 g.
<b>Total solids</b>	: Not less than 2 percent w/v.
<b><math>\lambda</math> max</b>	: 255 nm.
<b>Identification</b>	: (a) To 1 ml add a few drops of dilute <i>nitric acid</i> to make it acidic, then add a few drops of <i>silver nitrate solution</i> , a black precipitate insoluble in dilute <i>nitric acid</i> is produced.  (b) Carry out TLC by using <i>carbon tetra chloride: methanol: water</i> (60:30:3 v/v) (upper layer) as mobile phase and <i>ammonical silver nitrate</i> as spray reagent. One brown spot appears at $R_f$ 0.34.
<b>ALLIUM SATIVUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 66.0 to 70.0 percent v/v/
<b>pH</b>	: 6.00 to 6.70.
<b>Wt. per ml</b>	: 0.850 g to 0.898 g.
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 260 nm.
<b>Identification</b>	: (a) To 1 ml add a few drops of dilute <i>nitric acid</i> , to make it acidic than add a few drops of <i>silver nitrate solution</i> ; a black precipitate insoluble in dilute <i>nitric acid</i> is produced.  (b) Solvent system <i>carbon tetra chloride: methanol: water</i> (60:30:3v/v) in separating funnel. Shake and use lower layer at mobile phase. Carry out TLC in lower layer of solvent, use <i>vanillin sulphuric acid</i> as spray reagent and heat the plate at 105° for 15 minutes. One black spot appears at $R_f$ 0.22. The plate developed from upper layer gives one yellow spot at $R_f$ 0.74 on spraying with <i>ammonical silver nitrate</i> solution and heated to 105° for 15 minutes.

<b>ALOE SOCOTRINA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 4.70 to 5.80.
<b>Wt. per ml</b>	: 0.820 g to 0.860 g.
<b>Total solids</b>	: Not less than 5.0 percent w/v.
<b><math>\lambda</math> max</b>	: 278, 310 nm.
<b>Identification</b>	: (a) To 2 ml add 5 ml of <i>ferric chloride solution</i> , 5 ml of <i>dilute hydrochloric acid</i> , heat to boil for 10 minutes, cool and extract with 3×10 ml <i>carbon tetrachloride</i> . Separate the <i>carbon tetrachloride</i> layer, concentrate to 5 ml and add 2 ml of <i>ammonia solution</i> ; a pink to cherry red colour is produced in ammonical layer.  (b) Carry out TLC using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase. Three spots appear at $R_f$ 0.23, 0.31 and 0.94.

#### ALUMINA

<b>Potency</b>	: 1x  White amorphous powder. Contains not less than 6.20 percent w/w to not more than 6.83 percent w/w of $Al_2O_3$ .
<b>Assay</b>	: Complies with the assay method given under Alumina.
<b>Potency</b>	: 2x  White amorphous powder. Contains not less than 0.62 percent w/w to not more than 0.68 percent w/w of $Al_2O_3$ .
<b>Assay</b>	: Weigh accurately about 25 g, char in silica crucible slowly to make ash and carryout assay method as given under Alumina.

**AMMONIUM CARBONICUM**

- Potency** : 1x  
Colourless liquid, odour of ammonia. Contains not less than 2.85 percent w/v to not more than 3.45 percent w/v of NH<sub>3</sub>.
- Assay** : Complies with the assay method given under Ammonium Carbonicum.
- Potency** : 2x  
Colourless liquid, odour of ammonia. Contains not less than 0.285 percent w/v to not more than 0.345 percent w/v of NH<sub>3</sub>.
- Assay** : Complies with the assay method given under Ammonium Carbonicum.
- Potency** : 3x  
Colourless liquid. Contains not less than 0.028 percent w/v to not more than 0.035 percent w/v of NH<sub>3</sub>.
- Assay** : Weight accurately about 25 g in a flask and add 100 ml 0.01 N *sulphuric acid*. Shake well and titrate with 0.01 N sodium hydroxide using phenolphthalein as indicator. Each ml of 0.01 N *sulphuric acid* consumed is equivalent to 0.00017 g of NH<sub>3</sub>.

**AMMONIUM CAUSTICUM**

- Potency** : 1x  
A clear colourless, liquid, odour characteristic. Contains not less than 9.50 percent w/v to not more than 10.50 percent w/v of NH<sub>3</sub>.
- Reaction** : Alkaline to litmus.
- Assay** : Complies with the assay method given under Ammonium Causticum.
- Potency** : 2x  
A clear, colourless, liquid, odour characteristic. Contains not less than 0.95 percent w/v to not more than 1.05 percent w/v of NH<sub>3</sub>.
- Reaction** : Alkaline to litmus.
- Assay** : Complies with the assay method given under Ammonium Causticum.
- Potency** : 3x  
Clear, colourless, liquid. Contains not less than 0.095 percent w/v to not more than 0.105 percent w/v of NH<sub>3</sub>.
- Assay** : Weight accurately about 25 g in a flask containing 50 ml 0.1 N *sulphuric acid* and titrate the excess of acid with 0.1 N sodium hydroxide using *phenolphthalein* as indicator. Each ml of 0.1 N *sulphuric acid* is equivalent to 0.0017 g of NH<sub>3</sub>.

**AMMONIUM MURIATICUM**

- Potency** : 1x  
A clear, colourless, liquid. Contains not less than 9.50 percent w/v to not more than 10.50 percent w/v of NH<sub>4</sub>Cl.
- Assay** : Complies with the assay method given under Ammonium Muriaticum.
- Potency** : 2x  
A clear, colourless, liquid. Contains not less than 0.95 percent w/v to not more than 1.05 percent w/v of NH<sub>4</sub>Cl.
- Assay** : Complies with the assay method given under Ammonium Muriaticum.
- Potency** : 3x  
A clear, colourless liquid. Contains not less than 0.095 percent w/v to not more than 0.105 percent w/v of NH<sub>4</sub>Cl.
- Assay** : Weigh accurately about 20 g, add 1 ml of *nitric acid*, 5 ml *nitrobenzene* and 50 ml 0.01N *silver nitrate*. Shake vigorously for one minute and titrate with 0.01N *ammonium thiocyanate*, using 2 ml of *ferric ammonium sulphate* as indicator. Each ml of 0.01N *silver nitrate* is equivalent to 0.00054 g of NH<sub>4</sub>Cl.

**AMYL NITROSUM**

- Potency** : 1x  
Colourless, clear liquid. Contains not less than 8.30 percent w/v to not more than 9.18 percent w/v of C<sub>5</sub>H<sub>11</sub>NO<sub>2</sub>.
- Alcohol content** : From 91.0 to 95.0 percent v/v.
- Assay** : Complies with the assay method given under Amyl Nitrosium.
- Potency** : 2x  
A clear, colourless, liquid. Contains not less than 0.83 percent w/v to not more than 0.92 percent w/v of C<sub>5</sub>H<sub>11</sub>NO<sub>2</sub>.
- Alcohol content** : 88.0 to 92.0 percent v/v.
- Assay** : Complies with the assay method given under Amyl Nitrosium.
- Potency** : 3x  
A clear, colourless, liquid, contains not less than 0.083 percent w/v to not more than 0.092 percent w/v of C<sub>5</sub>H<sub>11</sub>NO<sub>2</sub>.
- Alcohol content** : 88.0 to 92.0 percent v/v.
- Assay** : Start with 25 g accurately weighed and use 0.01N silver nitrate and 0.01 N *ammonium thiocyanate* solution, in the assay method given under Amyl Nitrosium. Each ml of 0.01 N silver nitrate is equivalent to 0.0035 g of C<sub>5</sub>H<sub>11</sub>NO<sub>2</sub>.

**ANACARDIUM  
ORIENTALE**

	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v
<b>pH</b>	: 5.0 to 6.0
<b>Wt. per ml</b>	: 0.812 g to 0.828 g.
<b>λ max</b>	: 270 nm
<b>Identification</b>	: (a) To 1 ml add a drop of <i>ammonia</i> solution; a dirty bluish green colour is produced which yields a precipitate after five minutes.  (b) Carry out TLC using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.60, 0.88, 0.93 (all violet) and 0.96 (blue). In iodine vapour six spots appear at $R_f$ 0.43, 0.68, 0.80, 0.88, 0.93 and 0.96.

**ANDROGRAPHIS  
PANICULATA**

	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.50 to 6.90
<b>Wt. per ml</b>	: 0.903 g to 0.925 g.
<b>Total solids</b>	: Not less than 0.53 percent w/v.
<b>λ max</b>	: 260 nm
<b>Identification</b>	: Carry out TLC using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.05, 0.30, 0.53, 0.67, 0.75 and 0.83.

**ANTIMONIUM ARSENICICUM**

- Potency** : 2x  
 White amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $\text{SbAsO}_4$ .
- Assay** : Complies with the assay method given under Antimonium Arsenicum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of  $\text{SbAsO}_4$ .
- Assay** : Take about 10 g accurately weighed drug, char in silica crucible to remove sugar of milk and follow the method given under Antimonium Arsenicum. The titration may be done with 0.01N *ammonium* or *potassium thiocyanate*. Each ml of 0.01N *thiocyanate* is equivalent to 0.008969 g of  $\text{SbAsO}_4$ .

**ANTIMONIUM CRUDUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{Sb}_2\text{S}_3$ .
- Assay** : Complies with the assay method given under Antimonium Crudum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $\text{Sb}_2\text{S}_3$ .
- Assay** : Complies with the assay method given under Antimonium Crudum.



**ANTIMONIUM TARTARICUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6 \cdot \frac{1}{2}\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Antimonium Tartaricum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w/ of  $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6 \cdot \frac{1}{2}\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Antimonium Tartaricum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent w/w/ to not more than 0.104 percent w/w/ of  $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6 \cdot \frac{1}{2}\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 20 g, char it in silica crucible and dissolve the ash in 25 ml of *water*, add about 2 g of *sodium bicarbonate* and titrate with 0.01N *iodine* using starch as indicator. Each ml of 0.01 N *iodine* is equivalent to 0.00167 g of  $\text{K}(\text{SbO})\text{C}_4\text{H}_4\text{O}_6 \cdot \frac{1}{2}\text{H}_2\text{O}$ .

<b>APIS MELLIFICA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 37.0 to 41.0 percent v/v
<b>pH</b>	: 5.0 to 6.2
<b>Wt. per ml</b>	: 0.893 g to 1.001 g.
<b><math>\lambda</math> max</b>	: 264 nm.
<b>Identification</b>	: Carry out TLC using <i>n-butanol: acetic acid : water</i> (4:1:1) v/v) as mobile phase and <i>nihydrin</i> as spray reagent. Three spots appear at $R_f$ 0.09, 0.21 (violet red) and 0.45 (light violet).

<b>APOCYNUM CANNABINUM</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.0 to 6.2
<b>Wt. per ml</b>	: 0.870 g to 0.931 g
<b>Total solids</b>	: Not less than 0.30 percent w/v.
<b><math>\lambda</math> max</b>	: 279 nm
<b>Identification</b>	: Carry out TLC using <i>chloroform : methanol</i> (8:2 v/v) as mobile phase. In iodine vapour three spots appear at $R_f$ 0.03, 0.11 and 0.90.

<b>ARALIA RACEMOSA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 79.0 to 83.0 percent v/v.
<b>pH</b>	: 4.5 to 6.1
<b>Wt. per ml</b>	: 0.840 g to 08.65 g.
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> mas</b>	: 290 ad 320 nm
<b>Identification</b>	: (a) Evaporate 20 ml to remove alcohol extract the aqueous part with 3×20 ml <i>chloroform</i> , concentrate chloroform layer to 2 ml and carryout TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride</i> solution as spray reagent. Four spots appear at $R_f$ 0.29 (blue) 0.49, 0.50 (both red) and 0.91 (blue).  (b) Evaporate 20 ml on a water bath to remove <i>alcohol</i> . Make the aqueous part alkaline with <i>ammonia</i> solution and extract with 3 × 20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carry out TLC using <i>methanol: ammonia</i> (100 : 1.5 v/v) as mobile phase and Dragendorff's reagent. One spot appears at $R_f$ 0.68.

**ARGENTUM METALLICUM**

- Potency** : 1x  
 White or light brown amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of Ag.
- Assay** : Complies with the assay method given under Argentum Metallicum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of Ag.
- Assay** : Complies with the assay method given under Argetum Metallicum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w/ of Ag.
- Assay** : Weigh accurately about 20g, char in silica crucible to ash, dissolve the ash in sufficient quantity of dilute *nitric acid*. Titrate with 0.01N *ammonium thiocyanate* using *ferric ammonium sulphate* solution as indicator. Each ml of 0.01 N *ammonium thiocyanate* is equivalent to 0.00108 g of Ag.

**ARGENTUM NITRICUM**

- Potency** : 1x  
 White amorphous powder or clear liquid. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of AgNO<sub>3</sub>.
- Assay** : Complies with the assay method given under Argentum Nitricum.
- Potency** : 2x  
 White amorphous powder or clear liquid. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of AgNO<sub>3</sub>.
- Assay** : Complies with the assay method given under Argentum Nitricum.
- Potency** : 3x  
 White amorphous powder or clear liquid. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of AgNO<sub>3</sub>.
- Assay** : Weigh accurately about 20 g, char it in silica crucible to ash, dissolve the ash in 25 ml *water*, add 2 ml of *nitric acid* and titrate with 0.01N *ammonium thiocyanate* using *ferric ammonium sulphate* as indicator. Each ml of 0.01N *ammonium thiocyanate* is equivalent to 0.001699 g of AgNO<sub>3</sub>.

<b>ARNICA MONTANA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 50.0 to 61.0 percent v/v.
<b>pH</b>	: 5.60 to 5.80.
<b>Wt. per ml</b>	: 0.900 g to 0.925 g.
<b>Total solids</b>	: Not less than 0.85 percent w/v.
<b><math>\lambda</math> max</b>	: 284 and 378 nm.
<b>Identification</b>	: (b) Carry out TLC of chloroform extract using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride</i> as spray reagent. Under UV light three spots appear at $R_f$ 0.07, 0.66 and 0.84; with spray reagent two spots appear at $R_f$ 0.29 and 0.94 (both violet).

### ARSENICUM ALBUM

- Potency** : 2x  
 White triturated amorphous powder or colourless liquid. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of  $As_2O_3$ .
- Assay** : Complies with the assay method given under Arsenicum Album.
- Potency** : 3x  
 White triturated amorphous powder, or colourless liquid. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of  $As_2O_3$ .
- Assay** : Weigh accurately about 20 g (char it in silica crucible to ash, dissolve the ash into 20 ml water in case of trituration) and 5 ml of 1N *sodium hydroxide*: add 5 ml 1N hydrochloric acid followed by about 3 g of *sodium bicarbonate* and titrate with 0.01N *iodine* using starch as indicator. Each ml of 0.01N iodine is equivalent to 0.00049 g of  $As_2O_3$ .

### ARSENICUM IODATUM

- Potency** : 2x  
 Orange coloured amorphous powder Contains not less than 0.92 percent w/w to not more than 1.02 percent w/w of  $AsI_3$ .
- Assay** : Complies with the assay method given under Arsenicum Iodatum.
- Potency** : 3x  
 Light Orange coloured, amorphous powder. Contains not less than 0.092 percent w/w to not more than 0.102 percent w/w of  $AsI_3$ .
- Assay** : Weigh accurately about 20 g, char it in silica crucible to ash. Dissolve the ash into 25 ml water, add about 2 g *sodium bicarbonate* and titrate with 0.01N *iodine* using starch as indicator. Each ml of 0.01N *iodine* is equivalent to 0.00227 g of  $AsI_3$ .

**ARSENICUM SULPHURATUM FLAVUM**

- Potency** : 2x  
 Light yellow coloured amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $As_2S_3$ .
- Assay** : Complies with the assay method given under Arsenicum Sulphuratum Flavum.
- Potency** : 3x  
 White or light yellowish-white amorphous powder. Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of  $As_2S_3$ .
- Assay** : Weigh accurately about 20 g char it in silica crucible to ash. Dissolve the ash in 25 ml water, add 2 g *sodium bicarbonate* and titrate with 0.01N *iodine* using starch as indicator. Each ml of 0.01N *iodine* is equivalent to 0.00062 g of  $As_2S_3$ .

**ARSENICUM SURPHURATUM RUBURM**

- Potency** : 2x  
 Orange coloured amorphous powder. Contains not less than 0.93 percent w/w/ to not more than 1.03 percent w/w of  $As_2S_2$ .
- Assay** : Complies with the assay method given under Arsenicum sulphuratum Rubrum.
- Potency** : 3x  
 Light orange coloured amorphous powder. Contain not less than 0.093 percent w/w to not more than 0.103 percent w/w of  $As_2S_2$ .
- Assay** : Weigh accurately about 20 g, char it slowly in silica crucible to remove sugar of milk, dissolve the ash in 25 ml *water*, add about 2g *sodium bicarbonate*. Titrate it with 0.01N *iodine* using starch as indicator. Each ml of 0.01N *iodine* is equivalent to 0.0003 g of  $As_2S_2$ .

<b>ARTEMISIA VULGARIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 61.0 to 64.0 percent v/v.
<b>pH</b>	: 5.80 to 6.30.
<b>Wt. per ml</b>	: 0.864 g to 0.907 g.
<b>Total solids</b>	: Not less than 0.3 percent w/v.
<b><math>\lambda</math> max</b>	: 236, 270 and 332 nm,
<b>Identification</b>	: (a) To 2 ml of Mother Tincture add a few drops of 2, 4 <i>dinitrophenyl hydrazine</i> solution; yellowish red colour is produced.  (b) Carry out TLC of Mother Tincture using <i>chloroform</i> : methanol (9:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.07, 0.30, 0.42, 0.60 and 0.77.

<b>ARUM TRIPHYLLUM</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.50 to 6.50.
<b>Wt. per ml</b>	: 0.820 g to 0.920 g.
<b>Total solids</b>	: Not less than 1.0 percent w/v,
<b><math>\lambda</math> max</b>	: 265 nm.
<b>Identification</b>	: Evaporate 25 ml of Mother Tincture on a water bath to remove <i>alcohol</i> and extract the residue with 3×25 ml <i>chloroform</i> . Carry out TLC of chloroform extract by using <i>chloroform</i> : <i>methanol</i> (95:5 v/v) as mobile phase. With <i>antimony trichloride</i> reagent, four spots appear at $R_f$ 0.06, 0.27, 0.64 and 0.93.

<b>ASAFOETIDA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 5.00 to 6.00
<b>Wt. per ml</b>	: 0.828 g to 0.870 g.
<b>Total solids</b>	: Not less than 0.30 percent w/v.
<b><math>\lambda</math> max</b>	: 324 nm.
<b>Identification</b>	: Carry out TLC using <i>n-hexane</i> : <i>methanol</i> (98:2 v/v) as mobile phase. In <i>iodine</i> vapours six spots appear at $R_f$ 0.06, 0.09, 0.15, 0.28, 0.36 and 0.98.

### AURUM METALLICUM

- Potency** : 1x  
 Yellow coloured amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of Au.
- Assay** : Complies with the assay method given under Aurum Metallicum.
- Potency** : 2x  
 Light yellow coloured amorphous powder. Contains not less than 0.95 percent to not more than 1.05 percent w/w of Au.
- Assay** : Complies with the assay method given under Aurum Metallicum.

### AURUM MURIATICUM

- Potency** : 1x  
 Yellow coloured, clear liquid. Contains not less than 9.40 percent w/v to not more than 10.40 percent w/v of  $\text{AuCl}_3 \cdot 2\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Aurum Muriaticum.
- Potency** : 2x  
 Yellow coloured, clear liquid. Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of  $\text{AuCl}_3 \cdot 2\text{H}_2\text{O}$ .
- Alcohol content** : 45.50 to 50.0 percent v/v.
- Total solids** : Not less than 0.93 percent w/v.
- Assay** : Weigh accurately about 50 g, add 10 ml of 0.1N *sodium hydroxide* and follow the method given under Aurum Muriaticum.



<b>AVENA SATIVA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.6 to 6.5
<b>Wt. per ml</b>	: 0.94 g to 0.95 g.
<b>Total solids</b>	: Not less than 0.30 percent w/v.
<b><math>\lambda</math> max</b>	: 271 and 315 nm.
<b>Identification</b>	: Carry out TLC using <i>n-butanol:acetic acid: water</i> (4:1:1 v/v) as mobile phase and <i>ninhydrin</i> as spray reagent. Six spots appear at $R_f$ 0.06, 0.12, 0.32, 0.50, 0.53 and 0.55 (all pink).

**AZADIRACHTA  
INDICA**

	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 4.7 to 6.0
<b>Wt. per ml</b>	: 0.850 g to 0.910 g.
<b>Total solids</b>	: Not less than 0.5 percent w/v.
<b><math>\lambda</math> max</b>	: 286 nm.
<b>Identification</b>	: (a) To 2 ml of Mother Tincture add a few drops of Schiff's reagent and shake well; after keeping for some time a red colour is produced. (b) To 1 ml of Mother Tincture add a few drops of Mayer's reagent; a yellow colour is produced. (c) To 1 ml of Mother Tincture add a few drops of Dragendorff's reagent; a red colour/precipitate is produced. (d) Carry out TLC of ethyl acetate extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light three spots appear at $R_f$ 0.08, 0.68 and 0.85 (all blue).

**BAPTISIA  
TINCTORIA**

	: Mother Tincture
<b>Alcohol content</b>	: 63.0 to 67.0 percent v/v.
<b>pH</b>	: 4.80 to 6.20.
<b>Wt. per ml</b>	: 0.880 g to 0.905 g.
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> max</b>	: 250 nm,
<b>Identification</b>	: (i) To 1 ml add a pinch of magnesium powder and two drops of Hydrochloric acid; a pink colour is produced. (ii) Carry out TLC of chloroform extract, using <i>methanol: ammonia</i> (100:1.5 v/v) as mobile phase, Under UV light four blue spots appear at $R_f$ 0.04, 0.14, 0.57 and 0.70. With Dragendorff's reagent four spots appear at $R_f$ 0.04, 0.37, 0.43 and 0.57.

### BARYTA CARBONICA

- Potency** : 1x  
White amorphous powder. Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of BaCO<sub>3</sub>.
- Assay** : Complies with the assay method given under Baryta Carbonica.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of BaCO<sub>3</sub>.
- Assay** : Take about 5 g accurately weighed in 50 ml water and follow the assay method given under Baryta Carbonica.
- Potency** : 3x  
White amorphous powder. Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of BaCO<sub>3</sub>.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash, dissolve the ash in 50 ml 0.1N *hydrochloric acid*, boil, cool and titrate excess of acid with 0.1 *sodium hydroxide* using *bromocresol blue* as indicator. Each ml of 0.1N hydrochloric acid is equivalent to 0.00987 g of BaCO<sub>3</sub>.

### BARYTA MURIATICA

- Potency** : 1x  
White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of BaCl<sub>2</sub>, 2H<sub>2</sub>O.
- Assay** : Complies with the assay method given under Baryta Muriatica.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of BaCl<sub>2</sub>, 2H<sub>2</sub>O.
- Assay** : Dissolve about 5 g accurately weighed in 50 ml of water and follow the assay method given under Baryta Muriatica.
- Potency** : 3x  
White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of BaCl<sub>2</sub>, 2H<sub>2</sub>O.
- Assay** : Weigh accurately about 20 g char in silica crucible. Dissolve the ash in 25 ml of water, add 5 ml of nitric acid, 50 ml of 0.01 N silver nitrate and 3 ml of nitrobenzene and shake vigorously for ten minutes. Titrate the excess of silver nitrate with 0.01 N *ammonium thiocyanate* using *ferric ammonium sulphate* as indicator. Each ml of 0.01 N *silver nitrate* is equivalent to 0.00122 g of BaCl<sub>2</sub>, 2H<sub>2</sub>O.

<b>BELLADONNA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 41.0 to 45.0 percent v/v.
<b>pH</b>	: 6.4 to 7.0
<b>Wt. per ml</b>	: 0.926 g to 0.948 g.
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> max</b>	: 272 nm.
<b>Identification</b>	: Evaporate 1 ml to dryness, extract with chloroform, evaporate the chloroform extract and treat the residue with a few drops of nitric acid and evaporate. Moisten the residue with 10 percent w/v potassium hydroxide solution; a violet colour is produced. Carry out TLC of Mother Tincture using methanol : ammonia (100:1.5 v/v) as mobile phase and Dragendorff's reagent as spray reagent. Under UV light two spots appear at $R_f$ 0.64 and 0.70 (blue). With spray reagent one spot appear at $R_f$ 0.21 corresponding to atropine. <p style="text-align: center;">or</p> Carry out Co-TLC with atropine and scopolamine on silica gel 'G' using methanol : ammonia (100:1.5 v/v) as mobile phase and Dragendorff's reagent as spray reagent. Spots corresponding to a Atropine and Scopolamine appear.
<b>BELLIS PERENIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 61.0 to 65.0 percent v/v.
<b>pH</b>	: 5.0 to 6.5.
<b>Wt. per ml</b>	: 0.80 g to 0.930 g.
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math>max</b>	: 240 and 315 nm.
<b>Identification</b>	: Carry out TLC using <i>ethyl acetate: formic acid: water</i> (8:1:1 v/v) as mobile phase. Under UV light two spots at $R_f$ 0.79 and 0.94 (both red) appear.
<b>BERBERIS</b>	
<b>VULGARIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v.
<b>pH</b>	: 5.7 to 6.9
<b>Wt. per ml</b>	: 0.90 g to 0.938 g.
<b>Total solids</b>	: Not less than 0.65 percent w/v.
<b><math>\lambda</math> max</b>	: 255 and 335 nm.
<b>Identification</b>	: (a) To 1 drop add a drop of 0.5 percent aqueous ammonium molybdate solution. Evaporate, moisten the residue with sulphuric acid; a brown colour is produced which turns green on standing. (b) Carry out Co-TLC with berberine using <i>methanol : ammonia</i> (100:15 v/v) as mobile phase and Dragendorff's reagent as spray reagent. Spot corresponding to Berberine appears.

**BORAX**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent to not more than 10.70 percent of  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Borax.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent to not more than 1.07 percent of  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Dissolve about 5 g accurately weighed in 75 ml and follow the assay method given under Borax.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent to not more than 0.017 percent of  $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 20 g, dissolve in 125 ml water and follow the assay method given under Borax.

<b>BRYONIA ALBA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.5 to 7.0.
<b>Wt. per ml</b>	: 0.883 g to 0.940 g
<b>Total solids</b>	: Not less than 0.60 percent w/v.
<b><math>\lambda</math> max</b>	: 267 nm.
<b>Identification</b>	: (i) To 1 ml acidified with <i>hydrochloric acid</i> add a few drops of Mayer's reagent; a yellow precipitate is produced.  (ii) Evaporate 20 ml Mother Tincture to remove <i>alcohol</i> . Extract the aqueous part with 3×20 ml chloroform, concentrate the chloroform layer to 2 ml and carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase Under UV light four spots appear at $R_f$ 0.28, 0.48, 0.82 and 0.93. (all blue).
<b>CACTUS GRANDIFLORUS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 68.0 to 72.0 percent v/v.
<b>pH</b>	: 5.5 to 6.5.
<b>Wt. per ml</b>	: 0.860 g to 0.890 g.
<b>Total solids</b>	: Not less than 0.30 percent w/v.
<b><math>\lambda</math> max</b>	: 260 and 268 nm.
<b>Identification</b>	: Carry out TLC using <i>n-butanol : acetic acid : water</i> (4:1:1 v/v) as mobile phase. Under UV light three spots appear at $R_f$ 0.32, 0.40 and 0.73. (all blue).

**CALCAREA ARSENICOSA**

- Potency** : 2x  
White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $\text{Ca}_3(\text{AsO}_3)_2$ .
- Assay** : Complies with the assay method given under Calcarea Arsenicosa.
- Potency** : 3x  
White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of  $\text{Ca}_3(\text{AsO}_3)_2$ .
- Assay** : Char about 20 g accurately weighed in silica crucible to make ash and proceed with ash as given in assay method given under Calcarea Arsenicosa.

### CALCAREA CARBONICA

- Potency** : 1x  
White amorphous powder. Contains not less than 9.35 percent w/w to not more than 10.35 percent w/w of CaCO<sub>3</sub>.
- Assay** : Complies with the assay method given under Calcarea Carbonica.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of CaCO<sub>3</sub>.
- Assay** : Char about 5 g accurately weighed in silica crucible to make ash and proceed with the ash as given in assay method under Calcarea Carbonica.
- Potency** : 3x  
White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of CaCO<sub>3</sub>.
- Assay** : Char about 20 g in silica crucible to make ash. Dissolve the ash in minimum quantity of dilute hydrochloric acid and follow the assay method given under Calcarea Carbonica.

### CALCAREA FLUORICA

- Potency** : 1x  
Whitish-grey amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of CaF<sub>2</sub>.
- Assay** : Complies with the assay method given under Calcarea Fluorica.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of CaF<sub>2</sub>.
- Assay** : Complies with the assay method given under Calcarea Fluorica.
- Potency** : 3x  
White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of CaF<sub>2</sub>.
- Assay** : Weigh accurately about 20 g, char in platinum crucible to ash, add about 1 g of sodium bicarbonate and sodium nitrate and follow the method given under Calcarea Fluorica. For titration use 0.01N potassium permanganate. Each ml of 0.01 N potassium permanganate, is equivalent to 0.00039 g of CaF<sub>2</sub>.

**CALCAREA PHOSPHORICA**

- Potency** : 1x  
 White amorphous powder. Contains not less than 8.08 percent w/w to not more than 8.93 percent w/w of  $\text{Ca}_3(\text{PO}_4)_2$ .
- Assay** : Complies with the assay method given under Calcarea Phosphorica.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.81 percent w/w to not more than 0.89 percent w/w of  $\text{Ca}_3(\text{PO}_4)_2$ .
- Assay** : Complies with the assay method given under Calcarea Phosphorica.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.081 percent w/w to not more than 0.089 percent w/w of  $\text{Ca}_3(\text{PO}_4)_2$ .
- Assay** : Weigh accurately about 20 g, char it in silica crucible to ash. Dissolve the ash in 25 ml of water and follow the method given under Calcarea Phosphorica. For titration use 0.01N *potassium permanganate* solution. Each ml of 0.01N *potassium permanganate* is equivalent to 0.000517 g of  $\text{Ca}_3(\text{PO}_4)_2$ .

**CALCAREA SULPHURICA**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Calcarea Sulphurica.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent of  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Calcarea Sulphurica.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 20 g, char it in silica crucible to ash, and proceed with the ash as described in assay method under Calcarea Sulphurica. For titration use 0.01N *potassium permanganate* solution. Each ml of 0.01N *potassium permanganate* is equivalent to 0.00043 g of  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .



**CALENDULA  
OFFICINALIS**

	: Mother Tincture.
<b>Alcohol content</b>	: 38.0 to 42.0 percent v/v.
<b>pH</b>	: 5.1 to 6.1
<b>Wt. per ml</b>	: 0.9933 g to 0.970 g
<b>Total solids</b>	: Not less than 1.8 percent w/v.
<b><math>\lambda</math> max</b>	: 256 and 290 nm.
<b>Identification</b>	: (i) To 1 ml of chloroform extract add a drop of sulphuric acid; the chloroform layer turns green.  (ii) Carry out TLC using chloroform : methanol (8:2 v/v) as mobile phase and iodine vapour for visualisation. Three spots appear at $R_f$ 0.03, 0.11 and 0.98.

**CALOTROPIS  
GIGANTIA**

	: Mother Tincture.
<b>Alcohol content</b>	: 66.0 to 70.0 percent v/v.
<b>pH</b>	: 6.3 to 7.2.
<b>Wt. per ml</b>	: 0.880 g to 0.890 g.
<b>Total solids</b>	: Not less than 0.3 percent w/v.
<b><math>\lambda</math> max</b>	: 278 nm,
<b>Identification</b>	: (i) To 2 ml chloroform extract add 1 ml of <i>acetic anhydride</i> and 2 ml <i>sulphuric acid</i> by the side of test tube; a brown ring is formed.  (ii) Carry out TLC using methanol:ammonia (100:1.5 v/v) as mobile phase. On spraying with Dragendorff's reagent one spot appears at $R_f$ 0.89.

**CAMPHORA**

**Potency** : 1x (0)

A clear, colourless liquid with characteristic odour. Contains not less than 9.10 percent w/v to not more than 10.10 percent w/v of  $C_{10}H_{16}O$ .

**Assay** : Complies with the assay method given under Camphora.

**Potency** : 2x

A clear colourless liquid, odour characteristic. Contains not less than 0.91 percent w/v to not more than 1.01 percent w/v of  $C_{10}H_{16}O$ .

**Assay** : Weigh accurately about 25 g of drug and follow the method given under Camphora.

<b>CANNABIS INDICA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 77.0 to 81.0 percent v/v
<b>pH</b>	: 6.2 to 7.0
<b>Wt. per ml</b>	: 0.880 g to 0.940 g.
<b>Total solids</b>	: Not less than 0.95 percent w/v.
<b><math>\lambda</math> max</b>	: 255 nm.
<b>Identification</b>	: Carry out TLC using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light seven spots appear at $R_f$ 0.07, 0.12, 0.16, 0.88, 0.92, 0.96 and 0.98 (all red).

<b>CANTHARIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 9.50 to 10.20.
<b>Wt. per ml</b>	: 0.810 g to 0.840 g.
<b>Total solids</b>	: Not less than 1.20 percent w/v.
<b><math>\lambda</math> max</b>	: 265,223 nm.
<b>Identification</b>	: Carry out Co-TLC on silica gel 'G' with <i>cantharidin</i> using <i>cyclohexane:acetone</i> (9:1 v/v) as mobile phase and 2:4 <i>dinitrophenyl hydrazine</i> solution as spray reagent; red spot corresponding to cantharidin appears.

**CARDUUS MARINUS** : Mother Tincture.

**Alcohol content** : 71.0 to 74.0 percent v/v.

**pH** : 5.50 to 6.50.

**Wt. per ml** : 0.930 g to 0.944 g.

**Total solids** : Not less than 0.70 percent w/v.

**$\lambda$  max** : 260 nm.

**Identification** : (i) To 1 ml add a pinch of magnesium powder and a few drops of *hydrochloric acid*; pink colour develops (brown coloured).

(ii) Carry out TLC using *chloroform:methanol* (9:1 v/v) as mobile phase and methanolic sulphuric acid as spray reagent. Five spots appear at  $R_f$  0.20, 0.24, 0.40, 0.50 and 0.60.

OR

Evaporate 20 ml Mother Tincture on water-bath to remove *alcohol*, extract the aqueous part with 3x20 ml chloroform. Concentrate the aqueous layer to 2 ml and carry out Co-TLC with silybine using *chloroform:methanol* (9:1 v/v) as mobile phase and methanolic sulphuric acid as spray reagent. Spot corresponding to standard silybine appears.

**CAULOPHYLLUM  
THALICTROIDES**

: Mother Tincture.

**Alcohol content** : 47.0 to 51.0 percent w/v.

**pH** : 5.00 to 6.00

**Wt. per ml** : 0.890 g to 0.940 g.

**Total solids** : Not less than 0.40 percent w/v.

**$\lambda$  max** : 263 and 300 nm.

**Identification** : Evaporate 20 ml to remove alcohol. Extract the aqueous part with 3x20 ml chloroform. Concentrate the chloroform layer to 2 ml and carry out TLC, using *chloroform:methanol* (9:1 v/v) as mobile phase and *antimony trichloride* solution as spray reagent. Five spots appear at  $R_f$  0.11, 0.22, 0.50, 0.65 and 0.89 (reddish violet).

OR

Evaporate 20 ml on a water bath to remove alcohol. Extract the aqueous part with 3x20 ml chloroform. Concentrate chloroform layer to 2 ml and carry out Co-TLC with caulophylline using *chloroform:methanol* (9:1 v/v) as mobile phase and *Dragendorff's* reagent as spray reagent. Spot corresponding to caulophylline appears.

<b>CEANOTHUS AMERICANUS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 4.8 to 6.8.
<b>Wt. per ml</b>	: 0.850 g to 0.925 g
<b>Total solids</b>	: Not less than 0.78 percent w/v.
<b>Identification</b>	: Evaporate 20 ml Mother Tincture to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> , concentrate chloroform layer to 2 ml and carry out TLC using <i>chloroform: methanol</i> (95:5 v/v) as mobile phase. Under UV light four spots appears at $R_f$ 0.25, 0.50, (both red) 0.66, (blue) and 0.94 (brownish red). With <i>antimony trichloride</i> reagent one spot appears at $R_f$ 0.94 (pink).
<b>CHAMOMILLA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v.
<b>pH</b>	: 5.5 to 6.5.
<b>Wt. per ml</b>	: 0.910 g to 0.940 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 320, 268 nm
<b>Identification</b>	: (i) To 1 ml add 1 ml of water and make the solution alkaline with ammonia solution; a greenish fluorescence is produced.  (ii) Evaporate 20 ml Mother Tincture to remove <i>alcohol</i> . Extract the aqueous part with 3x20 ml <i>chloroform</i> , concentrate the chloroform layer to 2 ml and carry out TLC using <i>chloroform: methanol</i> (95:5 v/v) as mobile phase and <i>antimony trichloride</i> as spray reagent. Three spots appear at $R_f$ 0.43, 0.56 and 0.85.

**CHELIDONIUM  
MAJUS**

	: Mother Tincture.
<b>Alcohol content</b>	: 41.0 to 45.0 percent v/v.
<b>pH</b>	: 5.20 to 6.50.
<b>Wt. per ml</b>	: 0.910 g to 0.940 g
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> max</b>	: 263, 310 nm.
<b>Identification</b>	: (i) (a) Evaporate 1 ml on a water bath, dissolve the residue in 0.5 ml of dilute <i>hydrochloric acid</i> and a few drops of Mayer's reagent; brown precipitate is produced.  (b) Carry out TLC using n-butanol : <i>acetic acid</i> : <i>water</i> (4:1:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.34, 0.52, 0.61, 0.67 (all blue) and 0.84 (red).  (c) Carry out TLC of chloroform extract using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.15, 0.44, 0.54, 0.67 (all blue) and 0.82 (yellow).

OR

(ii) Evaporate 20 ml on water-bath to remove alcohol, make the aqueous part alkaline with *ammonia* solution and extract it with 3x20 ml chloroform, concentrate the chloroform layer to 2 ml and carry out Co-TLC with *chelidonine* using *chloroform: methanol* (9:1 v/v) as mobile phase and Dragendorff's reagent as spray reagent. Spot corresponding to chelidonine appears.

**CHININUM ARSENICOSUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of  $(C_{20}H_{24}N_2O_2)_3 \cdot 3H_3AsO_3 \cdot 4H_2O$ .
- Assay** : Complies with the assay method given under chininum Arsenicosum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $(C_{20}H_{24}N_2O_2)_3 \cdot 3H_3AsO_3 \cdot 4H_2O$ .
- Assay** : Weigh accurately about 20 g, dissolve in 100 ml *water* and 5 ml and proceed as given under Chininum Arsenicosum.

**CHININUM SULPHURICUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.55 percent w/w of  $(C_{20}H_{24}N_2O_2)_3 \cdot 3H_3AsO_3 \cdot 4H_2O$ .
- Assay** : Complies with the assay method given under chininum Sulphuricum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.06 percent w/w of  $(C_{20}H_{24}N_2O_2)_3 \cdot 3H_3AsO_3 \cdot 4H_2O$ .
- Assay** : Complies with the assay method given under chininum Sulphuricum.

<b>CICUTA VIROSA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v.
<b>pH</b>	: 5.4 to 6.2.
<b>Wt. per ml</b>	: 0.910 g to 0.940 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 270 nm.
<b>Identification</b>	: Evaporate 20 ml of Mother Tincture to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> , concentrate the chloroform layer to 2 ml and carry out TLC using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.33, 0.52, 0.63 and 0.90 (all blue).

<b>CIMICIFUGA RACEMOSA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 58.0 to 62.0 percent v/v.
<b>pH</b>	: 5.4 to 6.2.
<b>Wt. per ml</b>	: 0.880 g to 0.920 g
<b>Total solids</b>	: Not less than 0.5 percent w/v.
<b><math>\lambda</math> max</b>	: 280 and 314 nm.
<b>Identification</b>	: Carry out TLC using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase. In iodine vapour two spots appear at $R_f$ 0.41 and 0.50.



<b>CINA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 5.30 to 6.30
<b>Wt. per ml</b>	: 0.825 g to 0.840 g
<b>Total solids</b>	: Not less than 0.60 percent w/v.
<b><math>\lambda</math> max</b>	: 334 nm.
<b>Identification</b>	: (i) To 1 ml add a drop of <i>alcoholic potassium hydroxide solution</i> ; a red colour is produced.  (ii) To 2 ml add a drop of <i>ethanolic hydroxylamine solution</i> followed by a few drops of <i>alcoholic ferric chloride solution</i> ; a bluish green colour is produced.  (iii) Evaporate 20 ml on water-bath to remove <i>alcohol</i> . Extract the aqueous part with 3x20 ml <i>chloroform</i> , concentrate chloroform extract to 2 ml and carry out Co-TLC with Santonin using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase and observe under long UV light. Spot corresponding to Santonin appears.

<b>CINCHONA OFFICINALIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v.
<b>pH</b>	: 4.90 to 5.40.
<b>Wt. per ml</b>	: 0.878 g to 0.880 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 280, 320 nm.
<b>Identification</b>	: Evaporate 20 ml on water-bath to remove alcohol, make alkaline with ammonia solution and extract with 3x20 ml chloroform. Concentrate the <i>chloroform</i> layer to 2 ml and carry out Co-TLC with <i>Quinine</i> and <i>Cinchonine</i> using <i>methanol: ammonia</i> (100:1.5 v/v) as mobile phase and Dragendorff's reagent for spray. Orange coloured spots corresponding to Cinchonine and Quinine appears.

<b>COFFEA CRUDA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 89.0 to 93.0 percent v/v.
<b>pH</b>	: 5.80 to 6.50.
<b>Wt. per ml</b>	: 0.820g to 0.850 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 270, 315 nm.
<b>Identification</b>	: Carry out Co-TLC with Caffeine using <i>methanol : ammonia</i> (100:1.5 v/v) as mobile phase and Chloramine-T for spray. Spot corresponding to caffeine appears.

<b>COLCHICUM AUTUMNALE</b>	: Mother Tincture.
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v
<b>pH</b>	: 5.70 to 7.20.
<b>Wt. per ml</b>	: 0.920 g to 0.932 g
<b>Total solids</b>	: Not less than 0.60 percent w/v.
<b><math>\lambda</math> max</b>	: 224, 326 nm.
<b>Identification</b>	: Evaporate 20 ml on a water bath to remove alcohol. Make the aqueous part alkaline with <i>ammonia</i> and extract it with 3x20 ml chloroform. Concentrate the <i>chloroform</i> extract to 2 ml and carry out Co-TLC with Colchicine using <i>methanol : ammonia</i> (100:1.5 v/v) as mobile phase and Dragendorff's reagent as spray reagent. Spot corresponding to colchicine appears.

<b>COLOCYNTHIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v.
<b>pH</b>	: 5.40 to 6.20.
<b>Wt. per ml</b>	: 0.910 g to 0.950 g
<b>Total solids</b>	: Not less than 1.20 percent w/v.
<b><math>\lambda</math> max</b>	: 255, 340 nm.
<b>Identification</b>	: Evaporate 20 ml to remove <i>alcohol</i> , extract the aqueous part with 3x20 ml <i>chloroform</i> , concentrate the chloroform layer to 2 ml and carry out TLC using <i>chloroform</i> : <i>methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.13, 0.52, 0.63 and 0.83 (all blue).

<b>CONIUM MACULATUM</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.40 to 6.20
<b>Wt. per ml</b>	: 0.890 g to 0.920 g.
<b>Total solids</b>	: Not less than 0.54 percent w/v.
<b><math>\lambda</math> max</b>	: 265 nm.
<b>Identification</b>	: (a) Carry out TLC using <i>n-butanol</i> : <i>acetic acid</i> : <i>water</i> (4:1:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.03, 0.68, 0.82 and 0.94.  (b) Evaporate 20 ml on a water bath to remove <i>alcohol</i> . Make the aqueous part alkaline with <i>ammonia</i> solution and extract it with 3x20 ml chloroform. Concentrate the chloroform extract to 2 ml and carry out Co-TLC with Coniine using <i>chloroform</i> : <i>methanol</i> (9:1 v/v) as mobile phase and spray with Dragendorff's reagent. Spot corresponding to Coniine appears.

<b>CRATAEGUS OXYCANTHA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.4 to 5.9.
<b>Wt. per ml</b>	: 0.904 g to 0.926 g
<b>Total solids</b>	: Not less than 1.7 percent w/v.
<b><math>\lambda</math> max</b>	: 275 nm.
<b>Identification</b>	: Evaporate 20 ml Mother Tincture to remove <i>alcohol</i> . Extract the aqueous part with 3x20 ml chloroform, concentrate the chloroform layer to 2 ml and carry out TLC using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride</i> solution as spray reagent. Five spots appear at $R_f$ 0.23 (grey) 0.42 (red), 0.57, 0.82 and 0.92 (all grey).
<b>CROTON TIGLIUM</b>	: Mother Tincture.
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v.
<b>pH</b>	: 5.3 to 5.8
<b>Wt. per ml</b>	: 0.953 g to 0.950 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 272 (b) nm.
<b>Identification</b>	: Extract 20 ml with 3x20 ml petroleum ether (40° to 60°). Concentrate the <i>petroleum ether</i> extract to 2 ml and carry out TLC using <i>n-hexane: methanol</i> (98:2 v/v) as mobile phase. In iodine vapours five spots appear at $R_f$ 0.17, 0.31, 0.42, 0.62 and 0.70.

**CUPRUM ARSENICOSUM**

- Potency** : 1x  
 Light green, amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{CuH}_3\text{AsO}_3$ .
- Assay** : Complies with the assay method given under cuprum Arsenicosum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $\text{CuHAsO}_3$ .
- Assay** : Weigh accurately about 5 g, char it in silica crucible and add 25 ml of dilute *hydrochloric acid* and follow the method given under Cuprum Arsenicosum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w.w of  $\text{CuHAsO}_3$ .
- Assay** : Weight accurately about 20 g, char it in silica crucible to make ash. Dissolve the ash in 25 ml of dilute *hydrochloric acid* and follow the method as given under Cuprum Arsenicosum. For titration use 0.01N *sodium thiosulphate* solution. Each ml of 0.01N *sodium thiosulphate* is equivalent to 0.00188 g of  $\text{CuHAsO}_3$ .

### CUPRUM METALLICUM

- Potency** : 1x  
 Light reddish amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of Cu.
- Assay** : Complies with the assay method given under Cuprum metallicum.
- Potency** : 2x  
 Light reddish amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of Cu.
- Assay** : Complies with the assay method given under Cuprum metallicum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of Cu.
- Assay** : Weigh accurately about 20 g, char it in silica crucible to make ash. Dissolve the ash in sufficient quantity of hot sulphuric acid and follow the method given under Cuprum Metallicum. For titration use 0.01 N *sodium thiosulphate*. Each ml of 0.01 N *sodium thiosulphate* solution is equivalent to 0.00064 g of Cu.

<b>DIGITALIS PURPUREA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 41.0 to 45.0 percent v/v.
<b>pH</b>	: 5.50 to 6.50.
<b>Wt. per ml</b>	: 0.930 g to 0.950 g.
<b>Total solids</b>	: Not less than 3.0 w/v.
<b><math>\lambda</math> max</b>	: 270 nm.
<b>Identification</b>	: Carry out Co-TLC with digitonin using <i>n-butanol : acetic acid:water</i> (4:1:1 v/v) as mobile phase and <i>antimony trichloride</i> as spray reagent. Spot corresponding to Digitonin appears.

<b>DIOSCOREA VILLOSA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.20 to 6.00.
<b>Wt. per ml</b>	: 0.890 g to 0.920 g.
<b>Total solids</b>	: Not less than 1.50 percent w/v.
<b><math>\lambda</math> max</b>	: 270 nm.
<b>Identification</b>	: Evaporate 20 ml on a water bath to remove <i>alcohol</i> . Extract the aqueous part with 3 × 20 ml <i>chloroform</i> . Concentrate the chloroform layer to 2 ml and carry out TLC, using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light eight spots appear at $R_f$ 0.31 (blue), 0.46 (orange), 0.50 (blue), 0.57 (orange), 0.65 (orange), 0.71, 0.80 and 0.92 (all blue).

OR

Evaporate 20 ml on water-bath to remove *alcohol*. Extract the aqueous part with 3 × 20 ml *chloroform*, concentrate the chloroform extract to 2 ml and carry out Co-TLC with Diosgenin using *chloroform : methanol* (9:1 v/v) as mobile phase and *antimony trichloride* reagent as spray reagent. Spot corresponding to Diosgenin appears.

<b>DROSERA ROTUNDIFOLIA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 4.70 to 5.80.
<b>Wt. per ml</b>	: 0.890 g to 0.920 g.
<b>Total solids</b>	: Not less than 0.50 percent w/v.
<b><math>\lambda</math> max</b>	: 255, 280 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.24, 0.51, 0.60, 0.64, 0.86, 0.91 (all blue).
<b>DULCAMARA</b>	: Mother Tincture
<b>Alcohol content</b>	: 62.0 to 66.0 percent v/v.
<b>pH</b>	: 5.50 to 6.20.
<b>Wt. per ml</b>	: 0.880 g to 0.910 g
<b>Total solids</b>	: Not less than 0.70 percent w/v.
<b><math>\lambda</math> max</b>	: 270 and 310 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride</i> as spray reagent. One spot appear at $R_f$ 0.84.



**ECHINACEA  
ANGUSTIFOLIA**

- : Mother Tincture.
- Alcohol content** : 75.0 to 79.0 percent v/v.
- pH** : 5.5 to 6.2.
- Wt. per ml** : 0.830 g to 0.870 g
- Total solids** : Not less than 1.00 percent w/v
- $\lambda$  max** : 278 and 324 nm.
- Identification** : Carry out TLC of chloroform extract using *chloroform:methanol* (9:1 v/v) as mobile phase. Under UV light and with *antimony trichloride* reagent two spots appear at  $R_f$  0.22 and 0.87.
- To 1 ml add one drop of *ammonium reinechate* solution; a red precipitate produced.
- Carry out Co-TLC of concentrated Mother Tincture with Betaine using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light blue spot corresponding to Betaine appears.

**EUPATORIUM  
PERFOLIATUM**

- : Mother Tincture.
- Alcohol content** : 47.0 to 51.0 percent v/v.
- Wt. per ml** : 0.910 g to 0.940 g
- Total solids** : Not less than 0.70 percent w/v.
- $\lambda$  max** : 267, 315 nm.
- Identification** : Carry out TLC of chloroform extract using *chloroform:methanol* (9:1 v/v) as mobile phase and *antimony trichloride* solution as spray reagent. Two spots appear at  $R_f$  0.22 and 0.87.

OR

Evaporate 20 ml on a water bath to remove alcohol. Extract the aqueous part with 3x20 ml chloroform. Concentrate the chloroform extract to 2 ml and carry out Co-TLC with Eupatorin using *chloroform:methanol* (9:1 v/v) as mobile phase and *aluminium chloride* reagent as spray reagent. Under UV light after spray with *aluminium chloride* reagent spot corresponding to Eupatorin appears.

<b>EUPHRASIA OFFICINALIS</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.4 to 6.4.
<b>Wt. per ml</b>	: 0.903 g to 0.939 g
<b>Total solids</b>	: Not less than 0.30 percent w/v.
<b>λ max</b>	: 280 and 320 nm.
<b>Identification</b>	: Carry out TLC using <i>chloroform : methanol</i> (8:2 v/v) as mobile phase. Under UV light four spots appear at R <sub>f</sub> 0.10, 0.17, 0.40 and 0.96 (all blue).

### FERRUM METALLICUM

- Potency** : 1x  
Brownish-white amorphous powder. Contains not less than 8.55 percent w/w to not more than 9.45 percent w/w of Fe.
- Assay** : Complies with the assay method given under Ferrum Metallicum.
- Potency** : 2x  
Brown coloured amorphous powder. Contains not less than 0.86 percent w/w to not more than 0.95 percent w/w of Fe.
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash and shake with 20 ml 5 percent copper *sulphate* solution for ten minutes. Filter rapidly and wash the filtrate with water, acidify the filtrate with *sulphuric acid* and titrate with 0.01N potassium permanganate. Each ml of 0.01N *potassium permanganate* is equivalent to 0.00558 g of Fe.

### FERRUM PHOSPHORICUM

- Potency** : 1x  
Greenish-blue, amorphous powder. Contains not less than 4.60 percent w/w to not more than 5.04 percent w/w of  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Ferrum Phosphoricum.
- Potency** : 2x  
Light greenish-blue amorphous powder. Contains not less than 0.46 percent w/w to not more than 0.50 percent w/w of  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ .
- Assay** : Weight accurately about 5 g, char in silica crucible to make ash. Dissolve the ash in 20 ml of a 25 percent w/v solution of sulphuric acid and follow the method given under Ferrum Phosphoricum. For titration use 0.01 M *potassium iodate*. Each ml of 0.01 M *potassium iodate* is equivalent to 0.0067 g of  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ .
- Potency** : 3x  
Light greenish-blue amorphous powder. Contains not less than 0.046 percent w/w to not more than 0.050 percent w/w of  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 20 g, char in silica crucible to ash. Dissolve the ash in 20 ml of 25 percent w/v solution of *sulphuric acid* and follow the assay method given under Ferrum Phosphoricum. For titration use 0.01M *potassium iodate*. Each ml of 0.01 M *potassium iodate* is equivalent to 0.0067 g of  $\text{Fe}_3(\text{PO}_4)_2 \cdot 8\text{H}_2\text{O}$ .

<b>GERANIUM MACULATUM</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 4.5 to 5.5.
<b>Wt. per ml</b>	: 0.910 g to 0.935 g
<b>Total solids</b>	: Not less than 0.90 percent w/v.
<b><math>\lambda</math> max</b>	: 280 and 315 nm.
<b>Identification</b>	: Carry out TLC using <i>n-butanol : acetic acid : water</i> (4:1:1 v/v) as mobile phase. Under UV light two spots appear at $R_f$ 0.85 and 0.97 (all blue).

**GRAPHITES**

- Potency** : 1x  
Blackish white amorphous powder. Contains not less than 9.5 percent w/w to not more than 10.5 percent w/w of graphites.
- Assay** : Dissolve 1 g in 50 ml distilled *water* and filter. The black amorphous residue insoluble in alkali or acid and organic solvents. Dry at 105° and weigh. It should weigh not less than .095 g and nor more than 0.105 g.
- Potency** : 2x  
Light blackish amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of graphites.
- Assay** : Same as for 1x. It should weigh not less than .0095 g and not more than 0.0105 g.

**GYMNEMA  
SYLVESTRE**

	: Mother Tincture.
<b>Alcohol content</b>	: 76.0 to 80.0 percent v/v.
<b>pH</b>	: 6.1 to 6.8
<b>Wt. per ml</b>	: 0.869 g to 0.882 g
<b>Total solids</b>	: Not less than 1.20 percent w/v.
<b><math>\lambda</math> max</b>	: 265 and 325 nm.
<b>Identification</b>	: (i) Evaporate 1 ml of Mother Tincture to dryness, dissolve the residue in water and filter, to the filtrate add one drop of <i>nitric acid</i> and evaporate. To the residue add one drop of <i>calcium chloride solution</i> and 1 drop of ammonia solution; a brownish red to pink colour is produced.  (ii) Carry out TLC of chloroform extract using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light eight spots appear at $R_f$ 0.26, 0.50, 0.57, (all blue), 0.62 (red), 0.70, 0.80, 0.87 and 0.98 (all blue). With <i>antimony trichloride</i> reagent five spots appear at $R_f$ 0.57 (light violet), 0.62 (red), 0.70 (light violet), 0.84 and 0.98 (light violet).

**HAMAMELIS  
VIRGINICA**

	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 4.20 to 5.50.
<b>Wt. per ml</b>	: 0.910 g to 0.930 g
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> max</b>	: 280 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform: methanol</i> (95:5 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.35 (red), 0.57 (violet), 0.74 (violet), 0.86 (red), 0.91 (violet) and 0.96 (red).

OR

Carry out Co-TLC with Hamamelitannin using *n-butanol : acetic acid : water* (4:1:1 v/v) as mobile phase and aqueous *ferric chloride* solution as spray reagent. Balckish brown spot corresponding to Hamamelitanin appears.

**HELLEBORUS  
NIGER**

	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.20 to 5.60.
<b>Wt. per ml</b>	: 0.900 g to 0.960 g
<b>Total solids</b>	: Not less than 2.20 percent w/v.
<b><math>\lambda</math> max</b>	: 274 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light seven spots appear at $R_f$ 0.10 (greenish yellow), 0.19 (violet), 0.44 (blue), 0.59 (blue), 0.73 (blue), 0.86 (violet) and 0.94 (red). With <i>antimony trichloride reagent</i> , six spots appear at $R_f$ 0.10 (pink) 0.45 (red), 0.59 (brown), 0.73 (Brown), 0.82 (violet) and 0.94 (brown).  Carry out Co-TLC of Mother Tincture with <i>Hellebrin</i> using <i>Methylene dichloride:methanol:formamide</i> (80:19:1 v/v) as mobile phase and <i>antimony trichloride reagent</i> as spray reagent. Spot corresponding to <i>Hellebrin</i> appears.

**HOLLARRHENA**

<b>ANTIDYSENTERICA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 54.0 to 58.0 percent v/v.
<b>pH</b>	: 5.0 to 6.0.
<b>Wt. per ml</b>	: 0.910 g to 0.930 g
<b>Total solids</b>	: Not less than 1.0 percent w/v
<b><math>\lambda</math> max</b>	: 270 nm.
<b>Identification</b>	: (i) To 1 ml Mother Tincture add a few drops of <i>sodium hydroxide solution</i> ; a dirty precipitate is produced.  (ii) Carry out TLC of Mother Tincture using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase and <i>Dragendorff's reagent</i> as spray reagent. Six spots appear at $R_f$ 0.20, 0.32, 0.65, 0.75, 0.83 and 0.93 (all orange).

**HYDRASTIS  
CANADENSIS**

	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent w/v.
<b>pH</b>	: 4.60 to 6.10.
<b>Wt. per ml</b>	: 0.900 g to 0.930 g
<b>Total solids</b>	: Not less than 1.20 percent w/v.
<b><math>\lambda</math> max</b>	: 264 and 324 nm.
<b>Identification</b>	: (i) To 1 ml Mother Tincture add two drops of Mayer's reagent; a yellow coloured precipitate is produced.  (ii) Carry out TLC of chloroform extract using <i>methanol:ammonia</i> (100:1.5 v/v) as mobile phase and <i>Dragendorff's reagent</i> as spray reagent. Three spots appear at $R_f$ 0.15, 0.75 and 0.90.

OR

Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, make the aqueous part alkaline with *ammonia solution* and extract with 3x20 ml chloroform. Concentrate chloroform extract to 2 ml and carry out Co-TLC with *Hydrastine* using *chloroform:methanol* (9:1 v/v) as mobile phase and *Dragendorff's reagent* as spray reagent. Spot corresponding to *hydrastine* appears.

**HYDROCOTYLE  
ASIATICA**

	: Mother Tincture
<b>Alcohol content</b>	: 66.0 to 70.0 percent v/v.
<b>pH</b>	: 5.0 to 6.1.
<b>Wt. per ml</b>	: 0.850 g to 0.920 g
<b><math>\lambda</math> max</b>	: 322 nm.
<b>Total solids</b>	: Not less than 0.50 percent w/v.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.65, 0.76, 0.86 (red), 0.94 (blue), 0.98 (brown). With <i>antimony trichloride reagent</i> seven spots appear at $R_f$ 0.54, 0.61 (pink), 0.76 (green), 0.86 (red), 0.90 (grey), 0.94 (orange) and 0.98 (brown).



**HYOSCYAMUS  
NIGER**

	: Mother Tincture
<b>Alcohol content</b>	: 52.0 to 56.0 percent v/v.
<b>pH</b>	: 6.0 to 6.8.
<b>Wt. per ml</b>	: 0.930 g to 0.945 g
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b>λ max</b>	: 260 nm.
<b>Identification</b>	: (i) Mix 10 ml of Mother Tincture with 10 ml distilled <i>water</i> and 1 ml of concentrated <i>ammonia</i> solution and extract with 20 ml <i>ether</i> . Dry the ether phase on sodium and filter, evaporate the ether and rinse with 0.5 ml of <i>fuming nitric acid</i> , again evaporate to dryness and add 10 ml <i>acetone</i> and a few drops of 3 percent alcoholic solution of <i>potassium hydroxide</i> , violet colour is produced.  (ii) Carry out TLC of chloroform extract using <i>acetone : water : ammonia</i> (90:7.3 v/v) as mobile phase and <i>Drangendorff's</i> reagent as spray reagent. The spots corresponding to <i>atropine</i> and <i>scopolamine</i> appear.

**HYPERICUM  
PERFORATUM**

	: Mother Tincture.
<b>Alcohol content</b>	: 71.0 to 75.0 percent v/v.
<b>pH</b>	: 4.4 to 6.0
<b>Wt. per ml</b>	: 0.875 g to 0.885 g
<b>Total solids</b>	: Not less than 0.60 percent w/v.
<b>λ max</b>	: 275 nm.
<b>Identification</b>	: (i) To 1 ml Mother Tincture add a few drops of <i>ferric chloride</i> solution; a blackish-green precipitate is produced.  (ii) To 2 ml of Mother Tincture add 2 ml distilled water and 2 ml of ether, shake and observe under UV light; a bright red fluorescence in ether layer is observed. On adding concentrated <i>sulphuric acid</i> yellowish-green fluorescence is produced.  (iii) Carry out TLC of Mother Tincture using <i>chloroform: methanol</i> (80:20 v/v) as mobile phase. In iodine vapour two spots appear at $R_f$ 0.61 and 0.84.

<b>IGNATIA AMARA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 77.0 to 81.0 percent v/v.
<b>pH</b>	: 5.4 to 6.0.
<b>Wt. per ml</b>	: 0.850 g to 0.905 g.
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 244 and 310 (b).
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.06, 0.41, 0.76 and 0.90. With <i>antimony trichloride</i> reagent two spots appear at $R_f$ 0.90 (pink) and 0.96 brown).

**IODIUM**

- Potency** : 2x  
A violet coloured clear liquid. Contains not less than 0.95 percent w/v to not more than 1.05 percent w/v of I.
- Alcohol content** : 91.0 to 95.0 percent v/v.
- Assay** : Weigh accurately about 5 g, add 5 ml 20 percent *potassium iodide* solution in *water*, dilute to 50 ml and follow the assay method given under Iodum.
- Potency** : 3x  
A violet coloured clear liquid, contains not less than 0.095 percent w/v to not more than 0.105 percent w/v of I.
- Alcohol content** : 88.0 to 92.0 percent v/v.
- Assay** : Weigh accurately about 20 g, add 5 ml 20 percent aqueous *potassium iodide*. Dilute to 50 ml with *water*, add 1 ml of dilute *acetic acid* and titrate with 0.01N *sodium thiosulphate* using starch as indicator. Each ml of 0.01N *sodium thiosulphate* is equivalent to 0.00127 g of I.

<b>IPECACUANHA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v.
<b>pH</b>	: 3.5 to 5.5.
<b>Wt. per ml</b>	: 0.860 g to 0.880 g
<b>Total solids</b>	: Not less than 0.37 percent w/v.
<b><math>\lambda</math> max</b>	: 275 nm.
<b>Identification</b>	: (i) To 1 ml of Mother Tincture add a few drops of Mayer's reagent; white turbidity is produced.  (ii) Carry out TLC of chloroform extract using <i>chloroform</i> : <i>methanol</i> (9:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.10, 0.23, 0.61, 0.72 and 0.84 (all blue). With <i>Dragendorff's reagent</i> six spots appear at $R_f$ 0.10, 0.23, 0.42, 0.61, 0.70 and 0.84 (all orange).

<b>JUSTICIA ADHATODA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 82.0 to 86.0 percent v/v.
<b>pH</b>	: 5.80 to 7.30.
<b>Wt. per ml</b>	: 0.890 g to 0.920 g
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> max</b>	: 272 nm.
<b>Identification</b>	: (i) To 2 ml of Mother Tincture add a drop of <i>ferric chloride</i> solution; a blood-red colour appears which disappears on addition of more <i>ferric chloride</i> solution with the formation of brown precipitate.  (ii) Carry out TLC of ethyl acetate extract using <i>methanol</i> : <i>ammonia</i> (100:1.5 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.28, 0.37, 0.45, 0.72, 0.83 and 0.95.

### KALI BICHROMICUM

- Potency** : 1x  
Orange-red coloured, clear liquid. Contains not less than 9.40 percent w/v of not more than 10.40 percent w/v of  $K_2Cr_2O_7$ .
- Assay** : Complies with the assay method given under Kali Bichromicum.
- Potency** : 2x  
Light orange-red coloured, clear liquid. Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of  $K_2Cr_2O_7$ .
- Assay** : Weigh accurately about 5 g in 25 ml freshly boiled *water* and follow the assay method given under Kali Bichromicum.
- Potency** : 3x  
Light orange coloured, clear liquid. Contains not less than 0.094 percent w/v to not more than 0.104 percent w/v of  $K_2Cr_2O_7$ .
- Assay** : Weigh accurately about 20 g and follow the assay method given under Kali Bichromicum. For titration use 0.01N *sodium thiosulphate* solution. Each ml of 0.01N *sodium thosulphate* is equivalent to 0.00049 g of  $K_2Cr_2O_7$ .

### KALI CARBONICUM

- Potency** : 1x  
White amorphous powder, Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of  $K_2CO_3$ .
- Assay** : Complies with the assay method given under Kali Carbonicum.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $K_2CO_3$ .
- Assay** : Weigh accurately about 5 g, dissolve in 25 ml of water and follow the assay method given under Kali Carbonicum. For titration use 0.1N *hydrochloric acid*. Each ml of 0.1N *hydrochloric acid* is equivalent to 0.0069 g of  $K_2CO_3$ .
- Potency** : 3x  
White amorphous powder. Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of  $K_2CO_3$ .
- Assay** : Weigh accurately about 20 g, dissolve in 100 ml of water, add 1 drop of *methyl orange solution* and titrate with 0.01 N *hydrochloric acid* until the yellow colour changes to on orange-red. Then the solution is boiled for 2 to 3 minutes. After cooling, yellow colour reappears, continue titrating until the yellow colour changes to pink. Each ml of 0.01N *hydrochloric acid* is equivalent to 0.00069 g of  $K_2CO_3$ .

### KALI IODATUM

- Potency** : 1x  
 White amorphous powder or liquid. Contains not less than 9.40 percent w/v to not more than 10.40 percent w/v or w/w of KI.
- Assay** : Complies with the assay method given under Kali Iodatium.
- Potency** : 2x  
 White amorphous powder or colourless clear liquid. Contains not less than 0.94 percent w/v or w/w to not more than 1.04 percent w/v or w/w/ of KI.
- Assay** : Weigh accurately about 5 g and dissolve in 50 ml of *water* and follow the assay method given under Kali Iodatium.
- Potency** : 3x  
 White amorphous powder or clear, colourless liquid. Contains not less than 0.094 percent w/v or w/w to not more than 0.104 percent w/v or w/w of KI.
- Assay** : Weigh accurately about 20 g, if solid char in silica crucible to make ash. Dissolve in 20 ml water and follow the assay method given under Kali Iodatium. For titration use 0.01 M *potassium iodate*. Each ml of 0.01M *potassium iodate* is equivalent to 0.00332 g of KI.

### KALI MURIATICUM

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of KCl.
- Assay** : Complies with the assay method given under Kali Muriaticum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of KCl.
- Assay** : Weigh accurately about 5 g and dissolve in 50 ml of water and follow the assay method given under Kali Muriaticum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of KCl.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash, dissolve the ash in 25 ml of *water* and titrate with 0.01N *silver nitrate* using *potassium chromate* solution as indicator. Each ml of 0.01N *silver nitrate* is equivalent to 0.000746 g of KCl.

### KALI PHOSPHORICUM

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of  $K_2HPO_4$ .
- Assay** : Complies with the assay method given under Kali Phosphoricum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $K_2HPO_4$ .
- Assay** : Follow assay method given under Kali Phosphoricum. For titration use 0.1N *sulphuric acid* in place of 0.5N *sulphuric acid*. Each ml of 0.1N *sulphuric acid* is equivalent to 0.01742 g of  $K_2HPO_4$ .
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of  $K_2HPO_4$ .
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash. Dissolve in 25 ml of *water* and titrate with 0.01N *sulphuric acid* using *bromo-cresol green* solution as indicator. Each ml of 0.01N *sulphuric acid* is equivalent to 0.00174 g of  $K_2HPO_4$ .

### KALI SULPHURICUM

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $K_2SO_4$ .
- Assay** : Complies with the assay method given under Kali Sulphuricum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $K_2SO_4$ .
- Assay** : Weigh accurately about 5 g dissolve in 100 ml *water* and follow the assay method given under Kali Sulphuricum.

**KREOSOTUM** : Mother Tincture.  
**Alcohol content** : 82.0 to 86.0 percent v/v.  
**pH** : 5.5 to 7.0  
**Wt. per ml** : 0.840 g to 0.910 g  
**Total solids** : Not less than 1.076 percent w/v.  
**Identification** : To 1 ml of saturated solution in *water* add 1 drop of solution of *ferric chloride*; a very transient violet blue colour is produced. Excess of *ferric chloride* solution gives brown precipitate.

**LEDUM PALUSTRE** : Mother Tincture.  
**Alcohol content** : 76.0 to 80.0 percent v/v.  
**pH** : 5.30 to 6.30.  
**Wt. per ml** : 0.850 g to 0.910 g  
**Total solids** : Not less than 1.50percent w/v.  
 **$\lambda$  max** : 260 and 320 nm.  
**Identification** : Carry out TLC of chloroform extract using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light six spots appear at  $R_f$  0.12, 0.26, 0.49, 0.67, 0.83 and 0.91 (all blue).

**LYCOPODIUM CLAVATUM** : Mother Tincture.  
**Alcohol content** : 91.0 to 95.0 percent v/v.  
**pH** : 5.20 to 5.80.  
**Wt. per ml** : 0.810 g to 0.840 g  
**Total solids** : Not less than 0.85 percent w/v.  
 **$\lambda$  max** : 264 (b) nm.  
**Identification** : Carry out TLC of chloroform extract using *chloroform : methanol* (9:1 v/v) as mobile phase. In Iodine vapour four spots appear at  $R_f$  0.16, 0.18, 0.38 and 0.97.



**MAGNESIA CARBONICA**

- Potency** : 1x  
 White amorphous powder. Contains not less than 3.80 percent w/w to not more than 4.67 percent w/w of MgO.
- Assay** : Complies with the assay method given under Magnesia Carbonica.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.38 percent w/w to not more than 0.047 percent w/w of MgO.
- Assay** : Weigh accurately about 5 g, dissolve in 25 ml 1N *hydrochloric acid* and follow the method given under Magnesia Carbonica.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.038 percent w/w to not more than 0.047 percent w/w of MgO.
- Assay** : Weigh accurately about 20 g, dissolve in 100 ml 0.1 N *hydrochloric acid*. Titrate the excess of *hydrochloric acid* with 1N *sodium hydroxide* solution using *methyl orange* as indicator. Each ml of 0.1N *hydrochloric acid* is equivalent to 0.0002016 of MgO.

**MAGNESIA MURIATICA**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of MgCl<sub>2</sub>.6H<sub>2</sub>O.
- Assay** : Complies with the assay method given under Magnesia Muriatica.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of MgCl<sub>2</sub>.6H<sub>2</sub>O.
- Assay** : Weigh accurately about 5 g, dissolve in 50 ml *water* and follow the assay method given under Magnesia Muriatica.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of MgCl<sub>2</sub>.6H<sub>2</sub>O.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash. Dissolve the ash in 25 ml of *water* and tritrate with 0.01N *silver nitrate* solution using *potassium chromate* solution as indicator. Each ml of 0.01N *silver nitrate* is equivalent to 0.001017 g of MgCl<sub>2</sub>.6H<sub>2</sub>O.

**MERCURIUS CORROSIVUS**

- Potency** : 1x  
White amorphous powder or colourless liquid. Contains not less than 9.50 percent w/w or w/v to not more than 10.50 percent w/w or w/v of HgCl<sub>2</sub>.
- Assay** : Complies with the assay method given under Mercurius Corrosivus.
- Potency** : 2x  
White amorphous powder or colourless liquid. Contains not less than 0.95 percent w/w or w/v to not more than 1.05 percent w/w or w/v of HgCl<sub>2</sub>.
- Assay** : Dissolve about 5 g accurately weighed in 85 ml of *water* and follow the assay method given under Mercurius Corrosivus.
- Potency** : 3x  
White amorphous powder or colourless liquid. Contains not less than 0.095 percent w/w or w/v to not more than 0.105 percent w/w or w/v of HgCl<sub>2</sub>.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash, dissolve the ash in 85 ml of water and follow the assay method given under Mercurius Corrosivus.

**MERCURIUS DULCIS**

- Potency** : 1x  
White amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of HgCl.
- Assay** : Complies with the assay method given under Mercurius Dulcis.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of HgCl.
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash, mix with 10 ml of water and follow the assay method given under Mercurius Dulcis.
- Potency** : 3x  
White amorphous powder. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of HgCl.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash. Mix the ash with 10 ml of *water* in a glass stoppered flask and add 50 ml of 0.01N *iodine* and 2 g *potassium iodide*, dissolved in 10 ml of water. Close the flask and set aside, shaking occasionally until solution is complete. Titrate the excess of iodine with 0.01 N *sodium thiosulphate* using starch as indicator. Each ml of 0.01 N *iodine* is equivalent to 0.00236 g of HgCl.

**MERCURIUS IODATUS FLAVUS**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of HgI.
- Assay** : Complies with the assay method given under Mercurius Iodatus Flavus.
- Potency** : 2x  
 Yellowish-white amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of HgI.
- Assay** : Weigh accurately about 5 g after dried over *sulphuric acid* and follow the assay method given under Mercurius Iodatus Flavus.

**MERCURIUS IODATUS RUBER**

- Potency** : 1x  
 Red amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of HgI<sub>2</sub>.
- Assay** : Complies with the assay method given under Mercurius Iodatus Ruber.
- Potency** : 2x  
 Light red coloured, amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of HgI<sub>2</sub>.
- Assay** : Weigh accurately about 5 g, add 50 ml of *water* and follow the assay method given under Mercurius Iodatus Ruber.

<b>MEZEREUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v.
<b>pH</b>	: 4.5 to 5.2.
<b>Wt. per ml</b>	: 0.850 g to 0.910 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 275 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.16, 0.35, 0.68, 0.75 and 0.92.

<b>MYRICA CERIFERA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v.
<b>pH</b>	: Between 4.2 to 5.0.
<b>Wt. per ml</b>	: 0.870 g to 0.895 g
<b>Total solids</b>	: Not less than 0.5 percent w/v.
<b><math>\lambda</math> max</b>	: 290 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.28 (yellow), 0.75 (blue), 0.82 (red) and 0.95 (blue).

### NATRUM CARBONICUM

- Potency** : 1x  
White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Natrum Carbonicum.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 5 g, dissolve in 100 ml of *water* and titrate with 0.1 N *sulphuric acid* using *methyl orange* as indicator. Each ml of 0.1 N *sulphuric acid* is equivalent to 0.0143 g of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
- Potency** : 3x  
White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Dissolve about 20 g accurately weighed in 100 ml *water* and titrate with 0.01 N *sulphuric acid*, using *phenolphthalein* as indicator. Each ml of 0.01 N *sulphuric acid* is equivalent to 0.00143 g of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .

### NATRUM MURIATICUM

- Potency** : 1x  
White amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of NaCl.
- Assay** : Complies with the assay method given under Natrum Muriaticum.
- Potency** : 2x  
White amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of NaCl.
- Assay** : Dissolve about 5 g accurately weighed in 50 ml *water* and follow the assay method given under Natrum Muriaticum,
- Potency** : 3x  
White amorphous powder. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of NaCl.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash. Dissolve the ash in 25 ml of *water* and titrate with 0.01N *silver nitrate* using *potassium chromate* as indicator. Each ml of 0.01N *silver nitrate* is equivalent to 0.000505 g of NaCl.

**NATRUM PHOSPHORICUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Natrum Phosphoricum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash and dissolve the ash in 25 ml of water and follow the assay method given under Natrum Phosphoricum. For titration use 0.1N *sulphuric acid*. Each ml of 0.1N *sulphuric acid* is equivalent to 0.0268 g of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ .
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash. Dissolve the ash in 25 ml of *water* and titrate with 0.01N *sulphuric acid* using *bromo-cresol green* as indicator. Each ml of 0.01N *sulphuric acid* is equivalent to 0.00268 g of  $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$ .

**NATRUM SULPHURICUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $\text{NaSO}_4 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Natrum Sulphuricum.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $\text{NaSO}_4 \cdot 10\text{H}_2\text{O}$ .
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash. Dissolve the ash in 100 ml of *water* and follow the assay method given under Natrum Sulphuricum.

<b>NUX MOSCHATA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 4.80 to 5.20.
<b>Wt. per ml</b>	: 0.810 g to 0.830 g
<b>Total solids</b>	: Not less than 1.0 percent w/v.
<b><math>\lambda</math> max</b>	: 274 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.31, 0.64, 0.70 (all blue) and 0.96 (yellow).
<b>NUX VOMICA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v.
<b>pH</b>	: 5.0 to 6.0
<b>Wt. per ml</b>	: 0.850 g to 0.900 g
<b>Total solids</b>	: Not less than 0.89 percent w/v.
<b><math>\lambda</math> max</b>	: 238 nm.
<b>Identification</b>	: (i) To 2 ml Mother Tincture add a few drops of dilute <i>hydrochloric acid</i> and a few drops of <i>Mayer's reagent</i> ; a yellow coloured precipitate is produced.  (ii) Evaporate 20 ml Mother Tincture on water-bath to remove alcohol, make alkaline with <i>ammonia solution</i> and extract thrice with 20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carry out Co-TLC of chloroform extract with brucine and strychnine using <i>cyclohexane : chloroform : ethylamine</i> (5:4:1 v/v) as mobile phase and <i>Dragendorff's reagent</i> as spray reagent. Two spots corresponding to <i>brucine</i> and <i>strychnine</i> appear.
<b>OCIMUM SANCTUM</b>	: Mother Tincture.
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v.
<b>pH</b>	: 5.20 to 5.80.
<b>Wt. per ml</b>	: 0.830 g to 0.860 g
<b>Total solids</b>	: Not less than 0.50 percent w/v.
<b><math>\lambda</math> max</b>	: 255, 275 and 315 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (95:5 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.43 (red), 0.66 (red), 0.75 (red), 0.78 (blue), 0.90 (blue) and 0.95(red).

<b>PHOSPHORUS</b>	: Mother Tincture. (Contains not less than 0.15 percent w/v to not more than 0.16percent w/v of Phosphorus).
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v.
<b>Assay</b>	: Dry about 10 g accurately weighed on water-bath and from the residue proceed as given in the schoniger oxygen flask method.
<b>PHYTOLACCA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.8 to 6.6
<b>Wt. per ml</b>	: 0.890 g to 0.920 g
<b>Total solids</b>	: Not less than 1.10 percent w/v.
<b><math>\lambda</math> max</b>	: 278 nm.
<b>Identification</b>	: (i) Evaporate 5 ml of Mother Tincture to dryness dissolve the residue in dilute <i>hydrochloric acid</i> and add two drops of <i>Mayer's reagent</i> ; a precipitate is produced. (ii) Carry out TLC of chloroform extract using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase. Under UV light three spots appear at $R_f$ 0.15, 0.35 and 0.90 (all blue). With <i>antimony trichloride</i> reagent four spots appear at $R_f$ 0.15, 0.25, 0.35 and 0.90.

### PLATINUM METALLICUM

<b>Potency</b>	: 1x Grayish-white amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of Pt.
<b>Assay</b>	: Complies with the assay method given under Platinum Metallicum. Weigh accurately about 1 g, char it in silica crucible and proceed with the ash as given in the method.
<b>Potency</b>	: 2x Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of Pt.
<b>Assay</b>	: Weigh accurately about 5 g char it in silica crucible and proceed with ash as given in assay method under Platinum Metallicum.



**PLUMBUM METALLICUM**

- Potency** : 1x  
 Greyish amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of Pb.
- Assay** : Dissolve about 2 g accurately weighed in 10 ml of concentrated *hydrochloric acid* and follow the assay method given for Plumbum Metallicum.
- Potency** : 2x  
 Greyish white amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of Pb.
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash. Dissolve the ash in 10 ml of concentrated *hydrochloric acid* and follow the assay method given under Plumbum Metallicum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of Pb.
- Assay** : Weigh accurately about 20 g char in silica crucible to make ash, dissolve the ash in 10 ml concentrated *hydrochloric acid* and follow the assay method given for Plumbum Metallicum.

**PODOPHYLLUM  
 PELTATUM**

Mother Tincture.

- Alcohol content** : 61.0 to 65.0 percent v/v.
- pH** : 5.8 to 6.5.
- Wt. per ml** : 0.890 g to 0.910 g
- Total solids** : Not less than 2.0 percent w/v.
- λ max** : 293 nm.
- Identification** : Carry out TLC of chloroform extract using *chloroform:methanol* (9:1 v/v) as mobile phase. Under UV light six spots appear at  $R_f$  0.10 (yellow), 0.22, 0.30, 0.69, 0.75 and 0.91 (all blue).

**PSORALIA**

**CORRYLIFOLIA**

	: Mother Tincture.
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v.
<b>pH</b>	: Between 5.50 to 6.60.
<b>Wt. per ml</b>	: 0.820 g to 0.840 g
<b>Total solids</b>	: Not less than 2.0 percent w/v.
<b><math>\lambda</math> max</b>	: 272 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.51 (blue), 0.64 (red), 0.77 (red), 0.83 (red), 0.92 (blue) and 0.96 (red).

**PULSATILLA**

**NIGRICANS**

	: Mother Tincture.
<b>Alcohol content</b>	: 66.0 to 70.0 percent v/v.
<b>pH</b>	: 4.7 to 5.7.
<b>Wt. per ml</b>	: 0.870 g to 0.900 g
<b><math>\lambda</math> max</b>	: 281 nm.
<b>Total solids</b>	: Not less than 1.20 percent w/v.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride solution</i> as spray reagent. Under UV light four spots appear at $R_f$ 0.61, 0.71, 0.75 and 0.91 (All blue), with spray reagent four spots appear at $R_f$ 0.14, 0.71, 0.95 and 0.98.

<b>RAUVOLFIA SERPENTINA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v.
<b>pH</b>	: 5.7 to 6.3.
<b>Wt. per ml</b>	: 0.867 g to 0.877 g
<b>Total solids</b>	: Not less than 1.00 percent w/v.
<b><math>\lambda</math> max</b>	: 298 nm.
<b>Identification</b>	: (i) To 1 ml of chloroform extract add 1 ml of <i>vanillin sulphuric acid</i> in <i>acetic acid</i> and warm; intense violet red colour is produced.  (ii) Mix 10 ml of chloroform extract with 20 ml of <i>dimethyl benzaldehyde</i> and add 2 ml of <i>glacial acetic acid</i> ; a green colour is produced which changes to red on addition of 2 ml of acetic acid.  (iii) Evaporate 20 ml of Mother Tincture on a water bath to remove alcohol, make the aqueous part alkaline with ammonia and extract with 3×20 ml <i>chloroform</i> , concentrate the chloroform extract to 2 ml and carry out Co-TLC with <i>reserpine</i> using <i>chloroform : methanol</i> (95:5 v/v) as mobile phase With <i>Dragendorff's reagent</i> a spot corresponding to <i>reserpine</i> appears.
<b>RHUS TOXICODENDRON</b>	: Mother Tincture.
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v.
<b>pH</b>	: 5.20 to 6.00.
<b>Wt. per ml</b>	: 0.860 g to 0.890 g
<b>Total solids</b>	: Not less than 0.65 percent w/v.
<b><math>\lambda</math> max</b>	: 261 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9 : 1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.07, 0.13, 0.51, 0.73, 0.8 and 0.92 (all blue).

**RUTA GRAVEOLENS** : Mother Tincture.

**Alcohol content** : 66.0 to 70.0 percent v/v.

**pH** : 5.0 to 6.0

**Wt. per ml** : 0.880 g to 0.930 g

**Total solids** : Not less than 1.5 percent w/v.

**$\lambda$  max** : 251, 315 nm

**Identification** : Carry out TLC of concentrated Mother Tincture using *butanol* : *acetic acid* : *water* (4 : 1 : 1: v/v) as mobile phase. Under UV light 2 spots appear at  $R_f$  0.50, 0.78. With *antimony trichloride* spray reagent 2 spots appear at  $R_f$  0.50 and 0.93.

**SABADILLA** : Mother Tincture.

**Alcohol content** : 75.0 to 79.0 percent v/v.

**pH** : 6.2 to 6.9.

**Wt. per ml** : 0.860 g to 0.890 g

**Total solids** : Not less than 0.50 percent w/v.

**$\lambda$  max** : 266 nm.

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Make the aqueous part alkaline with *ammonia solution* and extract with 3x20 ml chloroform, concentrate the chloroform extract to 2 ml and carryout Co-TLC with Veratrine, using *chloroform* : *methanol* (9 : 1 v/v) as mobile phase and with *Dragendorff's reagent as spray reagent*. Spot corresponding to Veratrine appears.

**SABINA** : Mother Tincture.

**Alcohol content** : 80.0 to 85.0 percent v/v.

**pH** : 4.7 to 5.2.

**Wt. per ml** : 0.840 g to 0.860 g

**Total solids** : Not less than 0.80 percent w/v.

**Identification** : Carry out TLC of chloroform extract using *chloroform* : *methanol* (9: 1 v/v) as mobile phase. Under UV light four spots appear at  $R_f$  0.13 (greenish yellow band), 0.30 (yellow), 0.62 (green), and a band from 0.63 to 0.90 (green band). With *antimony trichloride reagent* six spots appear at  $R_f$  0.11 (yellow), 0.26 (violet), 0.32 (green), 0.52 (violet), 0.62 (brown) and 0.77 (red brown).

**SANGUINARIA  
CANADENSIS**

	: Mother Tinctures.
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v.
<b>pH</b>	: 5.50 to 6.20.
<b>Wt. per ml</b>	: 0.870 g to 0.920 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b>λ max</b>	: 297 and 323 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9: 1 v/v) as mobile phase. Under UV light eight spots appear at R <sub>f</sub> 0.16, 0.22, 0.31, 0.34, 0.59 (all grey), 0.88 (brown), 0.91 (yellow) and 0.96 (brown).  Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Make it alkaline with 3x20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carry out Co-TLC with <i>Sanguinarine</i> using <i>chloroform : methanol</i> (9 : 1 v/v) as mobile phase and <i>Dragendorff's reagent</i> as sprate reagent. Spot corresponding to <i>Sanguinarine</i> appears.

**SECALE CORNUTUM** : Mother Tincture.

<b>Alcohol content</b>	: 44.0 to 48.0 percent v/v
<b>pH</b>	: 5.0 to 6.2.
<b>Wt. per ml</b>	: 0.920 g to 0.950 g.
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b>λ max</b>	: 248 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform: methanol</i> (9:1 v/v) as mobile phase. Under UV light five spots appear at R <sub>f</sub> 0.06 to 0.20 (brown), 0.53 (brown), 0.71 (grey) and 0.97 (brown).

or

Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Make it alkaline with *ammonia solution* and extract it with 3x20 ml chloroform. Concentrate chloroform extract to 2 ml and carry out Co-TLC with *ergocryptine* using *chloroform: methanol* (9 : 1 v/v) as mobile phase and *Dragendorff's reagent* for spray. Spot corresponding to *ergocryptine* appears.

**SELENIUM METALLICUM**

- Potency** : 1x  
Reddish-brown amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of Se.
- Assay** : Complies with the assay method given under Selenium.
- Potency** : 2x  
Reddish-brown amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of Se.
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash and follow the assay method given under Selenium.
- Potency** : 3x  
Brownish amorphous powder. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of se.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash and follow the assay method given under Selenium.

<b>SENEGA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v.
<b>pH</b>	: 4.5 to 5.6.
<b>Wt. per ml</b>	: 0.925 g to 0.960 g
<b>Total solids</b>	: Not less than 1.80 percent w/v.
<b><math>\lambda</math> max</b>	: 280 and 320 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9 : 1 v/v) as mobile phase. In <i>iodine</i> vapour four spots appear at $R_f$ 0.11 0.19, 0.25 and 0.44 (all brown).

<b>SEPIA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 90.0 to 94.0 percent v/v.
<b>pH</b>	: 5.9 to 6.8
<b>Wt. per ml</b>	: 0.850 g to 0.940 g
<b>Total solids</b>	: Not less than 0.80 percent w/v.
<b><math>\lambda</math> max</b>	: 260 and 280 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9 : 1 v/v) as mobile phase. In <i>iodine</i> vapours two spots appear at $R_f$ 0.44 and 0.80.

**SILICEA**

**Potency** : 1x

White amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of SiO<sub>2</sub>.

**Assay** : Take 1 g, dry and char in silica crucible at 500°, wash the residue with dilute *nitric acid*, dry and weigh. It should weigh not less than .095 g and not more than 0.105 g.

**Potency** : 2x

White amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of SiO<sub>2</sub>.

**Assay** : Same as for 1x; It should weigh not less than .0095 g and not more than 0.0105 g.



<b>SPONGIA TOSTA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v.
<b>pH</b>	: 5.8 to 6.5.
<b>Wt. per ml</b>	: 0.850 g to 0.880 g
<b>Total solids</b>	: Not less than 0.30 percent w/v.
<b><math>\lambda</math> max</b>	: 264 nm (b).
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9 : 1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.13, 0.19, 0.56, 0.75 (all blue) and 0.32 (red). With <i>antimony trichloride reagent</i> four spots appear at $R_f$ 0.42, 0.52, 0.78 and 0.97 (all violet).

**STANNUM METALLICUM**

- Potency** : 1x  
 White amorphous powder. Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of Sn.
- Assay** : Complies with the assay method as given in appendix.
- Potency** : 2x  
 White amorphous powder. Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of Sn.
- Assay** : Weigh accurately about 5 g, char in silica crucible to make ash. Dissolve the ash in *hydrochloric acid* and follow assay method given for Stannum Metallicum.
- Potency** : 3x  
 White amorphous powder. Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of Sn.
- Assay** : Weigh accurately about 20 g, char in silica crucible to make ash. Dissolve the ash in *hydrochloric acid* and follow assay method given for Stannum Metallicum.

<b>STAPHYSAGRIA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 87.0 to 91.0 percent v/v.
<b>pH</b>	: 5.8 to 6.5.
<b>Wt. per ml</b>	: 0.810 g to 0.830 g
<b>Total solids</b>	: Not less than 1.10 percent w/v.
<b><math>\lambda</math> max</b>	: 270 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>Dragendorff's reagent</i> for spray. Five spots appear at $R_f$ 0.04, 0.13, 0.21, 0.56 and 0.92 (orange).

or

Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Make it alkaline with *ammonia* solution and extract the aqueous layer with  $3 \times 20$  ml *chloroform*. Concentrate the chloroform extract to 2 ml and carry out Co-TLC with Delphinine using *chloroform : methanol* (9 : 1 v/v) as mobile phase and *Dragendorff's reagent as spray reagent*. Spot corresponding to Delphinine appears.

### SULPHUR

- Potency** : 1x  
 Yellowish-white amorphous powder. Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of S.
- Assay** : Schoniger oxygen flask method. Complies with the assay method.
- Potency** : 2x  
 Yellowish-white amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.02 percent w/w of S.
- Assay** : Dissolve about 5 g in 25 ml carbon disulphide. Shake and filter, evaporate the filtrate to dryness. With the residue perform schoniger oxygen flask method.

### SULPHUR IODATUM

- Potency** : 1x  
 Greyish-black amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of S<sub>2</sub>I<sub>2</sub>.
- Assay** : Complies with the assay method given for sulphur by schoniger oxygen flask method.
- Potency** : 2x  
 Greyish-black amorphous powder. Contains not less than 0.94 percent w/v to not more than 1.04 percent w/w S<sub>2</sub>I<sub>2</sub>.
- Assay** : Complies with the assay method as given under sulphur.

**SYZYGIUM**

**JAMBOLANUM**

- : Mother Tincture.
- Alcohol content** : 82.0 to 86.0 percent v/v.
- pH** : 4.7 to 5.2.
- Wt. per ml** : 0.850 g to 0.940 g
- Total solids** : Not less than 0.60 percent w/v.
- $\lambda$  max** : 256 nm.
- Identification** : (i) To 5 ml of Mother Tincture add a few drops of *Dragendorff's reagent*; a red colour is produced.
- (ii) Carry out TLC of chloroform extract using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light four spots appear at  $R_f$  0.06, 0.08, 0.73 and 0.88. On spraying with *antimony trichloride reagent*, eight spots appear at  $R_f$  0.66, 0.32, 0.45, 0.50, 0.63, 0.73, 0.82, 0.85 (all grey).

**TABACUM**

- : Mother Tincture.
- Alcohol content** : 75.0 to 79.0 percent v/v.
- pH** : 5.4 to 6.2.
- Wt. per ml** : 0.860 g to 0.900 g
- Total solids** : Note less than 1.40 percent w/v.
- $\lambda$  max** : 260 nm.
- Identification** : Carry out TLC of chloroform extract using *chloroform : methanol* (9:1 v/v) as mobile phase and *Dragendorff's reagent* as spray reagent. Five orange coloured spots appear at  $R_f$  0.04, 0.71, 0.79, 0.84 (corresponds with Nicotine) and 0.93.

Or

Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, make it alkaline with *ammonia solution* and extract the aqueous layer with 3×20 ml *chloroform*. Concentrate the chloroform extract to 2 ml and carry out Co-TLC with Nicotine using *chloroform : methanol* (9:1 v/v) as mobile phase and *Dragendorff's reagent* as spray reagent. Spot corresponding to *Nicotine* appears.

**TERMINALIA**

**ARJUNA**

: Mother Tincture.

**Alcohol content**

: 77.0 to 81.0 percent v/v.

**pH**

: 4.2 to 5.0

**Wt. per ml**

: 0.850g to 0.870 g

**Total solids**

: Not less than 1.0 percent w/v.

**$\lambda$  max**

: 270 nm.

**Identification**

(a) To 1 ml of Mother Tincture add a drop of *sodium hydroxide* solution; a dark red colour is produced.

(b) To 1 ml of Mother Tincture add a drop of *mercuric chloride* solution; a precipitate is produced.

(c) Carry out TLC of Chloroform extract using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light six spots appear at  $R_f$  0.05, 0.12, 0.37, 0.45, 0.72 and 0.85 (all blue fluorescence).

**THUJA**

**OCCIDENTALIS**

: Mother Tincture.

**Alcohol content**

: 80.0 to 84.0 percent v/v.

**pH**

: 4.6 to 6.5.

**Wt. per ml**

: 0.830 g to 0.865 g

**Total solids**

: Not less than 0.80 percent w/v.

**$\lambda$  max**

: 260 and 325 nm.

**Identification**

: Carry out TLC of chloroform extract using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light eight spots appear at  $R_f$  0.05, 0.12, 0.22 (both red), 0.37 (blue), 0.47, 0.68, 0.84 and 0.93 (all red). With *antimony trichloride reagent*, five spots appear at  $R_f$  0.15 (violet), 0.85 (violet), 0.87 (brown), 0.92 (brown) and 0.96 (green).

Or

Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with  $3 \times 20$  ml *chloroform*. Concentrate the chloroform extract to 2 ml and carry out Co-TLC with *Thujone* using *chloroform* as mobile phase and *antimony trichloride reagent as spray reagent*. Spots corresponding to thujone appear.

**TRIBULUS  
TERRESTRIS**

	: Mother Tincture.
<b>Alcohol content</b>	: 58.0 to 62.0 percent v/v.
<b>pH</b>	: 5.4 to 6.4
<b>Wt. per ml</b>	: 0.900 g to 0.925 g.
<b><math>\lambda</math> max</b>	: 262 and 305 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.26, 0.37, 0.46, 0.52, 0.58 and 0.66 (blue fluorescence).

**VERATRUM VIRIDE** : Mother Tincture.

<b>Alcohol content</b>	: 72.00 to 76.0 percent v/v.
<b>pH</b>	: Between 6.2 to 6.8.
<b>Wt. per ml</b>	: 0.860 g to 0.900 g
<b>Total solids</b>	: Not less than 0.65 percent w/v.
<b><math>\lambda</math> max</b>	: 264 and 320 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. With <i>Dragendorff's reagent</i> three long spots appear at $R_f$ 0.05 to 0.21, 0.25 to 0.35 and 0.41 to 0.47.

or

Evaporate 20 ml Mother Tincture on a water bath to remove *alcohol*. Make it alkaline with *ammonia* solution and extract the aqueous part with  $3 \times 20$  ml *chloroform*, concentrate the *chloroform* extract to 2 ml and carry out Co-TLC with Veratrine using *chloroform : methanol* (9 : 1 v/v) as mobile phase and *Dragendorff's reagent* as spray reagent. Spot corresponding to Veratrine appears.

<b>WITHANIA SOMNIFERA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v.
<b>pH</b>	: 5.5 to 6.4.
<b>Wt. per ml</b>	: 0.872 g to 0.882 g.
<b>Total solids</b>	: Not less than 0.35 percent w/v.
<b><math>\lambda</math> max</b>	: 277 and 321 nm.
<b>Identification</b>	: Carry out TLC of chloroform extract using <i>chloroform : methanol</i> (95:v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.03, 0.15, 0.42, 0.82, 0.89 and 0.95 (all blue).



## ZINCUM METALLICUM

**Potency** : 1x

White amorphous powder. Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of Zn.

**Assay** : Complies with the assay method given under Zincum Metallicum.

**Potency** : 2x

White amorphous powder. Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of Zn.

**Assay** : Weigh accurately about 5 g, char it in silica crucible to make ash and proceed with ash as given in the assay method under Zincum Metallicum.

**Potency** : 3x

White amorphous powder. Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of Zn.

**Assay** : Weigh accurately about 20 g, char in silica crucible to make ash and proceed with the ash as given in the assay method under Zincum Metallicum.

# APPENDICES

APPENDIX (I)

MATERIAL AND SOLUTIONS EMPLOYED IN TESTS

**Ammonium Vanadate** :  $\text{NH}_4\text{VO}_3$

**Description** : White or slightly yellow, crystalline powder.

**Solubility** : Soluble in water and in dilute ammonia.

**Ammonium Vanadate solution of** : 0.5 g dissolved in 100 ml water.

**Calcium Oxalate** :  $\text{CaC}_2\text{O}_4 \cdot \text{H}_2\text{O}$

**Description** : Monohydrate, white cubic crystals. Insoluble in *water* and in *acetic acid*, soluble in dilute *hydrochloric acid* and in *nitric acid*.

**Stannous Chloride** :  $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$

**Description** : Colourless crystals. Contains not less than 97.0 percent of  $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .

**Solubility** : Very soluble in *water*, freely soluble in *alcohol*, in *glacial acetic acid* and in *hydrochloric acid*.

**Assay** : Dissolve in stoppered flask about 0.5 g accurately weighed in 15 ml of *hydrochloric acid*, add 10 ml water and 5 ml *chloroform*. Titrate with 0.05 M *potassium iodate* until the chloroform layer is colourless. Each ml of 0.05 M *potassium iodate* is equivalent to 0.02256 g of  $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$ .

**Thallium Nitrate** :  $\text{TlNO}_3$

**Description** : White crystals.

**Solubility** : Soluble in water. Insoluble in alcohol.

**APPENDIX (XXV)**  
**OXYGEN FLASK METHOD**

*Apparatus Schoniger's oxygen Flask:*

Flask with nominal capacity of 500 ml into the stopper of which is fused, one end of a piece of platinum wire about 13 cm long and 1 mm in diameter. Towards the other end of the wire, a piece of platinum gauze is attached to provide a means of holding the sample clear of the absorbing liquid during combustion. The platinum gauze is about 2 cm wide and 1.5 cm long.

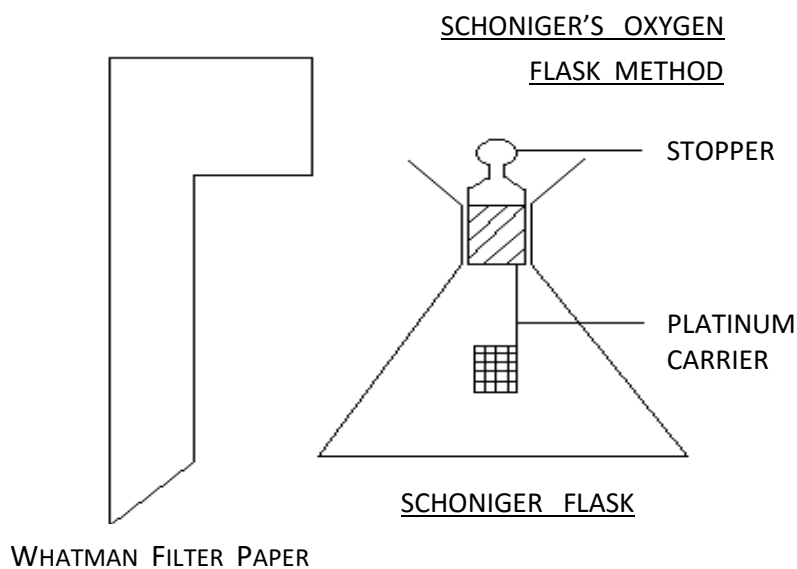
*Method:*

Wrap the substance being examined in piece of ashless filter paper about 5 cm long and 3 cm wide, secure the package in the platinum gauze and insert one end of a narrow strip of filter paper in the roll. Flush the flask with oxygen, moisten the neck with water, place the specified absorbing liquid in the flask, fill it with oxygen, tight the free end of the narrow strip of filter paper and immediately insert the stopper. Hold the stopper firmly in place. When vigorous burning has begun, invert the flask so as to provide a liquid seal but taking care to prevent incompletely burned material falling into the liquid. Immediately after the combustion is complete, shake the flask vigorously for about five minutes, place a few ml of water in the cup top, carefully withdraw the stopper and rinse the stopper, platinum wire, platinum gauze and sides of the flask with water.

Pulverisable substances should be finely ground and thoroughly mixed before the specified quantity is weighed.

For liquids place the specified quantity on about 15 mg of ashless filter paper flock contained in one part of a methyl cellulose capsule of a suitable size, close the capsule, inserting one end of a narrow strip of a filter paper between the two parts and secure the capsule in the platinum gauze.

Ointments should be enclosed in grease proof paper before wrapping in filter paper.



*FOR BROMINE:*

Burn the quantity of the substance specified in the monograph by the oxygen flask method, using as the absorbing liquid 15 ml of a mixture of 1 volume of strong hydrogen peroxide solution and 9 volumes of 1 N sulphuric acid. When the process is complete, cool in ice for fifteen minutes, add 5 ml of dilute nitric acid and 10 ml of 0.1 N silver nitrate and titrate with 0.5 N ammonium thiocyanate solution using ferric ammonium sulphate solution as indicator and shaking vigorously as the end point is approached. Repeat the operation omitting the substance being examined. The difference between the titrations represents the number of ml of 0.05 N silver nitrate solution required. Each ml of 0.05 N silver nitrate solution is equivalent to 0.003995 g of Br.

*FOR CHLORINE:*

Burn the quantity of the substance specified in the monograph by the oxygen flask method, using 20 ml of 1 N sodium hydroxide as the absorbing liquid. When the process is complete, add 2.5 ml of dilute nitric acid, 2.5 ml of water, 10 ml of 0.1 N silver nitrate and titrate with 0.05 N ammonium thiocyanate, using ferric ammonium sulphate solution as indicator and shaking vigorously as the end point is approached. Repeat the operation omitting the substance being examined. The difference between the titrations represents the volume of 0.05 N silver nitrate solution required. Each ml of 0.05 N silver nitrate solution is equivalent to 0.001773 g of Cl.

*FOR FLUORINE:*

Burn the quantity of the substance specified in the monograph by the oxygen flask method, using 20 ml of water as the absorbing liquid. When the process is complete, add sufficient water to produce 100 ml. To 2 ml add 50 ml of water, 10 ml of alizarin fluorine blue solution, 3 ml of a solution containing 12 percent w/v of sodium acetate and 6 percent v/v of glacial acetic acid, 10 ml of cerous nitrate solution and sufficient water to produce 100 ml. Allow to stand in dark for one hour and measure the extinction of a 4 cm layer of the resulting solution at 610 nm, using as the blank a solution prepared as described above beginning at the words 'To 2 ml. ....' but using 2 ml of water instead of the solution. Calculate the content of fluorine from a reference curve by treating suitable aliquots of a solution of sodium fluoride in the manner described above, beginning at the words 'add 50 ml of water'.

*FOR IODINE:*

Burn the quantity of the substance specified in the monograph by the oxygen flask method, using a mixture of 10 ml of water and 2 ml of 1 N sodium hydroxide as the absorbing liquid. When the process is complete, add to the flask an excess (between 5 to 10 ml) of acetic bromine solution and allow to stand for 2 minutes. Remove the excess of bromine by the addition of formic acid (0.5 to 1 ml), rinse the sides of the flask with water and sweep out any bromine vapour above the liquid with a current of air. Add 1 g of potassium iodide and titrate with 0.02 N sodium thiosulphate, using starch mucilage, added towards the end of the titration, as indicator. Each ml of 0.02 N sodium thiosulphate is equivalent to 0.0004230 g of I.

*FOR SULPHUR:*

(i) Burn the quantity of the substance specified in the monograph by the oxygen flask method using 15 ml of water and 1 ml of hydrogen peroxide solution as the absorbing liquid. When the process is complete, boil the solution for 10 minutes, cool and add 60 ml of alcohol. Titrate the solution with 0.05 M barium perchlorate, using a drop of 0.2 percent w/v solution of thoron and add 2 drops of a 0.0125 percent w/v solution of methylene blue as indicator, until the yellow colour changes to pink. Each ml of 0.01 M barium perchloride is equivalent to 0.3206 mg of S.

(ii) In the presence of halogens or phosphorus:

Burn the specified quantity of the substance being examined in the prescribed manner, using 10 ml of water and 0.1 ml of hydrogen peroxide solution (100 vol.) as the absorbing liquid. When the process is complete, boil the solution for ten minutes, cool and add 50 ml of ethanolic acetic-ammonia buffer, pH 3.7. Titrate with 0.05 M barium perchlorate using 0.3 ml of alizarin red solution as indicator, until the solution becomes orange-pink in colour. Each ml of 0.05 M barium perchlorate is equivalent to 1.603 mg of S.

*FOR PHOSPHORUS:*

Burn about 5 to 10 mg of sample using 50 ml 2.5 M nitric acid as absorbing liquid. Dilute the 50 ml solution after burning to 100 ml with 2.5 M nitric acid in a volumetric flask. Place a 10 ml aliquot of this solution in a 100 ml graduated flask, add 50 ml of water, 10 ml of ammonium vanadate solution and 10 ml of ammonium molybdate solution and dilute to the mark with water. Determine the absorbance of this solution at 465 nm against blank prepared in the same manner omitting sample in 1 cm cell.

Prepare a series of solutions from potassium dihydrogen phosphate covering the range of 0 to 2 mg phosphorus per 100 ml and containing the same concentration of acid, ammonium vanadate and ammonium molybdate as the previous solutions. Construct a calibration curve and use it to calculate the concentration of phosphorus in the sample.

APPENDIX (XXX)

<b>ACONITE</b>	: $C_{34}H_{47}NO_{11}$	<b>Mol. wt.:</b> 645.80
<b>Description</b>	: Colourless crystals or hexagonal plates. Melting point: 204°. Freely soluble in chloroform and in benzene; soluble in alcohol, sparingly soluble in ether.	
<b>Identification</b>	: Yields the reactions characteristic of alkaloids.	
<b>Ultraviolet absorbance</b>	: Alcohol: Water (1:1) maxima at 228 nm and 270 nm; in 0.1 N sulphuric acid maxima at 234 and 275 nm.	
<b>Infra-red</b>	: KBr disc. The principle peaks are at 1092, 1713 cm.	
<b>ATROPINE</b>	: $C_{17}H_{23}NO_3$	<b>Mol. wt.:</b> 289.40
<b>Description</b>	: A white crystalline powder. Melting point: 108°. Freely soluble in chloroform, alcohol; soluble in ether and sparingly soluble in water.	
<b>Identification</b>	: Yields the reactions characteristic of alkaloids.	
<b>Ultraviolet absorbance</b>	: (0.1 N sulphuric acid), maxima at 252 nm.	
<b>Infra-red</b>	: KBr disc. The principle peaks are at 1720, 1035, 1153.	
<b>BERBERINE</b>	: $C_{20}H_{19}NO_5$	<b>Mol. wt.:</b> 353.40
<b>Description</b>	: Yellow crystals. Melting point: 144°. Soluble in alcohol and in chloroform.	
<b>Identification</b>	: (i) Yields the reactions characteristic of alkaloids. (ii) To a few crystals add a few drops of sulphuric acid and a drop of formaldehyde; yellow colour appears which changes to green.	
<b>Ultraviolet absorbance</b>	: (Alcohol) maxima at 267 nm, 344 nm and 426 nm.	
<b>Infra-red</b>	: KBr disc. The principle peaks are at 1505, 1271 and 1360 cm.	
<b>BETAINE</b>	:	<b>Mol. wt.:</b> 117.15
<b>Description</b>	: Deliquescent scales or prisms. Melting point: 310° (decomp.). Taste sweet. Very soluble in <i>water</i> and in <i>methyl alcohol</i> , freely soluble in <i>alcohol</i> ; sparingly soluble in <i>ether</i> .	
<b>Identification</b>	: Dissolve about 10 mg in 2 ml water and add about 0.5 ml 5 percent <i>potassium hydroxide solution</i> and warm for 5 minutes, add a few drops of <i>Nessler's reagent</i> ; reddish yellow precipitate forms.	

<b>BRUCINE</b>	: $C_{23}H_{26}N_2O_4 \cdot 4H_2O$	<b>Mol. wt.:</b> 412.50
<b>Description</b>	: Small white crystals. Melting point: the anhydrous base: 178° and the hydrated form: 105°.	
<b>Identification</b>	: Yields the reactions characteristic of alkaloids.	
<b>Ultraviolet</b>	: (Alcohol) maxima at 267 nm and 301 nm in 0.1 N <i>sulphuric acid</i> maxima at 265 nm and 300 nm.	
<b>Infra-red absorbance</b>	: KBr disc. The principle peaks are at 1600, 1400 $cm^{-1}$ .	
<b>CAFFEINE</b>	: $C_8H_{10}N_4O_2$	<b>Mol. wt.:</b> 194
<b>Description</b>	: A white powder or white glistening needles. Melting range: 235° to 237°. Sparingly soluble in <i>water</i> and in <i>alcohol</i> , freely soluble in <i>chloroform</i> .	
<b>Identification</b>	: (i) Yields the reactions characteristic of alkaloids. (ii) Mix a few crystals with 2 to 3 drops of hydrochloric acid in watch glass, add a few crystals of <i>potassium chloride</i> , stir and evaporate on a water bath to dryness. Moisten the residue with 1 to 2 drops of 2N <i>ammonium hydroxide solution</i> ; purple colour develops.	
<b>Ultraviolet absorbance</b>	: (Ethanol) maxima at 273 $\mu m$ , in 0.1 N <i>hydrochloric acid</i> maxima at 272 $\mu m$ .	
<b>Infra-red absorbance</b>	: KBr disc. The principle peaks are at 1658, 1695, 745 $cm^{-1}$ .	
<b>CANTHARIDINE</b>	: $C_{10}H_{12}O_4$	
<b>Description</b>	: Colourless glistening crystals. Very slightly soluble in <i>water</i> and on <i>ethanol</i> , slightly soluble in ether and sparingly soluble in <i>chloroform</i> . Melting range Sublimes at about 120°. M.P. 216° to 218°.	
<b>Ultraviolet absorbance</b>	: (Ethanol) 218, 268 nm.	
<b>CAULPPHYLLINE</b>	: $C_{12}H_{16}N_2O_2$	
<b>Description</b>	: Glancing prisms from ethyl-acetate cyclohexane. Free soluble in <i>benzene</i> , <i>acetone</i> and in <i>water</i> ; very soluble in <i>alcohol</i> , <i>methanol</i> and in <i>chloroform</i> . Melting range: 140° to 141°.	
<b>Identification</b>	: Yields the reactions characteristic of alkaloids.	



- CHELIDONINE** :  $C_{20}H_{19}NO_5$
- Description** : (+) Form, monoclinic prisms from methanol, ethanol or ethanol-chloroform. Soluble in alcohol, *chloroform*, *ether* and in *amyl alcohol*; practically insoluble in *water*. Melting point: 135° to 136°.
- Identification** : (i) Yields the reactions characteristic of alkaloids.  
(ii) Take about 10 mg in test tube and add a drop of guaiacol and 0.5 ml of *sulphuric acid*; intense crimson colour is produced.
- COLCHICINE** :  $C_{22}H_{25}NO_6$
- Description** : Pale yellow crystals or powder darkening on exposure to light. Soluble in *water*, freely soluble in *chloroform* and *ether*. Melting range: 153° to 157°.
- Identification** : (i) Yields the reactions characteristic of alkaloids.  
(ii) To 10 mg add 0.5 ml *sulphuric acid*; yellow colour develops which turns blue green and then red on addition of a few drops of *nitric acid*.
- Ultraviolet absorbance** : (Ethanol), maxima at 343 nm and 350 nm.
- Infra-red absorbance** : KBr disc. The principle peaks are at 1248, 1566, 1589  $cm^{-1}$ .
- CONINE** :  $C_8H_{17}N$
- Description** : Alkaloid, an almost colourless, volatile liquid with a mouse like odour. Boiling point: 166°. Sparingly soluble in *water*, slightly soluble in *chloroform*, miscible with *ethanol* and *ether*.
- Identification** : Yields the reactions characteristic of alkaloids.
- Ultraviolet absorbance** : In 0.2 N *sulphuric acid* maxima at 266 to 270 nm.
- DIGITONIN** :  $C_{56}H_{92}O_{29}$
- Description** : White crystalline powder. Soluble in alcohol, slightly soluble in 95 percent alcohol, practically insoluble in water.
- Identification** : (i) Yield the reactions characteristic of steroids.  
(ii) Take about 10 mg in test tube and add 5 ml distilled water and shake; forms a soapy suspension.

- DIOSGENINE** :  $C_{27}H_{42}O_3$
- Description** : White crystalline powder from acetone, soluble in alcohol, methanol, chloroform and in acetic acid.  
Melting point: 204° to 207°.
- Identification** : (i) Specific rotation  $[\alpha]_{25}^D -129$  (c =1 in 4 ml of chloroform)  
(ii) Yields the reactions characteristic of steroids.
- ERGOCRYPTINE** :  $C_{32}H_{41}N_5O_5$
- Description** : Fine needles from *methanol*. Freely soluble in alcohol and in *chloroform*; almost insoluble in *water*.  
Melting point: 212° (dec.).
- Identification** : Yields the reactions characteristic of alkaloids.
- Ultraviolet absorbance** : (methanol) 241, 312.5 nm (log E 4.31, 3.95).
- EUPATORIN** :  $C_{18}H_{16}O_7$
- Description** : Crystalline solid. Melting range 196° to 198°. Slightly soluble in water; soluble in *alcohol* and in *chloroform*.
- Identification** : Dissolve about 10 mg in 2 ml methanol, add a few pieces of *magnesium powder* and a few drops of *hydrochloric acid*; pink colour is produced.
- Ultraviolet absorbance** : (Ethanol) : 243, 254, 342 nm (E 17.400; 19.300; 19.800; 27.7007).
- HAMMAMELTANNIN** :  $C_{20}H_{20}O_{14}$
- Description** : Prismatic crystals, soluble in acetone, dioxane and in methanol; insoluble in water. Melting range: 145° to 147°.
- Identification** : Yields the reactions characteristic of phenols.
- HELLEBRIN** :  $C_{36}H_{52}O_{15}$
- Description** : Crystalline powder, sparingly soluble in *methanol* and in *ethanol*; slightly soluble in *water*.  
Melting range: 283° to 284°.
- Identification** : Dissolve about 10 mg in 2 ml of ethanol, add a few drops of *molisch's reagent* and 1 ml of *sulphuric acid* through side of the test tube; a violet ring forms at the junction of two liquids.

<b>HYDRASTINE</b>	$C_{21}H_{21}NO_6$	
<b>Description</b>	: White prismatic crystals. Insoluble in <i>water</i> ; slightly soluble in <i>ethanol</i> and <i>ether</i> ; freely soluble in <i>chloroform</i> . Melting point 132°.	
<b>Identification</b>	: (i) Yields the reactions characteristic of alkaloids. Ammonium molybdate test-grey-green-blue-pale green; ammonium vanadate test-reddish brown-red.	
<b>Absorbance</b>	: Ethanol: <i>water</i> (1:1), maxima at 295 nm.	
<b>Infra-red absorbance</b>	: K Br. disc. The principal peaks are at 1037 or 1501, 1260 $cm^{-1}$ .	
<b>MUSCARINE</b>	$C_9H_{20}NO_2$	
<b>Description</b>	: White amorphous powder. Soluble in <i>alcohol</i> and in <i>chloroform</i> Melting point: 180° to 181° (HCl).	
<b>Identification</b>	: Yields the reactions characteristic of nitrogen.	
<b>NICOTINE</b>	$C_{10}H_{14}N_2$	
<b>Description</b>	: A colourless to pale yellow, volatile, very hygroscopic, oily liquid which gradually becomes brown on exposure to air or light. Soluble in <i>water</i> , either and <i>ethanol</i> . Boiling point: 247° with decomposition.	
<b>Identification</b>	: (i) Refractive index : 1.5280. (ii) Yields the reactions characteristic of alkaloids.	
<b>Ultraviolet absorbance</b>	: (0.1 N sulphuric acid), maxima at 260 nm.	
<b>Infra-red absorbance</b>	: KBr disc. The principal peaks are at 712, 1429 and 810 $cm^{-1}$ .	
<b>QUININE</b>	$C_{20}H_{24}N_2O_2 \cdot 3H_2O$	<b>Mol. Wt.:</b> 378.50
<b>Description</b>	: A white granular, slightly efflorescent micro crystalline powder. Specific rotation of a 1 per cent solution in 0.2N <i>sulphuric acid</i> is 266 to 277. Melting point (anhydrous) about 174°. Slightly soluble in <i>water</i> ; freely soluble in <i>ethanol</i> , <i>chloroform</i> and in <i>ether</i> .	
<b>Identification</b>	: (i) Yields the reactions characteristic of alkaloids. (ii) Thalleioquin test-green.	
<b>Ultraviolet absorbance</b>	: (Ethanol), maxima at 236 nm and 332 nm in 0.1N <i>sulphuric acid</i> maxima at 250 nm, 316 nm and 346 nm.	
<b>Infra-red absorbance</b>	: KBr disc. The principal peaks are at 1235, 1510, 1030 $cm^{-1}$ .	

<b>RESERPINE</b>	$C_{33}H_{40}N_{20}O_9$	<b>Mol. Wt.:</b> 608.70
<b>Description</b>	: White crystals or crystalline powder which darkens slowly on exposure to light. Melting point: About 270° with decomposition. Insoluble in <i>water</i> and in <i>ether</i> ; freely soluble in <i>chloroform</i> ; very slightly soluble in <i>alcohol</i> .	
<b>Identification</b>	: (i) Yields the reactions characteristic of alkaloids. (ii) Micro test: Sulphuric acid-formaldehyde: grey green-brown. Ammonium vanadate test-green.	
<b>Ultraviolet absorbance</b>	: (Alcohol), maxima at 267 nm and 294 nm.	
<b>Infra-red absorbance</b>	: KBr disc. The principle peaks are at 1120, 1220, 1330 $cm^{-1}$ .	
<b>SANGUINARINE</b>	$C_{20}H_{14}NO_4$	<b>Mol. wt.:</b> 332.34
<b>Description</b>	: The free base is colourless but its quaternary salts are reddish. Melting point: 266° (decomposes) from <i>chloroform</i> , <i>alcohol</i> and; <i>ether</i> , 278° to 280° from <i>water</i> .	
<b>Identification</b>	: (i) Yields the reactions characteristic of alkaloids.	
<b>Ultraviolet absorbance</b>	: 234, 283, 325 nm (Log t 4.50, 4.52, 4.18).	
<b>Infra-red absorbance</b>	: Spectrum enclosed.	
<b>SANTONIN</b>	$C_{15}H_{18}O_3$	<b>Mol. wt.:</b> 246.30
<b>Description</b>	: White tubular, orthorhombic, spherical crystals, which become yellow on exposure to sun light. Almost tasteless with bitterness after sometime. Melting range: 171° to 174°. Very slightly soluble in <i>water</i> ; sparingly soluble in dispensing alcohol and in <i>ether</i> ; freely soluble in <i>chloroform</i> .	
<b>Identification</b>	: To about 10 mg, add 1 ml of 10 per cent <i>alcohol potassium hydroxide solution</i> ; violet red colour develops.	
<b>Ultraviolet absorbance</b>	: In alcohol: Water (1:1) maxima at 245 $\mu$ . (E1% 1 cm = 450).	
<b>SCOPOLAMINE</b>	$C_{17}H_{21}NO_4$	<b>Mol. wt.:</b> 303.40
<b>Description</b>	: Viscous liquid, which forms a crystalline monohydrate. Freely soluble in hot <i>water</i> , alcohol, <i>ether</i> , <i>chloroform</i> and <i>acetone</i> , sparingly soluble in <i>benzene</i> . Melting point: 59° (monohydrate).	
<b>Identification</b>	: Yields the reactions characteristic of alkaloids.	
<b>Ultraviolet absorbance</b>	: 0.1 N sulphuric acid, maxima at 231 nm, 257.5 nm and 263.5 nm.	
<b>Infra-red absorbance</b>	: KBr windows. The principal peaks are at 1041, 1060 $cm^{-1}$ .	

- SILYBIN** :  $C_{25}H_{22}O_{10}$  **Mol. wt.:** 482.43
- Description** : Monohydrate crystals. Melting point: 167 decomposes at 180°. Soluble in *acetone*, *ethyl acetate*, methanol and in ethanol, sparingly soluble in *chloroform*, practically insoluble in *water*.
- Identification** : Take about 10 mg in test tube, dissolve in 2 ml *ethanol* and add a few drops of *ferric chloride solution*; reddish violet colour develops.
- Ultraviolet absorbance** : (Methanol) 288 nm (log E 4.33).
- 
- STRYCHNINE** :  $C_{21}H_{22}N_2O_2$  **Mol. wt.:** 334.40
- Description** : Orthorhombic, spheroidal prisms.  
Melting range: 268° to 290°. Very slightly soluble in *water*, slightly soluble in *alcohol*, freely soluble in *chloroform*.
- Identification** : Yields the reactions characteristic of alkaloids.  
Micro: Ammonium vanadate test: blue-purple red.
- Ultraviolet absorbance** : (Alcohol) 254, 278, 288 nm (log E 4.10, 3.63, 3.537).
- Infra-red absorbance** : KBr disc. The principal peaks are at 1664, 764, 1392, 1480  $cm^{-1}$ .
- 
- THUJONE** :  $C_{10}H_{16}O$  **Mol. Wt.:** 152.23
- Description** : Colourless or almost colourless liquid. Soluble in *Alcohol*, *methyl alcohol* and in *chloroform*, practically insoluble in *water*.
- Identification** : Take 2 to 3 drops in 2 ml *chloroform*, add a few drops of *antimony trichloride reagent* and 1ml *snlphuric acid* through the side of the test tube; pink colour develops.
- Ultraviolet absorbance** : (Hexane): 300 nm, (E.23).
- 
- VERATRINE**
- Description** : Mixture of alkaloids. White or greyish white powder.  
Melting range: 145° to 155°. Insoluble in *water*; freely soluble in *ethanol*, *chloroform* and in *ether*.
- Identification** : (i) Yields the reactions characteristic of alkaloids.  
(ii) Micro: Sulphuric acid-formaldehyde test-orange.
- Ultraviolet absorbance** : (0.1N sulphuric acid), maxima at 263 nm and 293 nm.
- Infra-red absorbance** : KBr disc, the principal peaks are at 1712, 1154, 1032  $cm^{-1}$ .

**APPENDIX (III)**  
**INDICATORS EMPLOYED IN VOLUMETRIC DETERMINATIONS**  
**AND IN pH DETERMINATION**

- CHLORAMINE-T** : Dissolve 4 g of *chloroform-T* in sufficient *water* to produce 100ml.
- CHRYSTAL VIOLET** : Dissolve 0.4 g of *crystal violet* in 25 ml of *water*.
- XYLENOL ORANGE** : Dissolve 0.1 g in 100 ml of 50 percent of *alcohol*.

APPENDIX (XXIX)

SPRAY REAGENTS FOR DRUG COMPONENTS

- p-Anisaldehyde Spray** : Dissolve 0.5 ml of *p-anisaldehyde* in 50 ml of *acetic acid* and 1 ml of *hydrochloric acid*.
- Antimony trichloride Spray** : Dissolve 10 g of *antimony trichloride* in 100 ml of *chloroform* or *carbon tetra chloride*.
- Aniline Phthalate Spray** : Dissolve 1 g of *aniline phthalate solution* in *ethanol*.
- Dragendorff's reagent** : A. Mix together 2 g of *bismuth subnitrate*, 25 ml of *acetic acid*, and 100 ml of *water*.  
B. Dissolve 40 g of *potassium iodide* in 100 ml of *water*. Mix together 10 ml of (A) 10 ml of (B), 20 ml of *acetic acid*, and 100 ml of *water*.
- Ferric chloride** : Dissolve 5 g of *ferric chloride* in 0.5 N *hydrochloric acid* in 100 ml.
- Iodoplatinate (Potassium)**: 3 ml of 10 per cent *hexa chloroplatinic acid* (iv) solution are mixed with 97 ml water and 100 ml 6 per cent *Potassium iodide solution* in water are added: the reagent is freshly prepared before use.
- Ninhydrin** : 0.3 g *ninhydrin* is dissolved in 100 ml *n-butanol* and 3 ml *acetic acid* added.
- Vanillin-Sulphuric Acid** : Dissolve 1 g of *Vanillin* in 100 ml *conc. Sulphuric acid*.
- Bromothymol blue-Spray reagent** : 0.04 g *bromothymon blue* is dissolved in 100 ml 0.01N *Sodium hydroxide*.
- Ceric ammonium-Sulphate** : 1 percent solution of *ammonium ceric sulphate* in 85 percent *phosphoric acid*.
- Ceric Sulphate-Sulphuric acid** : 0.1 g *ceric sulphate* is suspended in 4 ml *water*, 1 g *trichloroacetic acid* is added dropwise until turbidity disappears.
- Ceric-Sulphate-Sulphuric acid** : Saturated solution of *ceric sulphate* in 65 per cent *sulphuric acid*.
- Chloramine T-trichloroacetic acid** : Sol (a) Freshly prepared 3% *aqueous solution of chloramines-T*.  
Sol (b) 25 per cent *ethanolic solution of trichloroacetic acid*.  
Spray reagent : 10 ml (a) and 40 ml (b) are mixed before use.

- Cupric Sulphate-Citrate (Sodium)** : 1.73 g *cupric sulphate*  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ), 17.3 g *sodium citrate* and 10g *anhydrous sodium carbonate* are dissolved in *water* and the volume made upto 100 ml. With *water*.
- Dithizone** : (i) 0.05 per cent solution of *dithizone* in *carbon tetrachloride*.  
(ii) 25 per cent *ammonium hydroxide solution* or an atmosphere of *ammonia* into which the plate can be introduced.
- Iodine (Potassium)-hydrogen** : 2 percent. The plate is dried after spraying with 2 per cent aqueous potassium iodide solution, and placed in a chamber containing 25 per cent *ammonium hydroxide* for some minutes. It is then transferred to a second chamber into which *hydrogen sulphide* is passed from a kipp's apparatus.
- Iodine-iodide (potassium)**: Dissolve 1 g *Iodine* and 10 g *Potassium-iodide* in warm *water* and add 2 ml *glacial acetic acid* to produce 100 ml.
- Lead acetate reagent** : 25 percent aqueous solution of basic lead acetate. The spots fluoresce in long wave *U.V.* light.
- Mangesium acetate reagent** : 0.5 per cent methanolic solution of magnesium acetate.
- Nitroprusside (Sodium) ammonia** : (i) 1 per cent *aqueous sodium nitroprusside solution*.  
(ii) 10 per cent *ammonium hydroxide*.  
The chromatogram is sprayed with I, then II.
- Naphthol-Sulphuric acid** : A mixture is made of 10.5 ml 15 per cent *ethanolic naphthol*, 6.5 ml *sulphuric acid* 40.5 ml *ethanol* and 4 ml *water*.
- Silver nitrate (ammonical)**: Reagent: 0.1 N *silver nitrate* one part and 5 N parts *ammonium hydroxide* together. Heat the plate for 5 to 10 minutes at  $105^\circ$  until dark coloured spots appear.
- Chloroform Layer/ Chloroform** : Extract: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, transfer the remaining aqueous portion to separating funnel and extract with *chloroform* (3 x 20ml), concentrate the chloroform layer to 1 ml and carry out TLC with it (Add *ammonia solution* only where it is mentioned in the tests).



- Ethyl acetate/Ether** : Evaporate 20 ml mother tincture on a water bath to remove alcohol
- Layer** and extract the remaining aqueous part with *ethyl acetate* ether layer to 1 ml and carry out TLC with it.
- R<sub>f</sub> value** : It has been observed that climatic factor like temperature and humidity have great impact on R<sub>f</sub> values. So tolerance limit 0.05 is allowed.

It has been observed that slight difference in the ratio of solvent system materially affects the absorption co-efficients and as such if the number of spots with similar colours (where colour is given) and in same order with uniform per cent variation in R<sub>f</sub> values be observed then it may be assigned due to above factor. In case of variation, Co-TLC done with standard sample obtained from Homoeopathic Pharmacopoeia Laboratory, Ghaziabad may be done.

**APPENDIX (XXIV)**  
**STANDARDS FOR SYRUP (LIQUID ORALS)**

Sucrose	667 g
Purified water in sufficient quantity to produce	1000 g
Wt. per ml at 20°	1.315 g to 1.327 g.

- Note —
- (1) Parabens in a concentration not higher than 0.15 percent may be used as a preservative.
  - (2) Products not prepared under aseptic conditions (liquid orals are required to be free from pathogens like *Salmonella*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*).

**ASSAY METHOD FOR PLUMBUM METALLICUM**

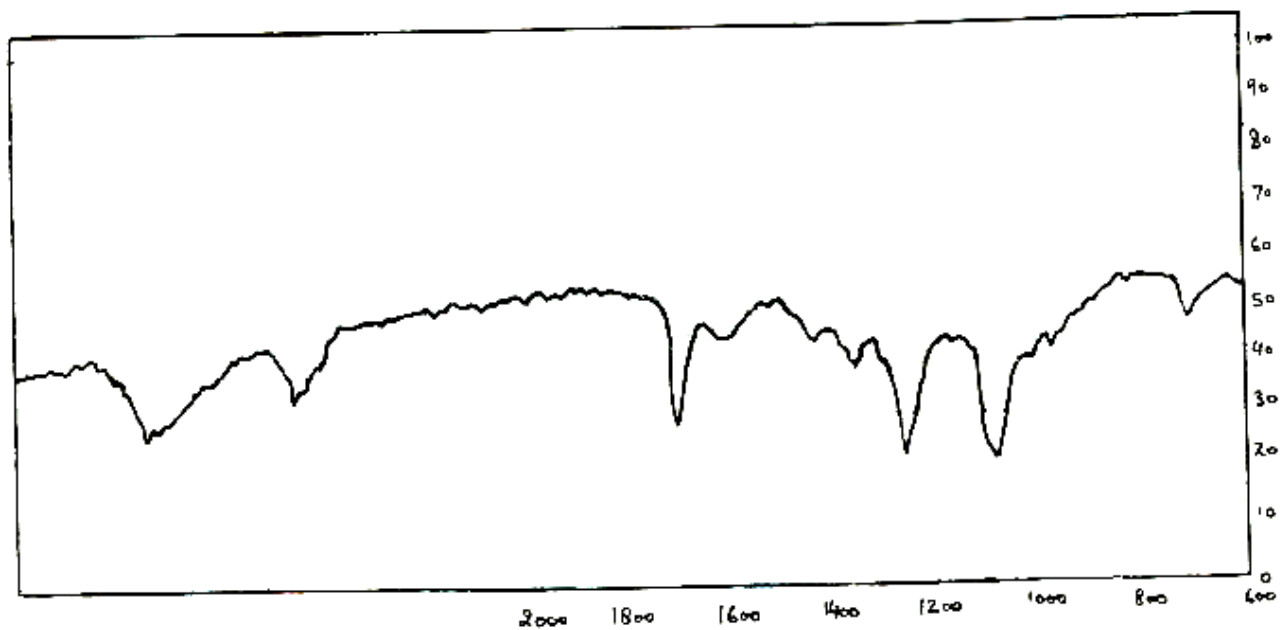
Dissolve about 4.10 g accurately weighed to *lead in water*, add a few drops of *dilute nitric acid* and dilute with *distilled water* to 250 ml in a volumetric flask. Pipette 25.0 ml in a 250 ml volumetric flask, dilute with about 25 ml of distilled water and add 2 to 3 drops of *Xylenol Orange*. If the colour of the solution is red, add very dilute *nitric acid* cautiously and with stirring until the solution acquires a yellow colour. Now add powdered *hexamine* until the colour is intensely red.

Titrate with 0.05 M of *EDTA* solution until the colour changes to lemon yellow. Each ml of 0.05 M *Ethylene Diamine Tetra Acetic Acid* is equivalent to 0.01036 g of Pb.

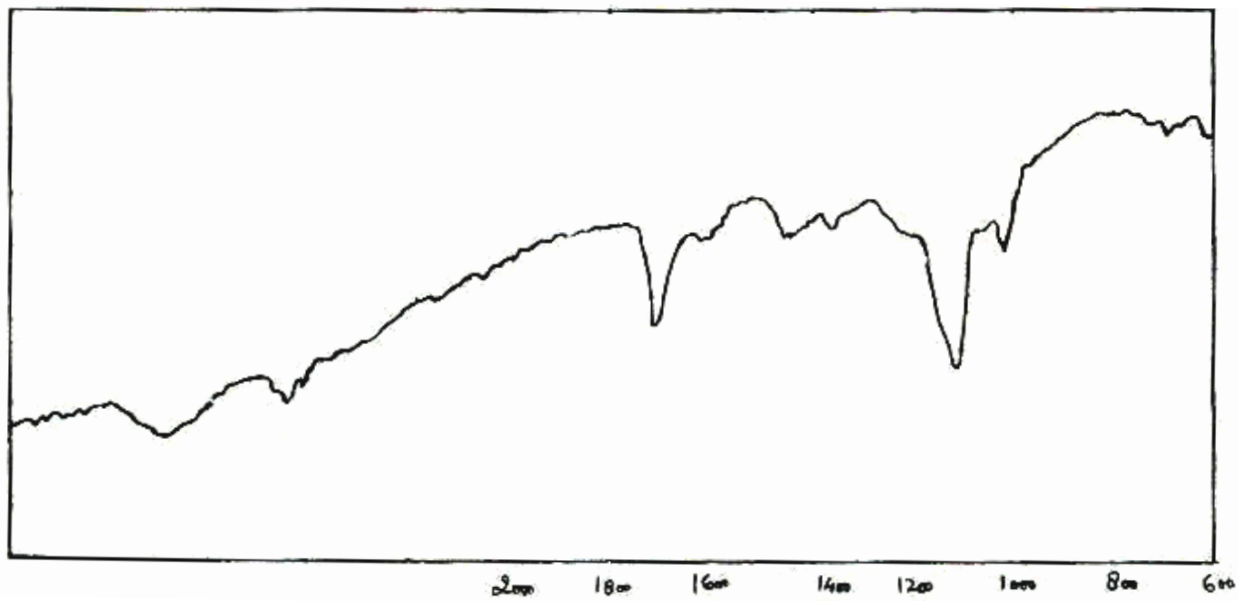
**ASSAY MEHTOD FOR SELENIUM**

Dissolve about 1 g accurately weighed in 20 ml of a mixture of equal volumes of *water*, *sulphuric acid* and *nitric acid* by heating, but not boiling, continue heating until the solution becomes colourless and no more nitrogen oxide is evolved. Cool, transfer to a 500 ml volumetric flask and dilute to the mark with *water*. To 25 ml of this solution add 20 ml of a cold mixture of equal volumes of *sulphuric acid* and *water*, followed by 100 ml of *water* and 16 g of *di sodium hydrogen orthophosphate* and stir until the phosphate has dissolved. Add 20 ml of 0.1 N *ammonium ferrous sulphate solution*. When the end point is close, add 2 drops of *ferroin indicator solution* and complete the titration till a permanent pink colour is produced. Each ml of 0.1 N potassium permanganate is equivalent to 0.003948 g of Se.

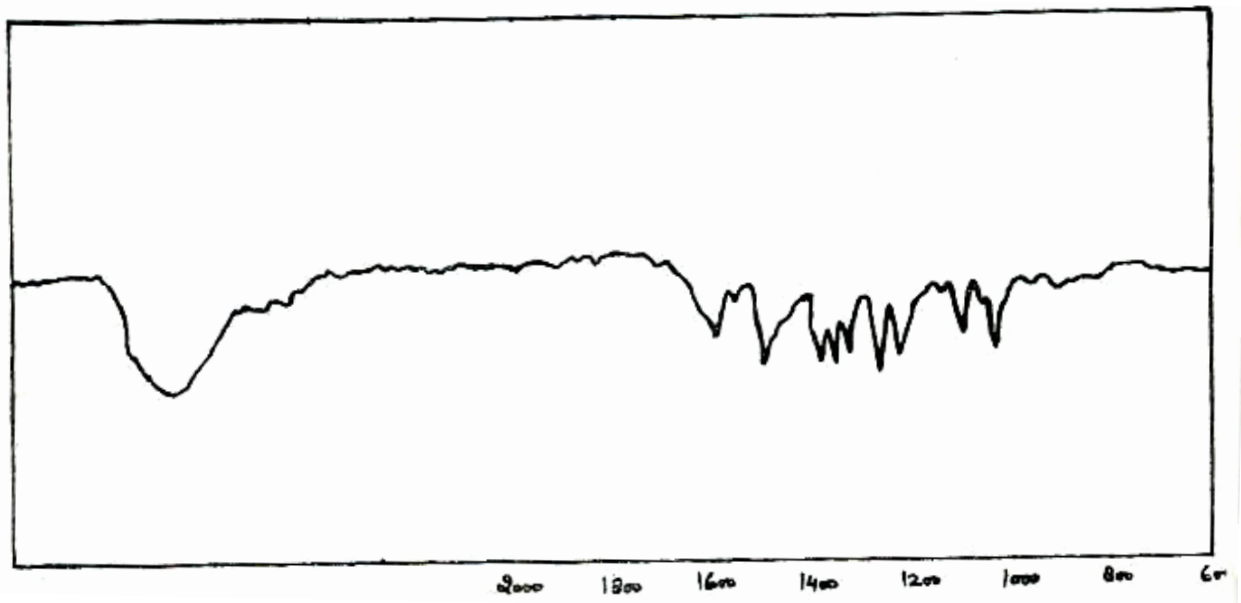
ACONITINE



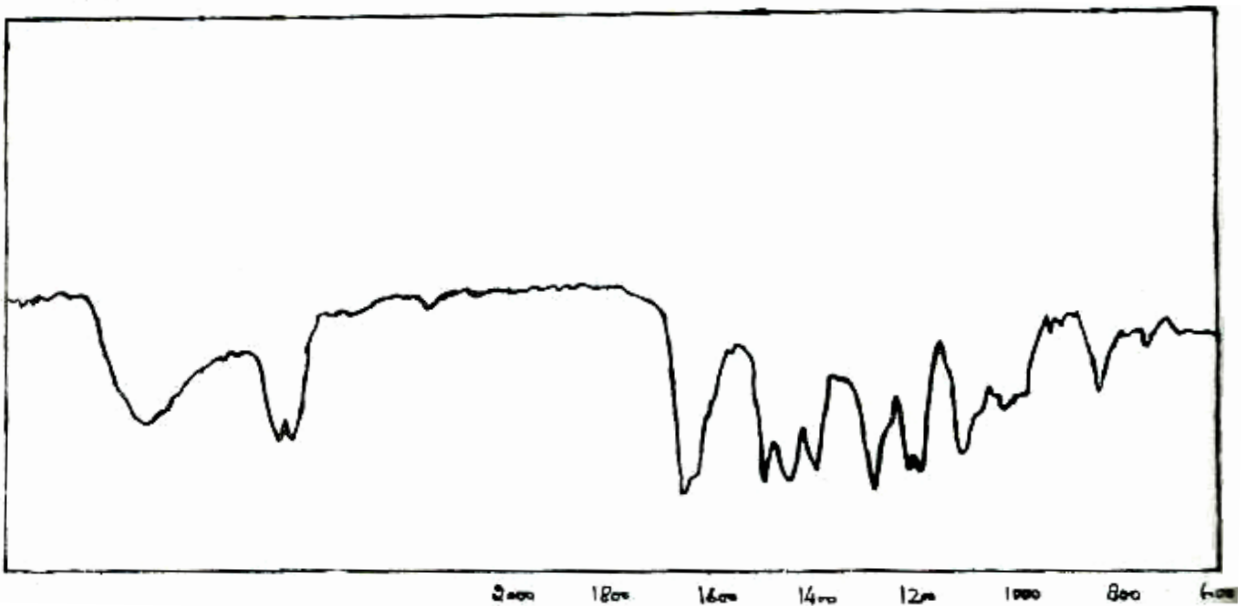
ATROPINE



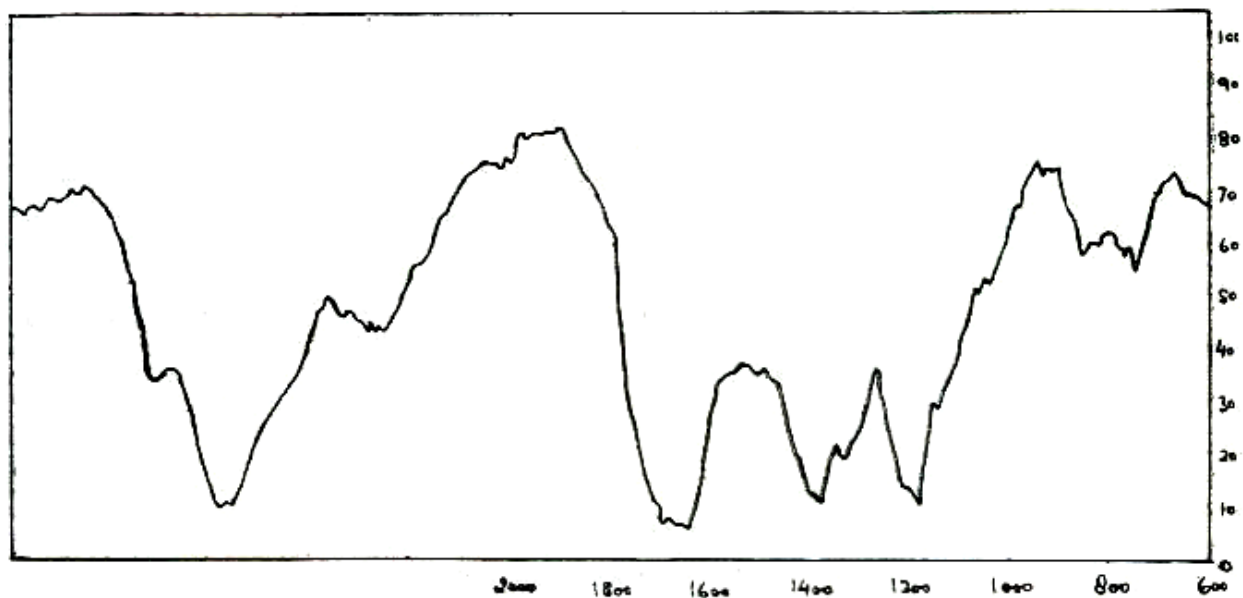
BERBERIN



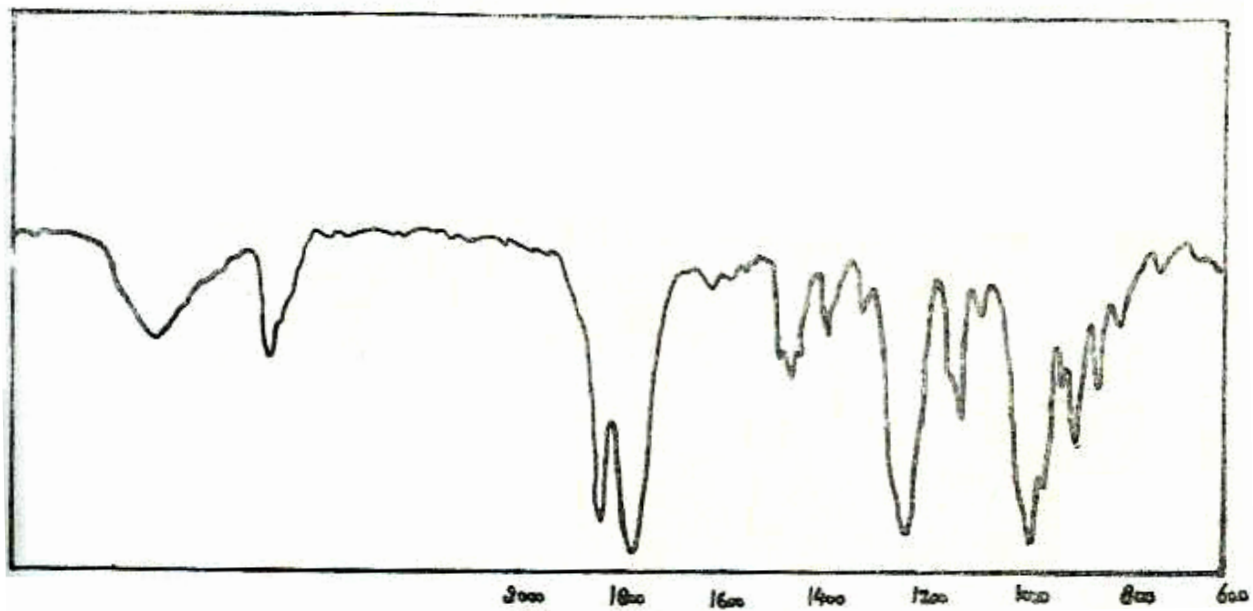
BRUCINE



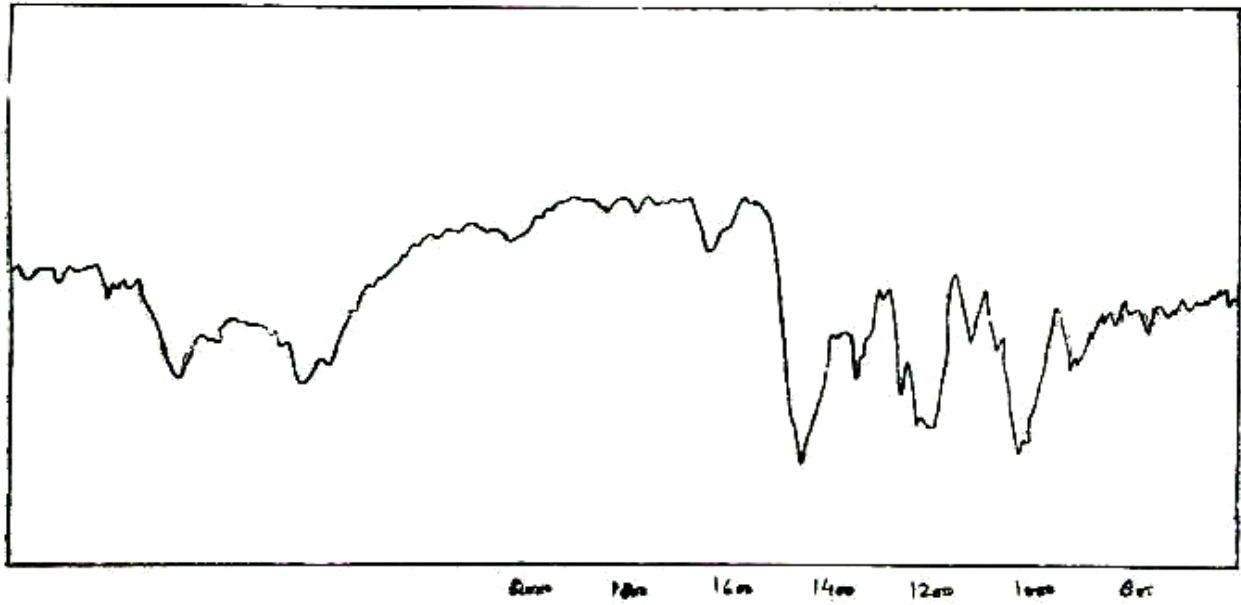
CAFFEEINE



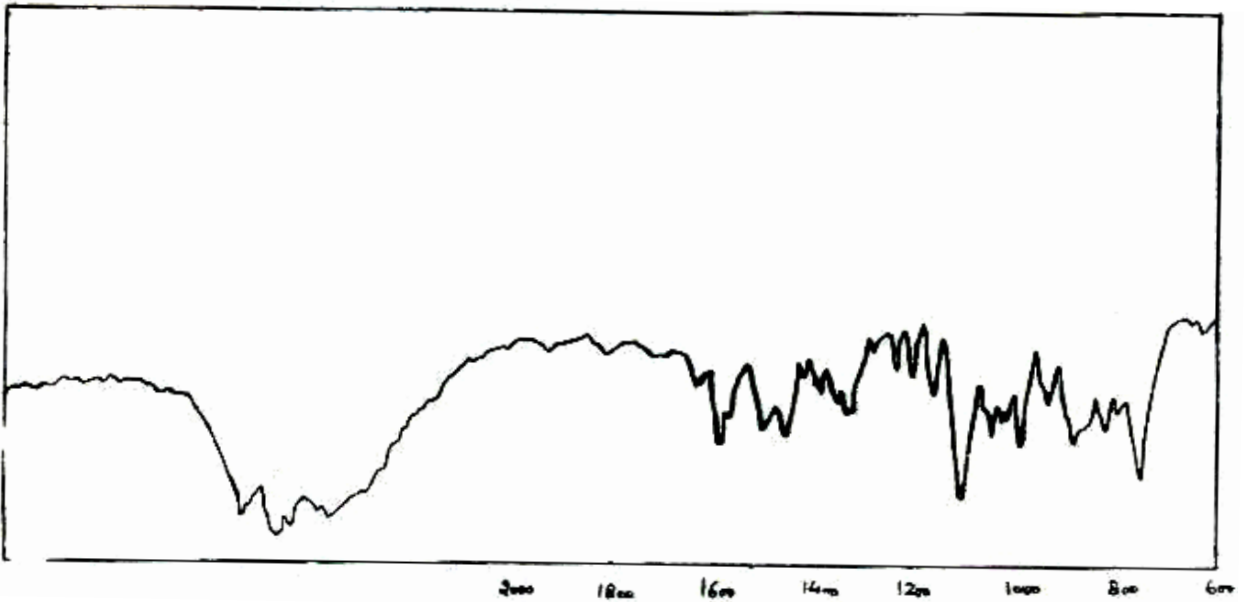
CANTHARIDINE



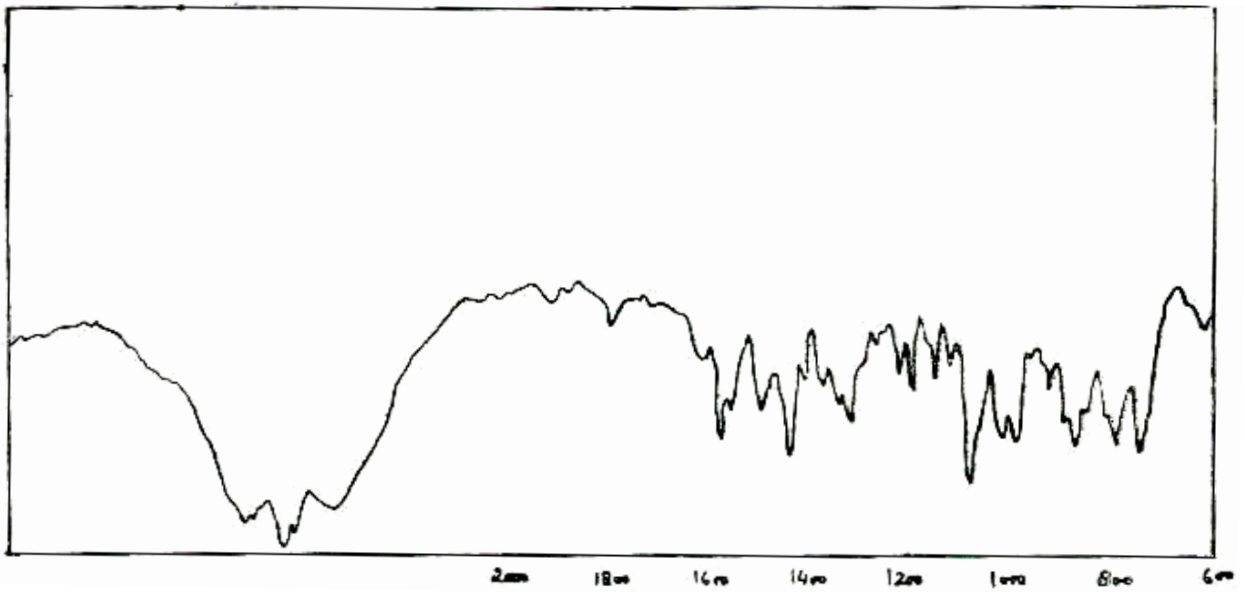
CHELIDONINE



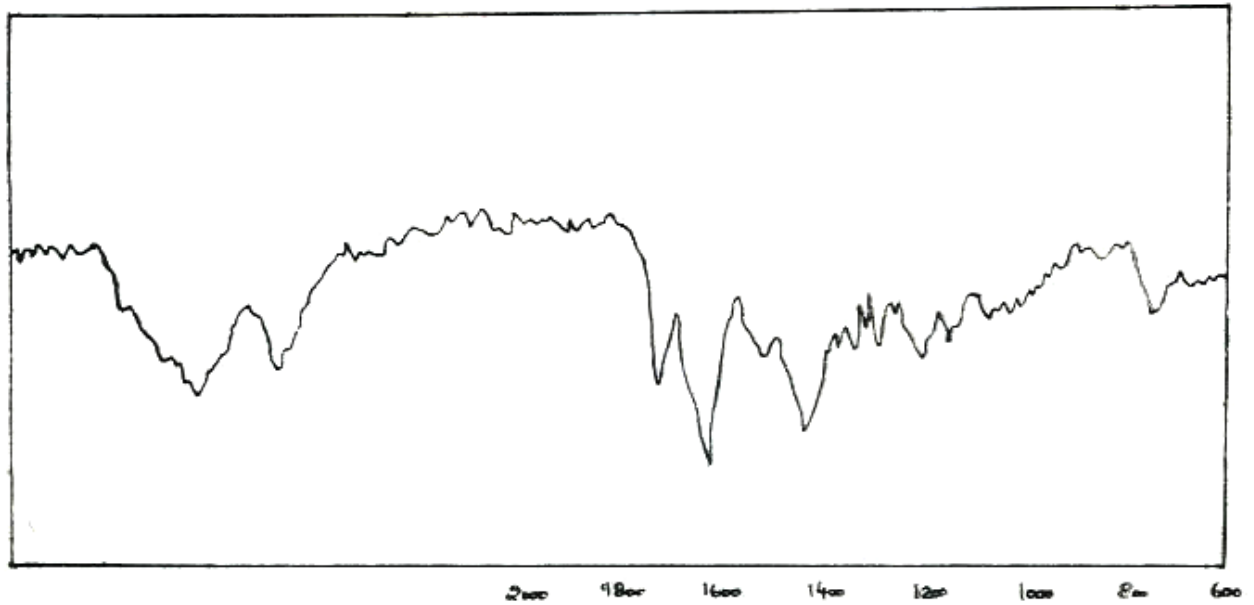
CINCHONINE



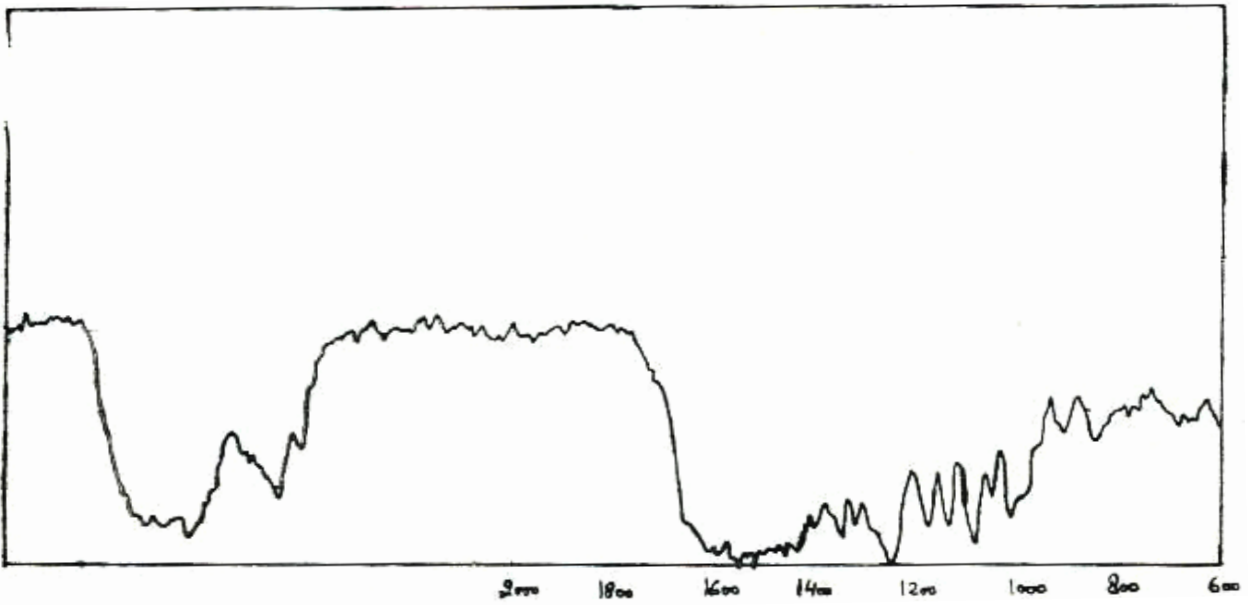
CINCHONIDINE



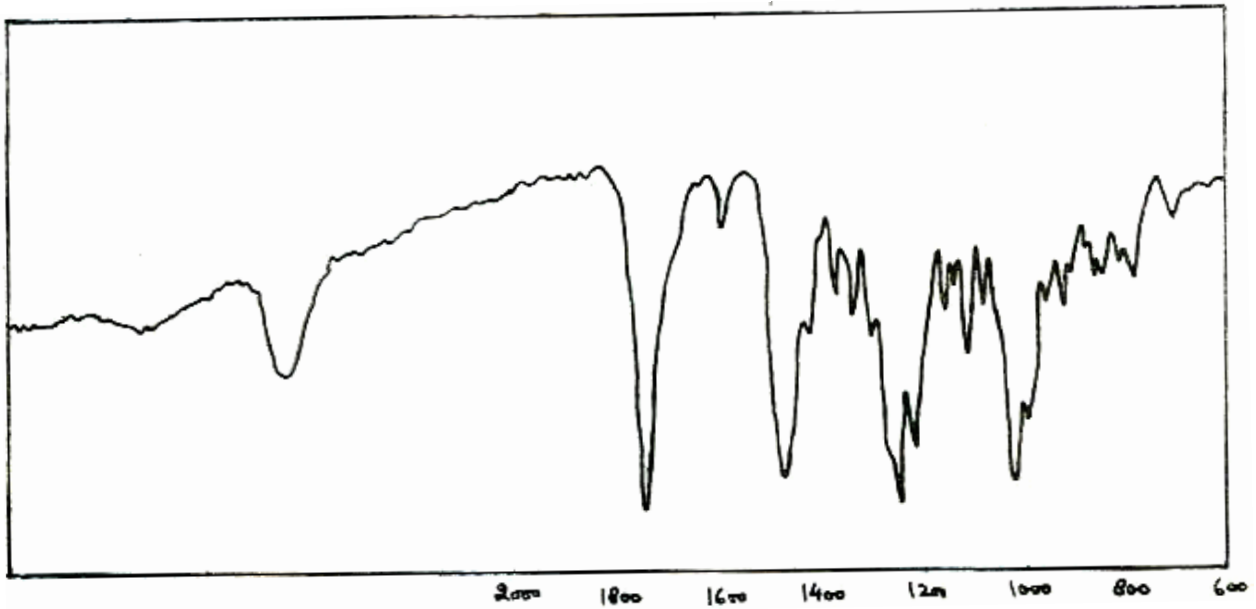
ERGOCRYPTINE



COLCHICINE

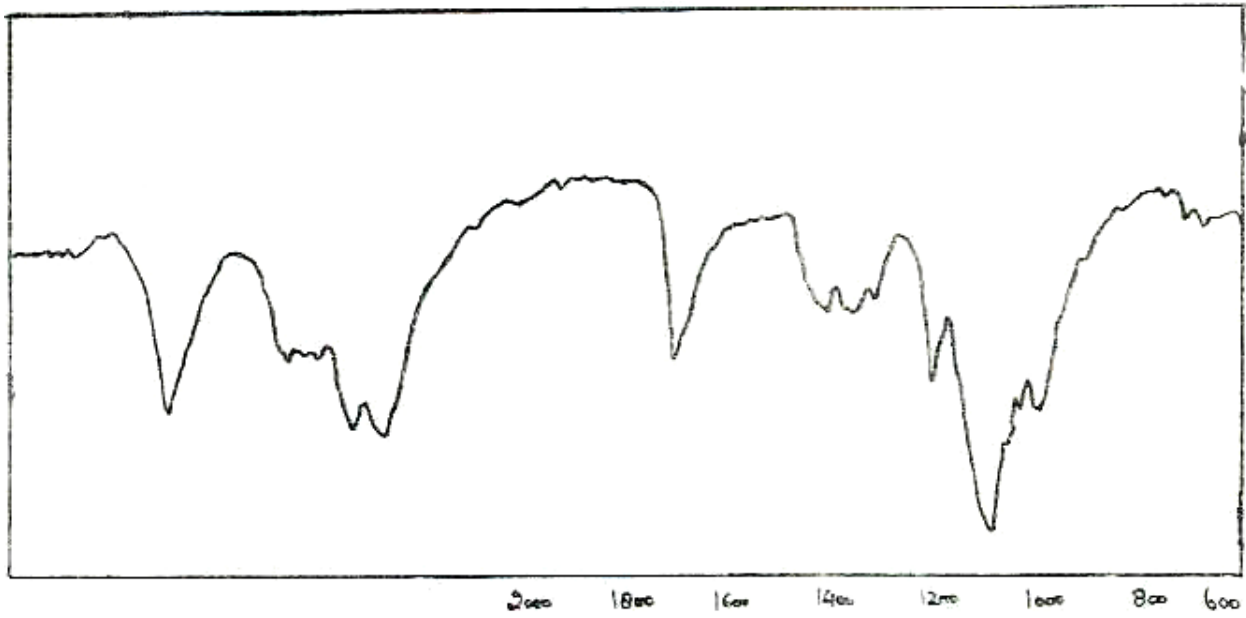


HYDRASTINE

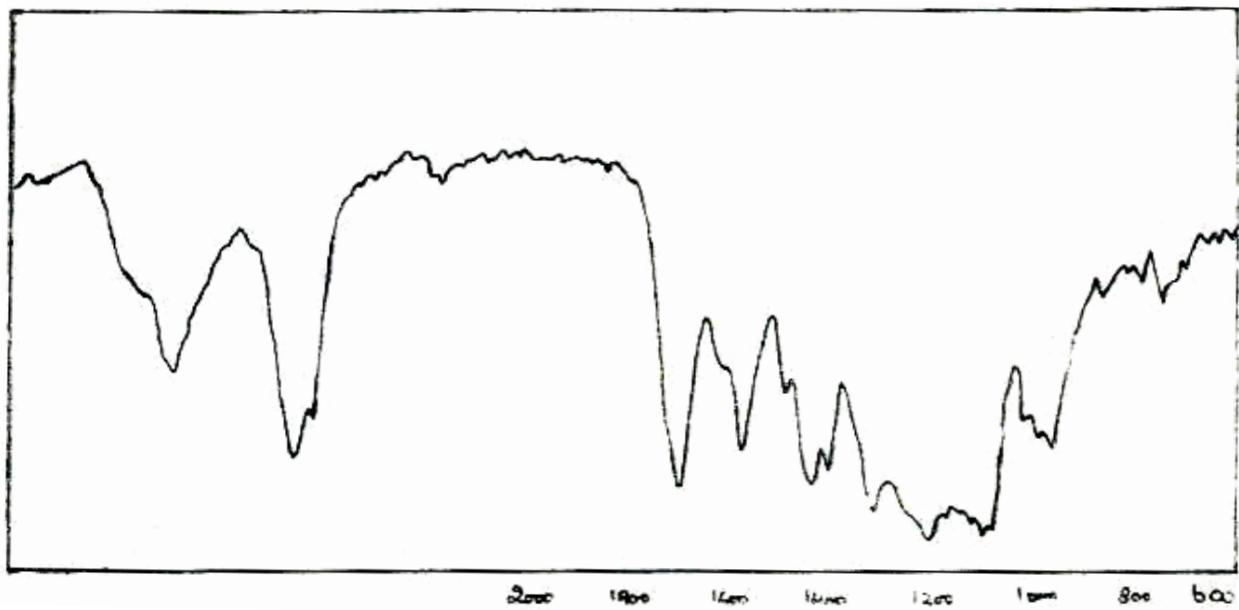




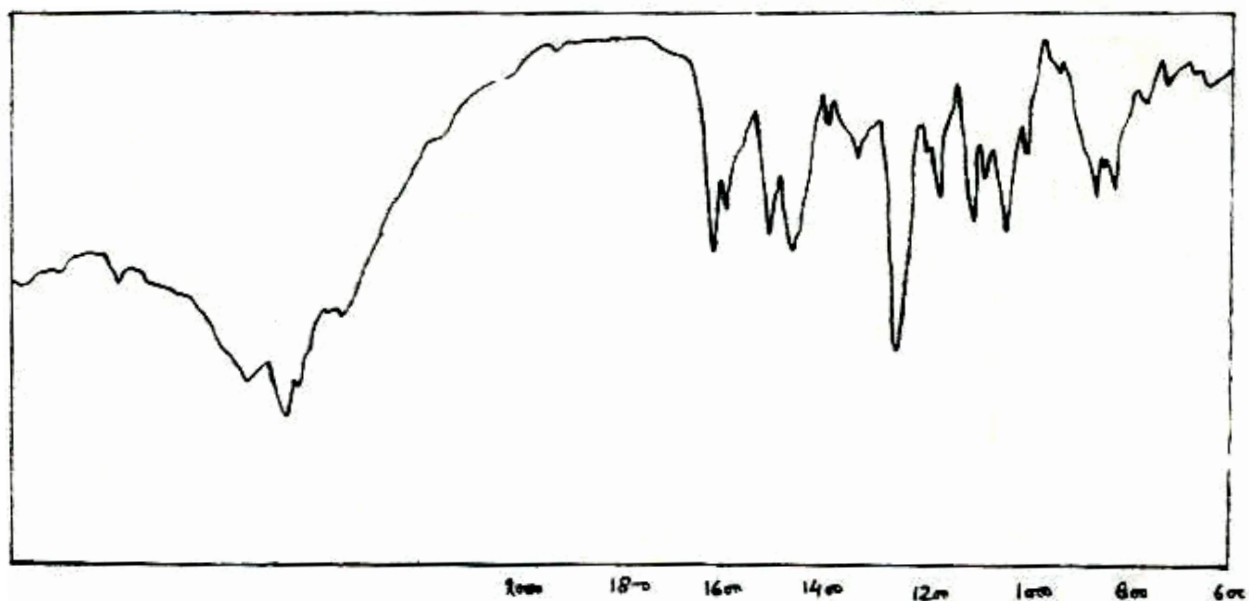
HYOSCYAMINE



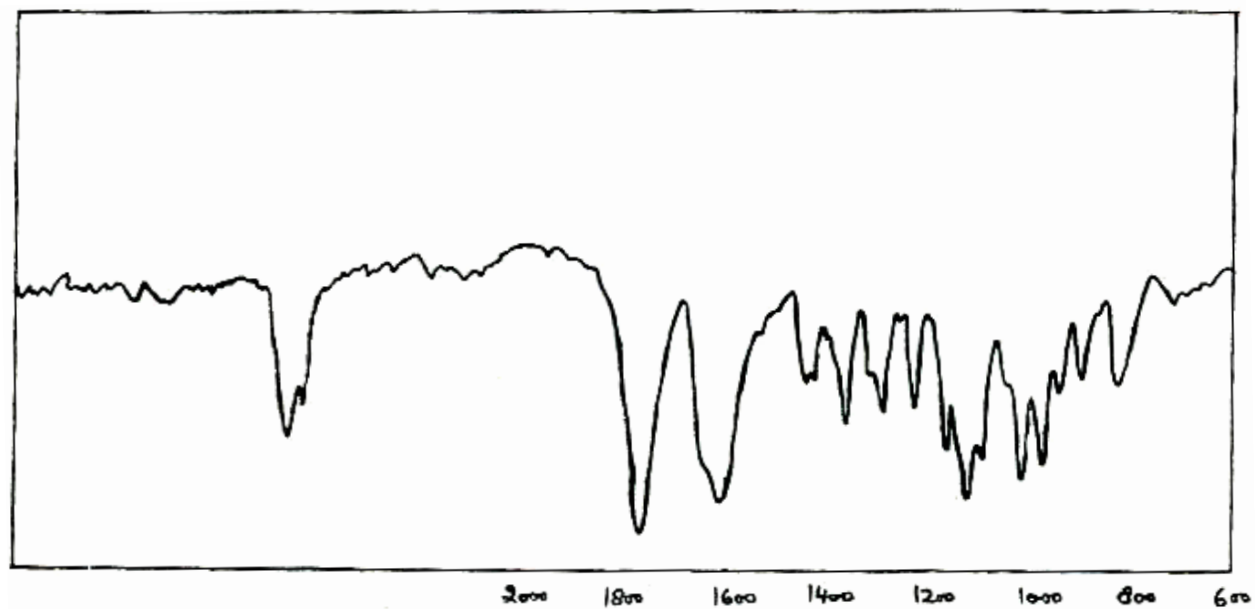
RESERPINE



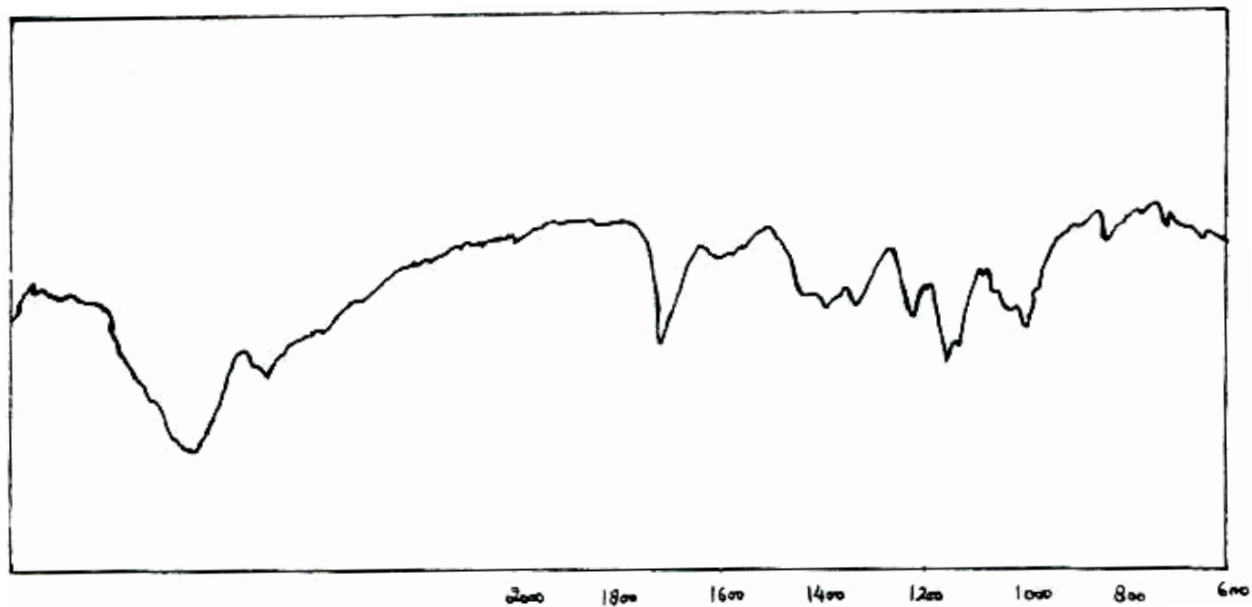
QUINIDINE



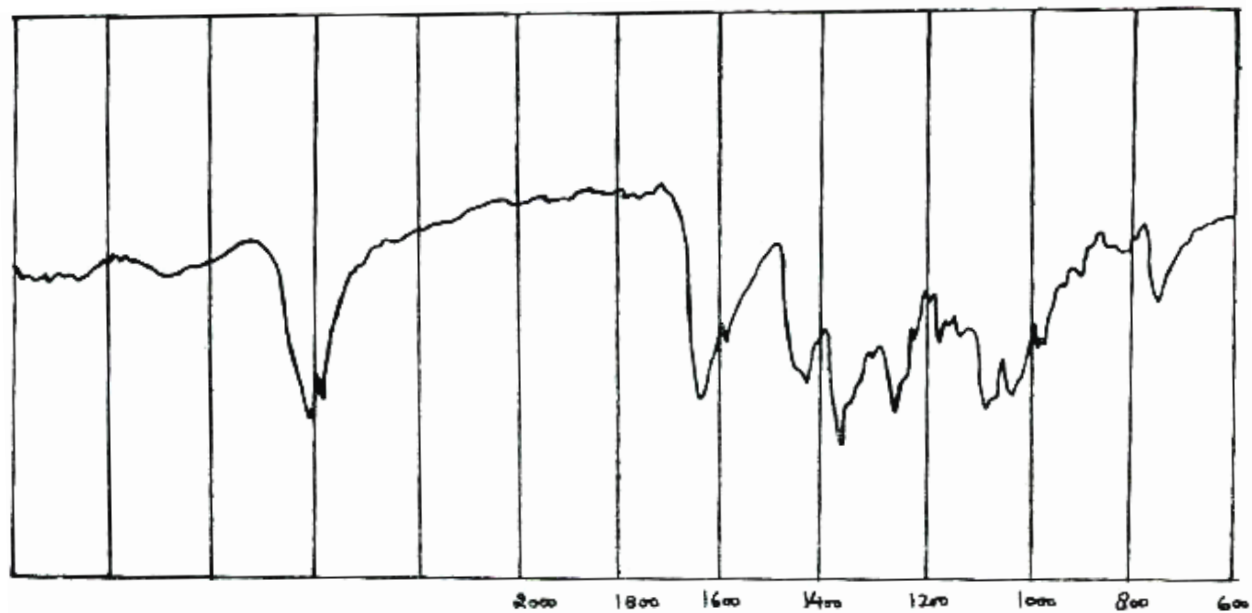
SANTONIN



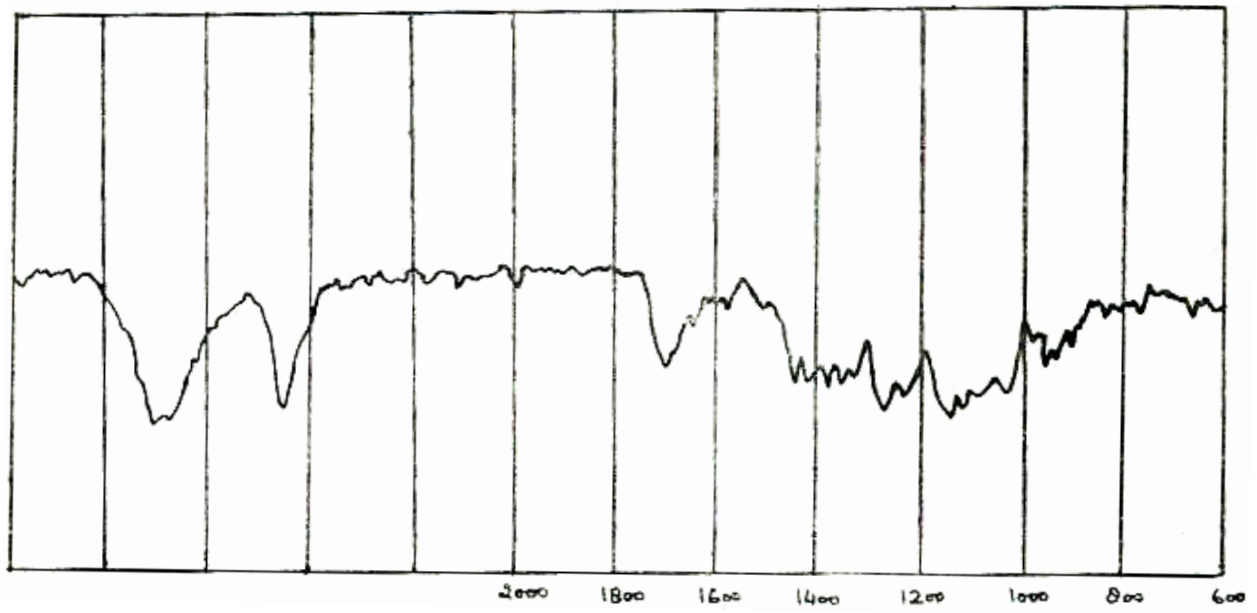
SCOPOLAMINE



STRYCHNINE



VERATRINE



NAMES IN INDIAN LANGUAGES OF INDIGENOUS DRUGS

H.P.I. Vol. II

**ABSINTHIUM**

Hindi and Deccan	—	Vilayati afsantin;
Sanskrit	—	Damar.

**ALFALFA**

Guj.	—	Vilayati Ghas;
Hin.	—	Wilayati gawuth, Lasunghas;
Kan.	—	Villayati hullu.

**APIUM GRAVEOLENS**

Beng.	—	Chanu, Randhuri;
Hin.	—	Ajmud;
Sans.	—	Ajamoda;
S. Ind.	—	Ajmod.

**CAPSICUM ANNUM**

Beng.	—	Lanka Morieh;
Hin.	—	Lal Mirch;
Kan.	—	Mensina Kai;
Mal.	—	Mulaku;
Pun.	—	Lal Mirch;
Tam.	—	Mulagay;
Tel.	—	Mirapakaya.

**CARICA PAPAYA**

Beng.	—	Papeya;
Mal.	—	Papai;
Guj.	—	Papayi;
Hin.	—	Papeeta;
Kan.	—	Parangimara;
Tam.	—	Pappali, papayi;
Tel.	—	Boppayi.

**CHENOPODIUM ANTHELMINTICUM**

Mal. — Katu ayamoddakam.

**CINNAMOMUM**

Beng, Mal and Hin. — Dalchini, Kalmi Dalchini;

Sans. — Tanalapatra;

Tam. — Ilayangam;

Tel. — Lavangamu.

**CYNODON DACTYLON**

Beng. — Dubh, Durba;

Hin. — Dhub, Durba, Hariyali;

Kan. — Kudikarigai;

Mar. — Haryali;

Sans. — Dhurva, Haritali;

Tam. — Arugumpullu ;

Tel. — Harvali.

**EMBELIA RIBENS**

Beng. — Biranga, baibirang;

Mal. — Vaivarang;

Guj. — Vyvirang, vavading;

Hin. — Baberangm wawrung;

Kan, Tam. and Tel. — Vyuvilanga;

Mal. — Vizhal;

Pun. — Babrung.

**EUCALYPTUS GLOBULUS**

Tam. — Karpula maram.

**GOSSYPIUM HERBACEUM**

Hin, Beng and Mal, — Kapas;

Mal. — Karppasi;

Sans. — Karpari;

Tam. — Parutti;

Tel. — Karpasamu.

**JUNIPERUS COMMUNIS**

Beng.	—	Havusha;
Deccan.	—	Abhal;
Hin.	—	Aaraar, hanbera;
Kum.	—	Chichia;
Kas.	—	Betar, Pethra;
Pun.	—	Parutti;
Sans.	—	Vapusha.

**MENTHA PIPERITA**

Pun.	—	Vilayata podina.
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**PLANTOGO MAJOR**

Mal.	—	Bartang ;
Hin. and Kum.	—	Lahuriyai;
Kas.	—	Isafghol.

**RUMEX CRISPUS**

Sans.	—	Amlabetasa.
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**SOLANUM NIGRUM**

Beng.	—	Kakmachi;
Mal. and Pun.	—	Mako;
Hin.	—	Makoi;
Sans.	—	Kakamachi;
Tam.	—	Manattakkali;
Tel.	—	Kamanchi.

**STRAMONIUM**

Beng.	—	Sada dhutura;
Hin.	—	Dhatura;
Tam.	—	Umatai;
Pun.	—	Tattudattura;
Sans.	—	Dhattura;
Tel and Mal.	—	Ummatta.

**TERMINALIA CHEBULA**

As.	—	Hilikha;
Beng.	—	Haritakai;
Mal.	—	Hirda;
Hin.	—	Harir;
Mal.	—	Katukka;
Sans.	—	Haritaki;
Tam.	—	Kadukki;
Tel.	—	Karitaki.

**TINOSPORA CORDIFOLIA**

Beng.	—	Giloe, Gulancha;
Mal.	—	Gulwel;
Hin.	—	Giloe, Gulncha, Gaduchi;
Mal.	—	Sittamryut;
Pun.	—	Gilo;
Sans.	—	Guduchi;
Tam.	—	Sindal;
Tel.	—	Somida.

**VALERIANA OFFICINALIS**

Raj.	—	Billilotan;
Hin.	—	Billilotan;
Kal and Mal.	—	Kalavala.

**VERBESCUM THAPSUS**

Hin.	—	Gidar tamaku;
Pun.	—	Bantamaku.

**VISCUM ALBUM**

Hin.	—	Ban, Banda;
Jaunsar.	—	Chulukabanda;
Kulu.	—	Rini;
Pun.	—	Kalbang.



**ZINGIBER**

Beng.	—	Ada;
Mal.	—	Adu;
Hin.	—	Adrak;
Kam.	—	Ardraka;
Mal.	—	Andrakam;
Pun.	—	Adrak;
Sans.	—	Ardraka;
Tam.	—	Inji;
Tel.	—	Ardrakamu

NAMES IN INDIAN LANGUAGES OF INDIGENOUS DRUGS

H.P.I. Vol. III

**AMYGDALUS AMARA**

Mal, Hin and Pun.	—	Badam;
Sans.	—	Badama;
Tam.	—	Vadumai;
Tel.	—	Badamu.

**ANTHEMIS NOBILIS**

Hin.	—	Babuni ke phul;
Tam.	—	Shimai chamantipu.

**CUBEBA OFFICINALIS**

Beng, Mal. and Hin.	—	Kabab-Chini;
Jadras	—	Val milaku;
Sans.	—	Sugandha muricha

**DOLICHOS**

Beng.	—	Alkusa;
Mal.	—	Kuhili;
Hin and Pun.	—	Kawanch;
Mar.	—	Shoriyanam;
Sans.	—	Almagupata;
Tam.	—	Punaikkali;
Tel.	—	Dulagonid.

**GAMBOGIA**

Beng.	—	Irevalsinni;
Hin.	—	Irevalsinni;
Kan.	—	Hardala, Devanabuli, Jarize;
Mal.	—	Pinnarpuli, Mat-tam;
Mar.	—	Tam;
Sans.	—	Tamala;
Tam.	—	Irevalsinni;
Tel.	—	Pasupuvarne.

**GRANATUM**

Assam	—	Dalim;
Beng.	—	Dalimagachh;
Mal.	—	Dalimba;
Hin.	—	Anar kepar;
Mal.	—	Dadian;
Pun	—	Anar;
San	—	Dadima;
Tam	—	Madalai;
Tel	—	Dalimma.

**HAEMATOXYLON CAMPECHIANUM**

Beng.	—	Bokkan;
Mal.	—	Partanga;
Tel.	—	Gabbi.

**ILLICIUM ANISATUM**

Mal.	—	Badian;
Hin.	—	Anasphal;
Tam.	—	Anashuppu.

**NYCTANTHES ARBORTRISITIS**

Beng.	—	Harshinghar;
Mal.	—	Harsingara;
Hin.	—	Harisnghar;
Mal.	—	Mannapu;
Pun.	—	Harsinghar;
Sans.	—	Sephalika;
Tam.	—	Pavalamalligai;
Tel.	—	Sepali.

**PIPER NIGRUM**

Beng.	—	Gol morich;
Mal.	—	Kalamiri;
Hin.	—	Kali mirch, Golmirch;
Mal.	—	Kulimulaka;
Sans.	—	Maricha;
Tam.	—	Milagu;
Tel.	—	Marichamu

**RICINUS COMMUNIS**

Assam	—	Eri;
Beng.	—	Bherenda;
Mal.	—	Erendi;
Hin.	—	Arand;
Kan.	—	Manda;
Mal.	—	Erandam;
Sans.	—	Eranda;
Tam.	—	Amanakku;
Tel.	—	Erandamu.

**SENNA**

Beng.	—	Sanna-makki;
Hin.	—	Sana;
Mar.	—	Sonamukhi;
Mal.	—	Nilavaka;
Tam.	—	Nila varai;
Tel.	—	Nela-tangedu.

**SINAPIS ALBA**

Hin.	—	Safed Rai.
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**SINAPIS NIGRA**

Beng	—	Raisarisha;
Mar	—	Rai;
Hin	—	Aslrai;
Sans	—	Madhurika;
Tam	—	Kadugu;
Tel	—	Avalu.

**TARAXACUM**

Mar.	—	Bathur;
Hin.	—	Kanphul;
Pun.	—	Kanphul.

**TAXUS BACCATA**

Beng.	—	Bhirmie;
Mar.	—	Barmi;
Hin.	—	Kash;
Kum.	—	Thuner;
Pun.	—	Birmi.

**NAMES IN INDIAN LANGUAGES OF INDIGENOUS DRUGS**

**H.P.I. Vol. IV**

**ABROMA RADIX**

Beng.	—	Ulat Kambal;
Mar.	—	Olat Kambol;
Hin.	—	Olatkamal.

**ACHYRANTHUS ASPERA**

Beng.	—	Apang;
Hin.	—	Latjira;
Pun.	—	Kutri;
Sans.	—	Apamarga;
Tam.	—	Nayurivi;
Tel.	—	Uttarani.

**AEGLE FOLIA**

Beng, Mar and Hin	—	Bel;
Sans	—	Bilva;
Tam.	—	Villuvam;
Tel.	—	Maredu.

**ALSTONIA SCHOLARIS**

Beng.	—	Chhatim;
Hin.	—	Satwan, Chatium;
Mal.	—	Pala;
Sans.	—	Sapta-parna;
Tam.	—	Pala;
Tel.	—	Edakulapala.

**AMOORA ROHITUKA**

Beng.	—	Tktraj;
Hin.	—	Harinhara;
Mal.	—	Chemmarom;
Mar.	—	Rohada;
Sans.	—	Rohitaka;
Tam.	—	Sem, malampuluvan;
Tel.	—	Chawamanu.

**ANAGALLIS ARVENSIS**

Guj	—	anagallide;
Hin	—	Jonkmari;
Pun	—	Dhabar.

**ASARUM EUROPAEUM**

Mar.	—	Taggar;
Hin.	—	Upana;
Sans.	—	Upana.

**CEPHALANDRA INDICA**

Beng.	—	Telakucha;
Mar.	—	Bhimb;
Hin. and Pun.	—	Kan;
Sans.	—	Bimba;
Tam.	—	Kovaikai;
Tel.	—	Dondakaya.

**CUCURBITA PEPO**

Beng.	—	Shada Kumra;
Mar.	—	Kaula;
Hin.	—	Kaddu;
Sans.	—	Kurkaru;
Tam.	—	Suraikayi.

**CYCLAMEN EUROPAEUM**

Hin. — Hathajooree.

**ERIGERON CANDENSIS**

Sans. — Jarayupriya, Nakshikavisha, Palita.

**FAGOPYRUM ESCULENTUM**

Assam. — Doron;

Hin. — Koti;

Kumaon. — Ogul;

Pun. — Ogal;

Himachal. — Phaphra.

**IBERIS AMARA**

Hin. — Chandanai.

**JATROPA CURCAS**

Beng. — Bagbherendra;

Mar. — Mogalieranda;

Hin. — Bagbher anda;

Mal. — Kattavanakku;

Sans. — Kananeranda;

Tam. — Kattamanakku.

**JUGLANS REGIA**

Beng. — Akhrot;

Mar. — Akroda;

Hin. — Akhrot;

Sans. — Akschota;

Tam and Tel. — Akrottu.

**LATHYRUS SATIVUS**

Beng and Hin. — Khesari;

Mar. — Laka;

Pun. — Kisari;

Sans. — Sandika.



**MILLEFOLIUM**

Bom.	—	Rojmari;
Hin.	—	Gandana;
Kash.	—	Momadru chopandiga.

**MYRTUS COMMUNIS**

Beng.	—	Sutrsowa;
Bom.	—	Abulas;
Hin. and Pun.	—	Vilayatimehndi;
Tam.	—	Kulinaval;
Urdu	—	Habulas.

**PETROSELINUM SATIVUM**

Kan.	—	Aehu mooda.
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**POLYGONUM PUNCTATUM**

Pun.	—	Sathalon.
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**POLYPORUS OFFICINALIS**

Hin.	—	Chhattri;
Pun.	—	Kiain.

**RANUNCULUS SCLERATUS**

Hin.	—	Jal Dhaniya;
Kum.	—	Himachal-Mundari-Birmani.

**TUSSILAGO FARFARA**

Hin.	—	Watapana;
Pun.	—	Watpan;
Urdu	—	Fanjiwun.

**NAMES IN INDIAN LANGUAGES OF INDIGENOUS DRUGS**

**H.P.I. Vol. V**

**ANACARDIUM OCCIDENTALE**

Bom. and Hin.	—	Kaju;
Beng.	—	Hajli badam;
Mal.	—	Kashumavu;
Tel.	—	Okkamamidi.

**ASPARAGUS OFFICINALIS**

Beng.	—	Hikua;
Hin.	—	Halyan, Hillua.

**CALTHA PALUSTRIS**

Pun.	—	Mamiri, Mumiri, Baringu.
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**CHAMOMILLA**

Bom and Pun	—	Babuna;
Urdu	—	Babumah.

**CURCUMA LONGA**

Beng. and Hin.	—	Haldi;
Guj.	—	Halada;
Sans.	—	Haridra;
Tam.	—	Manjal;
Tel.	—	Pasupu.

**HEDERA HELIX**

Bih.	—	Lab lab;
Kash.	—	Karmora;
Kum.	—	Banda;
Pun.	—	Banda;
Tam.	—	Maravalai.

**HELIANTHUS ANNUS**

Beng.	—	Suraja Mukhi;
Bom.	—	Surajmaki;
Tam.	—	Suriyakandi;
Sans.	—	Surya Mukhi;
Tel.	—	Adityabhaktiettu.

**LOLIUM TEMULENTUM**

Hin.	—	Machul.
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**LYCOPERSICUM ESCULENTUM**

Hin.	—	Tamatar.
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**PRUNUS PADUS**

Kash.	—	Zambecule;
Pun.	—	Bart;
Hin.	—	Jamoi, Jamunoi.

**RAPHANUS SATIVUS**

Beng.	—	Mula;
Bom.	—	Mula;
Hin. and Pun.	—	Muli;
Mal., Tam and Tel.	—	Mullangi, Mulaka.

**THEA CHINENSIS**

Beng, Bom, Hin. and Pun.	—	Cha, Chay;
Tam.	—	Thayilai;
Tel.	—	Theyaku.

**TRIFOLIUM PRATENSE**

Punj.	—	Trepatra.
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**NAMES IN INDIAN LANGUAGES OF INDIGENOUS DRUGS**

**H.P.I. Vol. VI**

**AEGLE MARMELOS**

Beng, Bom. and Hin.	—	Bel;
Sans.	—	Bilva, Sripthal;
Tam.	—	Villevam;
Tel.	—	Maredu.

**AGARICUS CAMP**

Beng and Hin.	—	Chhata;
Bom.	—	Alombe;
Kash	—	Manskhel;
Punj.	—	Bleophore;
Sans.	—	Chhatra.

**AGAVE AMERICANA**

Beng.	—	Junglians;
Hin and Sans.	—	Kantola;
Punj.	—	Vilayatikamaha;
Tam.	—	Alagai;
Tel.	—	Kittanara.

**CASSIA SOPHERA**

Beng.	—	Kalkashunda;
Hin.	—	Kasunda;
Mal.	—	Pounantakara;
Sans.	—	Kasamarda;
Tam.	—	Sularai;
Tel.	—	Kondakashinda

**CLERODENDRON INFORTUNATUM**

Hin and Beng.	—	Bhant;
Bom.	—	Bhat;
Mal.	—	Peruku;
Sans.	—	Bhantaka;
Tam.	—	Perugilai;
Tel.	—	Gurrapukattya.

**COLEUS AROMATICUS**

Beng.	—	Patherchur;
Bom and Hin.	—	Pathorehur;
Sans.	—	Pashanbhedi;
Tam.	—	Karpurvalli.

**DESMODIUM GANGETICUM**

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Bom and Sans.	—	Shalparni;
Hin	—	Sarivan;
Tam.	—	Pullaid;
Tel.	—	Gitanaram.

**LEUCUS ASPERA**

Beng and Hin.	—	Chota-halkusa;
Bom.	—	Tamba;
Tam.	—	Tumbai;
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**MELILOTUS OFFICINALIS**

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Kan.	—	Ramatulsi;
Mal.	—	Katturamatulsi;
Sans.	—	Ajaka;
Tam.	—	Ganjamkorai;
Tel.	—	Kukka tulsi.

**OCIMUM GRATISSIMUM**

Beng and Hin.	—	Ramtulsi;
Bom.	—	Ramatulsa;
Guj.	—	Avachibavachi;
Tel and Mal.	—	Ramatulsi;
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Tel.	—	Nagajemudu;
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**SOLANUM XANTHOCARPUM**

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Mal.	—	Kantan Kattin;
Punj	—	Kandiari;
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Bom.	—	Chiraita;
Mal.	—	Nelaveppa;
Sans.	—	Kairata;
Tam and Tel.	—	Nilavembu.

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Tam.	—	Nayppalai;
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**STIGMATA MAYDIS-ZEA**

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**HOMOEOPATHIC PHARMACOPOEIA  
OF  
INDIA**

**(H.P.I.)**

**VOLUME – VII**

**1999**



सत्यमेव जयते

**GOVERNMENT OF INDIA  
MINISTRY OF HEALTH AND FAMILY WELFARE**

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## FOREWORD

The present Homoeopathic Pharmacopoeia Committee was constituted by the Govt. of India, Ministry of Health and Family Welfare vide letter No. U.13012/2/96-HPC dated 26th May, 1997.

The material in the Seventh Volume of Homoeopathic Pharmacopoeia of India consists of:-

1. Preface
2. Introduction
3. Monographs
4. Appendices

The Seventh Volume of Homoeopathic Pharmacopoeia of India is presented herewith to the Govt. of India.

(Sd.)  
(Dr. S. P. SINGH)  
*Member Secretary*  
(*Homoeopathic Pharmacopoeia Committee*)

NEW DELHI,  
Dated: 3rd February, 1999

(Sd.)  
(K. P. MUZUMDAR)  
*Chairman*  
(*Homoeopathic Pharmacopoeia Committee*)

## PREFACE

The Government of India constituted Homoeopathic Pharmacopoeia Committee in 1962 for the purpose of preparing the Homoeopathic Pharmacopoeia of India with the following objects:-

- (i) to prepare a Pharmacopoeia of Homoeopathic drugs whose therapeutic usefulness has been proved on the lines of American, German and British Homoeopathic Pharmacopoeiae.
- (ii) to lay down principles and standards for the preparation of Homoeopathic drugs.
- (iii) to lay down test of identity, quality, purity and
- (iv) such other matters as are incidental and necessary for the preparation of Homoeopathic Pharmacopoeia.

The Committee approved 180 monographs for Volume I of Homoeopathic Pharmacopoeia of India (1971).

The Homoeopathic Pharmacopoeia Committee was reconstituted by the Government of India, Ministry of Health & Family Welfare in 1971 which approved 100 monographs for Volume II (1974), 105 monographs for Volume III (1978), 65 monographs for Volume IV (1983) of Homoeopathic Pharmacopoeia of India. The term of the Committee was extended vide letter No. X. 19018/21/76-Homoeo dated the 30th November, 1976.

The objects of Committee were further enlarged to prepare standards for the preparation of Nosodes for the inclusion in the Homoeopathic Pharmacopoeia of India. In addition, it undertook the preparation of Homoeopathic Pharmacopoeial Codex in order to give detailed information on drugs and other Pharmaceutical substances and materials that are not included in H.P.I. as well as to supplement the information on drugs already included but cannot be listed in the H.P.I.

The Homoeopathic Pharmacopoeia Committee was again reconstituted by the Government of India, Ministry of Health & Family Welfare vide letter No. X. 19018/26/79-Homoeo, dated 12th November, 1980 which approved 52 monographs of the then ongoing Fourth Volume (1983), 114 monographs of Fifth Volume and 62 monographs (a part) for the ensuing Sixth Volume of Homoeopathic Pharmacopoeia of India.

The Homoeopathic Pharmacopoeia Committee was reconstituted by the Govt. of India, Ministry of Health & Family Welfare vide letter No. X. 19018/68/99-Homoeo dated 24th February, 1988. The members of the Committee were as follows:-

1. Deputy Adviser (Homoeo) subsequently upgraded as Adviser (Homoeopathy) (Dr. V. T. Augustine), Ministry of Health & F. W. *Chairman*
2. Drugs Controller (India) (Dr. P.K. Gupta & Dr. P. Das Gupta), Director General of Health Services, New Delhi. *Member*

3. Director, Central Drugs Laboratory, Kyd Street, Calcutta. *Member*  
 (Dr. S.K. Roy) 1988-1992  
 (Dr. M.K. Mazumdar) 1993-1996  
 (Sh. B. Mandal) From 1997 onwards
4. Director (Dr. D.P. Rastogi), Central Council for Research in Homoeopathy, B-6, Community Centre Janak Puri, New Delhi-110058. *Member*
5. Prof. & Head of the Deptt. of Microbiology (Dr. Srinivas), All India Institute of Medical Sciences, New Delhi. *Member*
6. Director (Sh. P.N. Varma), Homoeopathic Pharmacopoeia Laboratory, C.G.O. Complex, Kamla Nehru Nagar, Ghaziabad-201002. *Member*
7. Prof. (Dr.) R.N. Khanna, M.Sc., Ph.D., Deptt. of Chemistry, University of Delhi, Delhi. *Member*
8. Sh. G.S. Bhar, B.A. Homoeopathic Manufacturing Pharmacist, Calcutta. *Member*
9. Dr. N. Krishna Rao, BA, Hons. Homoeopathic Manufacturing Pharmacist, Hyderabad. *Member*
10. Dr. A.U. Ramakrishnan M.B.B.S., M.F. Hom. (Lond.) Homoeopathic Physician, Madras *Member*
11. Prof. Dr. K.P. Muzumdar, B.Sc., D.M.S., M.B.S. MF (Malaysia), Homoeopathic Physician, Bombay. *Member*
12. Dr. Dilip Kumar Saha, DMS (Cal.) Homoeopathic Physician, Calcutta. *Member*
13. Dr. R.K. Bhandari, Homoeopathic Manufacturer, New Delhi *Member*
14. Dr. P.N. Mehra, D.Sc., F.N.A. F.N.A., Sc., Prof. Emer. Punjab University, Chandigarh (Till 1992) *Member*  
 Prof. (Dr.) S.C. Gupta, M.Sc., Ph.D.,  
 Deptt. of Botany  
 University of Delhi,  
 Delhi (from 1993 – 1996)
15. Assistant Adviser (Homoeo) Ministry of Health & F.W., New Delhi *Member-Secretary*  
 (Dr. B.P. Misra) from Feb., 1988 to March, 1992  
 (Dr. J.K. Asthana) from April, 1992 to Dec., 1993  
 (Dr. Eswara Das) from Jan., 1994 to May, 1997

Dr. G.P. Garg, Chief Chemist (HPC) performed the functions of Member-Secretary in the 60th Meeting of Homoeopathic Pharmacopoeia Committee.

This Committee finalised 42 monographs of the ongoing Vol. VI of H.P.I. and 100 monographs for Vol. VII of the Homoeopathic Pharmacopoeia of India.

With the creation of new independent Department of I.S.M. & Homoeopathy, the H.P.C. was reconstituted in 1997 by the Govt. of India, Deptt. of ISM & H, Ministry of Health & Family Welfare vide letter No. 130/2/2/96-HPC dated 26th May, 1997.

The members of the Committee are as follows:-

- |   |                         |
|---|-------------------------|
| 1. Prof. Dr. K.P. Muzumdar B.Sc. D.M.S. M.B.S. MF (Malaysia)<br>Homoeopathic Physician, Bombay.                           | <i>Chairman</i>         |
| 2. Drugs Controller General of India (Dr. P. Das Gupta)   | <i>Member</i>           |
| 3. Director, (Sh. B. Mandal) Central Drugs Laboratory, Calcutta   | <i>Member</i>           |
| 4. Director (Shri Vikramaditya), Homoeopathic Pharmacopoeia<br>Laboratory, Ghaziabad.                                     | <i>Member</i>           |
| 5. Director, (Dr. D.P. Rastogi) Central Council for Research in<br>Homoeopathy, New Delhi.                                | <i>Member</i>           |
| 6. Prof. (Dr.) R.N. Khanna, M.Sc., Ph.D., Deptt. of Chemistry,<br>University of Delhi, Delhi                              | <i>Member</i>           |
| 7. Prof. (Dr.) A.K. Bhatnagar, M.Sc., Ph.D., Deptt. of Botany,<br>University of Delhi.                                    | <i>Member</i>           |
| 8. Sh. P.N. Bhatt, M.Sc. Production Manager M/s. S.B.L. Ltd.,<br>Sahibabad, U.P.  | <i>Member</i>           |
| 9. Sh. Sharad Vaknalli, B.E. (Hons.), MIE(Ind), M.R.S.H. (Eng),<br>Director, M/s Beck & Koll Laboratories Ltd, Mumbai.    | <i>Member</i>           |
| 10. Deputy Adviser (Homoeopathy) (Dr. S.P. Singh), Deptt. of ISM<br>& Homoeopathy, Ministry of Health and Family Welfare. | <i>Member-Secretary</i> |

The Homoeopathic Pharmacopoeia Committee was assisted by the following technical and administrative staff:-

- |   |                                      |
|---|--------------------------------------|
| 1. Dr. G.P. Garg                                  | <i>Chief Chemist<br/>(HPC)</i>       |
| 2. Dr. Eswara Das                                 | <i>Asstt. Adviser<br/>(Homoeo)</i>   |
| 3. Dr. Alok Kumar                                 | <i>Research Officer<br/>(Homoeo)</i> |
| 4. Sh. Ram Lal, Sh. Pawan Gupta & Sh. S.K. Kapoor | <i>Asstt. Secy. (HPC)</i>            |

The Committee specially commends the work done by Sh. Vikramaditya, Director Incharge, Dr. D.R. Lohar, Principal Scientific Officer (Chem.), Dr. P. Joshi, Principal Scientific Officer (Microbiology), Dr. (Mrs.) Manisha Sarkar, Principal Scientific Officer (Phg.), Dr. (Mrs.) Indu Vaid, Research Officer (Homoeopathy), Dr. Atul Kumar Gupta, Senior Scientific Assistant (Chemistry) and Sri K.N. Sharma, Research Assistant (Botany) of Homoeopathic Pharmacopoeia Laboratory, Ghaziabad for assistance in general and for providing technical data in particular for the monographs for above Volumes of H.P.I.

The Government of India, Ministry of Health and Family Welfare takes this opportunity to record its appreciation of work done by the Committee and the staff engaged in this work.

## INTRODUCTION

Six Volumes of Homoeopathic Pharmacopoeia of India (H.P.I.) are already published.

<b>Volume</b>		<b>No. of Monographs</b>
Volume I	(1971)	180
Volume II	(1974)	100
Volume III	(1978)	105
Volume IV	(1983)	107
Volume V	(1987)	114
Volume VI	(1990)	104

The present Volume VII comprises 105 monographs. The general notices and general instructions published in Volume I to Volume VI of H.P.I. with amendments made from time to time are applicable to the contents of all the Volumes published so far.

## **GENERAL NOTICES / GENERAL INSTRUCTIONS**

The General Notices/General Instructions and the appendices of the First Volume as amended in Second, Third, Fourth, Fifth and Sixth Volumes are applicable to the material of this Seventh Volume of Homoeopathic Pharmacopoeia of India as well as to the earlier Volumes.

## LIST OF MONOGRAPHS WITH ABBREVIATIONS

S. No.	Name of Monographs	Abbreviation
1.	Abies Nigra	Abies n.
2.	Acidum Formicum	Ac. form.
3.	Acidum Uricum	Ac. uric.
4.	Aconitum Ferox	Acon. f.
5.	Aesculus Glabra	Aescul. g.
6.	Agaricus Emeticus	Agar. e.
7.	Agaricus Stercorarius	Aga. ster.
8.	Alloxan	Alloxan
9.	Alstonia Constricta	Alst. con.
10.	Althea Officinalis	Alth. off.
11.	Aluminium Metallicum	Al. met.
12.	Alumina Phosphorica	Alu. ph.
13.	Ammi Visnaga	Ammi. vis.
14.	Ammoniacum Gummi	Amon. gum.
15.	Ammonium Nitricum	Amm. n.
16.	Ammonium Phosphoricum	Am. phos.
17.	Ammonium Picricum	Am. pic.
18.	Anacardium Occidentale	Anac. oc.
19.	Antimonium Oxidatum	Antim. ox.
20.	Apocynum Cannabinum	Apoc. can.
21.	Areca Catechu	Areca c.
22.	Aristolochia Serpentaria	Arist. s.
23.	Asclepias Tuberosa	Ascl. tub.
24.	Asparagus Officinalis	Asp. off.
25.	Atista Indica	Atis. ind.
26.	Aurum Sulphuratum	Aur. sul.
27.	Bacillus No. 7	Bacil. 7
28.	Baptisia Confusa	Bapt. con.
29.	Barium Sulphuratum	Bar. sul.
30.	Barosma Crenata	Bar. cren.
31.	Barosma Serratifolia	Bar. ser.
32.	Benzoinum	Benzoin.
33.	Bixa Orellana	Bix. or.
34.	Blatta Americana	Blatta a.
35.	Boletus Luridus	Bol. lur.
36.	Calotropis Lactum	Calo. lac.
37.	Carboneum Oxygenisatum	Carb. oxy.



<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>
38.	Chimaphila Maculata	Chim. mac.
39.	Citrus Vulgaris	Auranoum
40.	Cocainum Muriaticum	Coca. mur.
41.	Cortisone	Cortis.
42.	Cuprum Sulphuricum	Cup. s.
43.	Damiana	Damiana
44.	Daphne Indica	Daph. ind.
45.	Digitalis Purpurea	Dig. pur.
46.	Digitoxinum	Digitox.
47.	Diphtherinum	Diphth.
48.	Dirca Palustris	Dir. pal.
49.	Emetinum	Emet.
50.	Ephedra Vulgaris	Ephe. vul.
51.	Etherum	Ether.
52.	Eucalyptol	Eucatul.
53.	Eupatorium Aromaticum	Eup. arom.
54.	Fagopyrum Esculentum	Fago. esc.
55.	Ferrum Pernitricum	Fer. pern.
56.	Formalinum	Formlin.
57.	Fuchsinum	Fuchsin.
58.	Genista Tinctoria	Genista
59.	Ginkgo Biloba	Ginkgo
60.	Glycerinum	Glyc.
61.	Guaco	Guaco
62.	Gymnocladus Canadensis	Gym. can.
63.	Hoang Nan	Hoang n.
64.	Homarus	Homarus
65.	Ilex Paraguayensis	Ile. para.
66.	Kali Silicatum	Kal. sil.
67.	Kousso	Kous.
68.	Lactuca	Lactuc.
69.	Lamium Album	Lam. alb.
70.	Leptandra	Leptan.
71.	Levomepromazine	Levomep.
72.	Mandragora Officinarum	Mand. off.
73.	Mangifera Indica	Mang. ind.
74.	Mercurialis Perennis	Mer. per.
75.	Mercurius Precipitatus Albus	Merc. p. a.
76.	Morphinum Aceticum	Mor. ace.

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>
77.	Morphinum Sulphuricum	Mor. sulph.
78.	Myrtus Communis	Myrt. com.
79.	Nabalus Serpentaria	Nab. serp.
80.	Natrum Fluoricum	Nat. fl.
81.	Natrum Hypochlorosum	Nat. hypo.
82.	Negundium Americana	Neg. ame.
83.	Nyctanthes Arborescens	Nyct. arb.
84.	Oldenlandia Herbacea	Old. herb.
85.	Oleander	Oleand.
86.	Oleum Ricini	Ol. ricin.
87.	Onosmodium Virginianum	On. virg.
88.	Origanum Vulgare	Origan. v.
89.	Parthenium	Parth.
90.	Penicillium	Penicil. g.
91.	Penthorum Sedoides	Pent. sd.
92.	Pertussin	Pertus.
93.	Phenobarbital	Phenob.
94.	Pilocarpinum Nitricum	Pil. nit.
95.	Pimpinella Saxifraga	Pim. sax.
96.	Prunus Virginiana	Prun. vir.
97.	Reserpine	Reserp.
98.	Saccharum Lactis	Sac. lac.
99.	Saponaria Officinalis	Sap. off.
100.	Sassafras	Sass.
101.	Scarlatinum	Scarl.
102.	Solaninum	Solanin.
103.	Sulfa Pyridine	Sul. pyr.
104.	Thymus Serpyllum	Thy. ser.
105.	Triosteum Perfoliatum	Trio. per.

**ABIES NIGRA**

(*Abies n.*)

Amber resin

**Description** : Resin is obtained by distilling the volatile oil from the oleo-resin, obtained from *Piceca nigra* Linn., *Abies nigra* Linn., *Pinus nigra* Linn., pale yellow, angular, brittle, glassy masses; odour and taste, translucent, terebinthinate. Soluble in *alcohol*, *benzene*, *solvent ether* and *carbon di-sulphide*; partly soluble in *petroleum ether*; insoluble in *water*.

**Identification** : 1. Dissolve 0.1 g in 1.0 ml *acetic anhydride* by slow heat, cool and add one drop of *sulphuric acid*; bright purple colour rapidly changing to violet is produced.

2. Shake about 0.1 g with 10 ml of *petroleum ether* and filter, add the filtrate to 20 ml of *copper acetate solution*; bright bluish-green colour is produced.

**Acid value** : 150° to 180°, HPI.

**Sulphated ash** : Not more than 0.2 percent, HPI.

**History and authority** : Proved and introduced by Leaman; Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1874, 1, 2; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, 2.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Abies Nigra* in *coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**ACIDUM FORMICUM**

(Ac. form.)

- Common names** : *English*: Formic Acid; *French*: Acide Formique; *German*: Ameisensaure.
- Description** : Colourless liquid, dangerously caustic to skin, odour pungent, taste burning. Miscible with *water*, *alcohol* and *glycerine*. Contains not less than 90% w/w HCOOH.
- Identification** : (i) Add 1 ml to 1 ml of *sulphuric acid* and warm. *Carbon monoxide* evolves which burns with a blue flame.
- (ii) Warm 1 ml with 0.5 g *potassium permanganate*, *carbon dioxide* is produced, which produces turbidity in *calcium chloride solution*.
- (iii) Heat 1 ml with 0.1 g salt of mercury/silver, metallic *mercury* or silver is produced.
- Boiling point** : 100.5°.
- Weight per ml** : 1.2 g at 200°.
- Non-volatile matter** : When evaporated on a water bath and dried to constant weight at 105°, leaves not more than 0.05% w/w of residue.
- Assay** : Weigh a flask containing about 10 ml of purified water, quickly add about 1 ml of the acid and reweigh, dilute with 50 ml of *water* and titrate with 1N *sodium hydroxide* using *phenolphthalein* as indicator. Each ml of 1N *sodium hydroxide* is equivalent to 0.04602 g of HCOOH.
- History and authority** : Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 786. Anshutz, *New, old and forgotten Remedies*, 162.
- Preparation** : (a) Mother Solution 1x Drug strength 1/10 w/v  
                   Acidum formicum 100 g  
                   Purified Water in sufficient quantity  
                   to make one thousand millilitres of the Mother Solution.
- (b) Potencies: Upto 3x in Purified Water. 4x and higher in *Dispensing Alcohol*.

**ACIDUM URICUM**

(Ac. uric.)

$C_5H_4O_3N_4$

**Mol. wt.:** 168.11

**Common name** : *English:* Uric acid.

**Description** : It was generally prepared from the excrement of birds and scaly reptiles or from the urine of any carnivorous animals. It is now prepared from urea. White or slightly yellow crystals or crystalline powder; odourless; tasteless. It decomposes on heating without melting and evolves *hydrocyanic acid* gas. Soluble in alkali *hydroxides* and in *glycerine*; almost insoluble in *water* and in *alcohol*.

Contains not less than 99.5% and not more than the equivalent of 100.5% calculated with reference to the drug dried over *sulphuric acid* to constant weight.

**Identification** : 1. (a) Dissolve 0.01 g by heating in 1 ml of 1N *sodium hydroxide* and dilute to 10 ml.

(b) Dissolve 0.5 g of *molybdic acid* and 1g of *dibasic sodium phosphate* crystals by heating with 20 ml of *water*, neutralise to *litmus paper* with *dilute nitric acid* and dilute to 25 ml.

To 0.5 ml of (a) add 4 ml of *water* and 0.5 ml of 10% *hydrochloric acid*, then add 1 ml of (b) and boil the mixture for a few seconds; strong green colour develops within 5 minutes.

2. To 0.01 g drug add a few drops of *dilute nitric acid* and carefully evaporate to dryness. Add *ammonia solution* to the residue so obtained; a purple colour is produced.

3. Take 0.1 g drug in a crucible, add 1 ml of *hydrochloric acid* and 0.05 g of *potassium chlorate*. Evaporate in a water bath to dryness until the odour of *hydrochloric acid* is not perceptible. Add a few drops of *ammonium hydroxide solution* a violet colour is produced which disappears on adding *sodium hydroxide solution*.

**Sulphated ash** : Not more than 0.2%, HPI, Vol. I.

**Ammonium compounds** : To 1 g add 10 ml of *water*, 10 ml of 10 % *sodium hydroxide solution* and heat gently with intermittent shaking. The solution when hot, is clear, colourless or almost colourless and free from any odour of *ammonia* during and after the test.

**Assay** : Determine the nitrogen content by the Kjeldahal method using about 0.15 g accurately weighed, of the drug previously dried over *sulphuric acid* to constant weight. Each ml of 0.1N *hydrochloric acid* is equivalent to 0.0042 mg of C<sub>5</sub>H<sub>4</sub>O<sub>3</sub>N<sub>4</sub>.

**History and** : Introduced by Burnett; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **3**, 1480.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Acidum Uricum 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I. 6x may be converted to liquid 8x, HPI, Vol. I.

**ACONITUM FEROX**

(Acon. f.)

**Botanical name** : *Aconitum ferox* Wall. **Family**: Ranunculaceae

**Common names** : *Hindi*: Bachhnag; *English*: Nepal aconite.

**Description** : Stem erect, 40 to 90 cm high, hollow, covered with short spreading yellow hairs. Leaves scattered, distant, up to 7 in number, glabrous or the uppermost very sparingly hairy; petioles slender, the lower ones up to 25 cm long, much dilated at base, the upper ones very short; lamina orbiculo-cordate to reniform 7 to 15 cm long, with a wide sinus, 5-pedate-partite (palmately divided with 5-clefts) to the very base, cuneate-ovate, inciso-dentate, the intermediate segment 3-lobed to the middle, the inner lateral segment similar, the outer segments 2-partite. Flowers large, pale dirty blue, in loose racemes, 10 to 25 cm long, simple or sparingly branched below, tomentose, bracts pinnatifid; bracteoles linear. Sepals hairy blue, uppermost sepals being helmet shaped with short sharp beaks, lateral ones slightly contiguous with the helmet, oblique orbicular-ovate, broadly clawed, while the lower sepals deflexed, oblong, subacute. Carpels 5, tomentose. Seeds obovoid to obpyremidal, winged along the raphe, transversely lamellate on faces, lamellae undulate. Roots paired, tuberous; 2.5 to 4.0 cm long about 1 to 1.5 cm thick, dark brown externally, mother tubers much shrunk and wrinkled with numerous root-fibres. Taste indifferent, followed by a strong tingling sensation.

**Part used** : Root.

**Macroscopical** : Mother tubers much shrunk and wrinkled with numerous root-fibres. Daughter tuber 2.5 to 4.0 cm long, about 1 to 1.5 cm thick, dark brown externally with fracture scarcely farinaceous yellowish in colour, cambium continuous, forming in cross sections a slightly sinuous ring. Mother tuber with outer sieve strands surrounded by a mantle of sclerenchymatic cell. Taste indifferent, followed by a strong tingling sensation.

**Microscopical** : Transection shows an outer metaderm consisting of 1 to 5 layers of cells with variable amount of disposition within. Cortex 2 to 15 layered of tangentially elongated, empty, parenchymatous cells with small intercellular spaces. Endodermis, single layered of squarish cells followed by pericycle and secondary phloem. Stone cells, below the endodermis, may be solitary, overlapping or adjoining each other, 140 to 245 µm by 56 to 77 µm. Secondary phloem of 45 to 75 layers of cells. Near the crown, secondary phloem is

demarcated into three regions, the *outer most zone* of 20 to 25 layers of tangentially elongate cells, a *middle zone* of 15 to 20 of oval cells without any definite arrangement and an *inner most zone* of radially arranged cells in converging rows continuously decreasing in size near the cambium. Parenchyma cells of secondary phloem full of starch. Sieve islets present in rings in secondary phloem. Cambium continuous. Secondary xylem elements in patches along the inner side of cambium. Region between xylem patches is occupied by parenchyma cells which are full of starch. These cells are continuous with the pith but somewhat smaller than the pith. Pith consists of large parenchyma cells with no regular arrangements. Starch grains usually circular, 10 to 16 µm in diameter. Vessel elements reticulately thickened but sometimes pitted, 98 to 210 µm by 28 to 58 µm.

**Distribution** : Temperate subalpine Himalayas Sandakphu (Darjeeling) from Sikkim to Garwal, from 3000 to 4200 m. Nepal and Singalila up to 3600 m.

**History and authority** : Introduced and proved by Dworzak in Schroff; Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 8; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 12.

**Preparation** : (a) Mother Tincture φ Drug strength 1/10  
                   Aconitum Ferox in *coarse powder* 100 g  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.



**AESCULUS GLABRA**

(Aescul. g.)

- Botanical name** : *Aesculus glabra* Willd. **Family**: Hippocastanaceae
- Synonyms** : *Aesculus chinensis* Michx; *Pavia glabra* Spach; *P. pallid* Spach.
- Common name** : *English*: Chio Buckeyes.
- Description** : Small tree, upto 10 m in height with smooth bark, exhaling an unpleasant odour. Leaflets 5, oval cuneate-obovate, finely serrate, smooth; panicle 12.5 to 15 cm long. Flower greenish-yellow; petals 5 of nearly equal length, their claws as long as the calyx; stamens exserted. Fruit a capsule, echinate, 3 to 4 cm in diameter. Seeds large about 2.5 cm in diameter, glossy brown when newly exposed, bearing conspicuous scar.
- Part used** : Ripe nut excluding outer shell.
- Macroscopical** : Seed large, about 2.5 cm in diameter, glossy brown when newly exposed, bearing conspicuous scar.
- Microscopical** : Seed in transection consists of testa having outer layer of thick walled palisade like epidermal, cells covered with thick dark brown cuticle, followed by a broad zone, 60 to 65 cells wide of thick walled reddish brown, oval to isodiametric cells. Tegmen consists of a zone of rectangular, thin walled, 4 to 5 layers of parenchyma, followed by 3 to 4 layered zone of tangentially flattened, rhomboidal, slightly thick walled cells. Embryo covered with a layer of small, somewhat thick walled cells, followed by starch bearing isodiametric parenchyma occasionally prismatic crystals present.
- Identification** : (i) To 2 ml of the *chloroform* extract, add 2 drops of *Dragendorff's reagent*; a yellow precipitate is produced.
- (ii) To 2 ml of 60% alcoholic extract, add two drops of *lead acetate solution*; a yellow precipitate is produced.
- (iii) To 2 ml of 60% alcoholic extract, add one drop of *alcoholic ferric chloride solution*; a deep green colour is produced.
- Distribution** : From Western Pennsylvania to Nebraska, South to Texas and Alabama.

**History and authority** : Proved and introduced by Hall; Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 48; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 31.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Aesculus Glabra* in *coarse powder* 100 g  
 Purified Water 400 ml  
 Strong Alcohol 635 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**AGARICUS EMETICUS**

(Agar. e)

- Botanical name** : *Russula emetica* Fr. **Family**: Agariaceae
- Common names** : *English*: Acrid agaric; *French*: Russule emetique; *German*: Passenous.
- Description** : A small poisonous mushroom; cap 4 to 8 cm wide, pressed in the center, surface bright red when fresh, fading to pale red when old; cuticle easily peeled off, surface slightly sticky when young, margin prominently striate. Flash pale red under the cuticle otherwise white. Gills 8 to 12 per cm at the margin, 4 to 8 mm wide, narrowly adnate or free, white, spaces between them veined where gills join the cap, a few forked near the stalk 4 to 7 cm long, 1 to 2 cm thick, cylindrical or tapering upward, white or tinged red, spongy, solid, solitary or scattered on the soil or on very rotten wood in swampy places. Poisonous.
- Part used** : Whole mushroom.
- Microscopical** : Gills grow downward and are covered with hymenium of basidia interspersed amongst which are sphaerocyst 6, scattered latex cells and spiny flanged amyloid spores, 8  $\mu$  in diameter.
- Distribution** : India mainly in hills and Darjeeling.
- History and authority** : Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 68; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 38.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Agaricus Emeticus, moist magma containing  
                   solids 100 g and plant moisture 567 ml 667 g  
                   Strong Alcohol 468 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.





- (b) Potencies: 2x and higher to be triturated in accordance with method, HPI, Vol. I; 6x may be converted to liquid 8x, HPI, Vol. I; 9x and higher with *Dispensing Alcohol*.

**ALSTONIA CONSTRICTA**

(Alst. con.)

- Botanical name** : *Alstonia constricta* F. Muell. **Family**: Apocynaceae
- Common name** : *English*: Bitter bark.
- Description** : A tall shrub or small tree, upto 12 m in height. Leaves opposite on long petioles mostly oblong-lanceolate but varying from almost ovate to narrow-lanceolate, acute or acuminate, the primary veins distinct, oblique and not very prominent. Flowers numerous in corymbose cymes, either solitary and terminal or 2 together in the forks of the branches and shorter than the leaves. Calyx segments ovate, almost acute with a few minute and irregular glands on the inner side of the base. Corolla lobes glabrous or slightly hairy inside at the base, the right hand edges over lapping in the bud. Seed linear, flat or concave, pubescent, 8 to 12 mm long, ciliate with long hairs at the upper end and shorter ones at the lower.
- Part used** : Bark.
- Macroscopical** : The bark occurs in quills and curved pieces often of considerable size. The outer surface brown or yellowish-brown, strongly rugose with large, deeply fissured reticulations; internally cinnamon-brown and coarsely striated. The fracture short and granular in the outer layer and fibrous in the inner.
- Microscopical** : Transverse section exhibit an abundant dark brown periderm of thin yellowish brown layer; the secondary phloem, containing abundant fibres in tangentially arranged groups.
- Distribution** : Australia.
- History and authority** : Proved by Cathcart; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 65.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| <i>Alstonia Constricta</i> in <i>coarse powder</i> | 100 g  |
| Purified Water                                     | 400 ml |
| Strong Alcohol                                     | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ALTHEA OFFICINALIS**

(Alth. off.)

**Botanical name** : *Althea officinalis* Linn. **Family:** Malvaceae

**Common names** : *English:* Mash Mallow root, White Mallow; *French:* Racine de Guimauve; *German:* Eibsichwurz.

**Description** : A perennial herb with erect, woody stem, 6 to 12 cm in height. Leaves alternate, ovate to slightly cordate, occasionally 3 lobbed, serrate, velvety, pale. Flowers pinkish in axils; calyx surrounded by 6 to 9 cleft involucre. Fruit a set of cocci arranged in ring.

**Part used** : Root.

**Macroscopical** : Occurs as small more or less cubical shaped, greyish white pieces, about 5 mm in diameter (when cut) or nearly entire, externally whitish pale-yellow to pale-brown; longitudinally furrowed, spirally twisted and covered with somewhat loosened, hair liked bast fibres; internally yellowish white; bark 1 to 2 mm thick, porous and separated from wood by distinct cambium zone, odour slight; taste sweet and mucilaginous.

**Microscopical** : Transverse section shows a narrow bark and broad wood zone separated by a prominent cambium. Bark shows a little cortical parenchyma adhering here and there to the outside, the cells of which contain either ellipsoidal starch grains or rosette aggregates of calcium oxalate; large portion of bark consists of phloem patches separated by phloem rays; each patch showing alternate horizontally arranged layers of hard and soft bast. The former contains groups of thick walled, more or less lignified and angular bast fibres. The latter groups of sieves tubes, phloem cells with starchy contents or rosette crystal and mucilage cells; wood composed of numerous irregular shaped, radiating xylem masses, separated by wavy medullary rays. Most of the parenchyma contains ellipsoidal starch grains, others rosette crystals of calcium oxalate while many are modified as mucilage cells.

Powder: numerous fragments of parenchyma cells containing ellipsoidal starch grains or occasionally small rosette aggregates of calcium oxalate, numerous mucilage cells which are larger than parenchyma elements; lignified walls; fragments of bordered pored and scalariform tracheae and tracheids; starch grains with indistinct hilum and up to 30 µm in length; rosette aggregates of calcium oxalate few and up to 35 µm in diameter.



**Distribution** : Punjab and Kashmir.

**History and authority** : Boericke, W., *Mat. Med. with Reportory*, 1927, 93.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Althea officinalis in *coarse powder* 100 g  
Purified Water 200 ml  
Strong Alcohol 824 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**ALUMINIUM METALLICUM**

(Al. met.)

Al

At. wt.: 26.98

**Description** : A bright silver-grey, malleable, ductile metal or silvery grey powder, almost odourless, soluble in dilute *hydrochloric* and *sulphuric acid*. Soluble in *potassium* and *sodium hydroxide* solution, *nitric acid* and in *acetic acid*. Contains not less than 99.5% of Al. with reference to the substance dried to constant weight at 105°.

**Identification** : (1) Dissolve about 0.1 g in 5 ml dilute *hydrochloric acid* and add 1 ml of dilute *sodium sulphide* solution. A white precipitate appears which is soluble in excess of dilute *sodium sulphide* solution.

(2) Dissolve 0.1 g in dilute *hydrochloric acid*; add 5 drops of 0.1% w/v solution of *mordant blue*, an intense purple colour develops.

(3) A drop of the solution when placed on alizarin paper and held over *ammonia* yields violet colour.

**Iron** : 1 g complies with the *limit test for iron*, HPI, Vol. I.

**Arsenic** : Not more than 1 part per million, HPI, Vol. I.

**Assay** : Dissolve about 0.5 g accurately weighed by warming with a mixture of 7 ml of *sodium hydroxide* solution and 10 ml of *water*. Dilute to 500 ml with *water*. Transfer 25 ml of solution, 60 ml of *acetone*, 12 ml of a 5% w/v solution of *hydroxyquinoline* in 2 N *acetic acid* and 50 ml of 15% w/v *ammonium acetate* solution. Heat the beaker on a water bath for three hours and allow to cool. Collect the precipitate on a tared number 4 porosity sintered glass crucible, using *water* to aid the transfer, wash three times with 10 to 20 ml of *water*, dry for three hours at 135° to 140° and weigh. Each g of residue is equal to 0.05873 g of Al.

**History and authority** : *Homoeopathic Pharmacopoeia of United States*, 1964, 66.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Aluminium Metallicum in <i>fine powder</i>	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I, 9x and higher with *Dispensing Alcohol*.

**Storage** : Potencies below 4x should be stored in well-closed containers.

**Caution** : Lower potencies internally may be injurious.

## ALUMINA PHOSPHORICA

(Alu. ph.)



Mol. wt.: 121.95

- Common names** : *English*: Aluminium ortho phosphate; *French*: Phosphate d'aluminium; *German*: Aluminium phosphat.
- Description** : A white powder generally available in the form of gel; odourless; tasteless. Soluble in dilute mineral acids; insoluble in *water* and in *alcohol*. Contains not less than 80% of  $\text{AlPO}_4$  with reference to the substance dried to constant weight at 105°.
- Identification** : (i) A solution in dilute *hydrochloric acid* yields the reactions characteristic of *aluminium*.  
(ii) A solution in dilute *nitric acid* yields the reactions characteristic of *phosphate*, HPI, Vol. I.
- Reaction** : pH of a 4% w/v suspension in *carbon dioxide free water* should be 5.5 to 6.5.
- Arsenic** : Not more than 5 parts per million, HPI, Vol. I.
- Lead** : Not more than 60 parts per million, HPI, Vol. I.
- Chloride** : Dissolve 0.2 g in 10 ml of dilute *nitric acid*, boil, cool, dilute to 200 ml with water and filter; 25 ml of the filtrate complies with the *limit test of chloride*, HPI, Vol. I.
- Sulphate** : Dissolve 1 g in 10 ml of dilute *hydrochloric acid*, boil, cool, dilute to 160 ml with *water* and filter; 10 ml of the filtrate, on addition of 2 ml of dilute *hydrochloric acid* complies with the *limit test of sulphates*, HPI, Vol. I.
- Assay** : Dissolve about 0.8 g accurately weighed in 100 ml of dilute *hydrochloric acid*. To 10 ml add 25 ml of 0.05 M *disodium edetate* and add strong *ammonia solution* drop wise until the solution is just alkaline to *litmus* paper. Boil gently for five minutes, cool and add 10 ml of a solution prepared by dissolving 7.7 g of *ammonium acetate* in 50 ml of *water*, 6 ml of *glacial acetic acid* and sufficient *water* to produce 100 ml. Adjust the pH to 4.5 with *glacial acetic acid* and 2 ml of a 0.025% w/v solution of *dithizone in alcohol*.  
  
Add sufficient *alcohol* to double the volume of the solution and titrate with 0.5 M *zinc chloride* until the colour changes to red. Each ml of 0.05 M *disodium edetate* is equivalent to 0.006098 g of  $\text{AlPO}_4$ .

**History and authority** : Introduced by Kent, J. T., *New Remedies*, 1963, 2.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Alumina Phosphorica 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : Preparations below 6x should be kept in well-closed container in a cool place.

**AMMI VISNAGA**

(Ammi. vis.)

- Botanical name** : *Ammi visnaga* Lam. **Family**: Apiaceae (Umbelliferae)
- Synonym** : *A. dilatatum* St. Lag; *Daucus visnaga* Linn.
- Common names** : *English*: Visnaga, Khelle, Khilla.
- Description** : A herbaceous annual plant, 1.0 to 1.5 m high. Leaves ovate in outline, fan-shaped, tripinnatisect into linear, divaricate lobes. Inflorescence compound umbel, dense, having numerous rays, arising from a dilated disc, 4 to 6 cm long, stiff, spreading in flowers. Bracts of the involucre long, filiform tripartite, at length deflexed. Flowers small, white; carpels with 5 filiform, equal ribs. Carpophore free, 2-parted. Fruit cremocarp, laterally compressed, ovate, with thick ribs, 1.5 to 2 cm long pedicel. Flowers from March to April.
- Part used** : Fruit.
- Macroscopical** : Each mericarp about 0.8 to 1.2 mm wide, 0.8 to 1.0 mm thick and 2.0 to 2.5 mm long and surrounded by a pyramidal stylopod bearing at its apex about 0.5 mm long reflexed styles. Mericarp plano-convex and ovoid-lanceolate in transverse section, greenish brown and glabrous, with 5 yellowish primary ridges between which are present 4 inconspicuous, brown, secondary ridges.
- Microscopical** : Mericarp in transverse section is a regular pentagon in outline with seed ortho-spermous. Each mericarp has 5 vascular strands and 6 vittae. On the outside of each vittae, a group of radiating club shaped cells are present which cause a slight secondary ridge.
- Distribution** : India to Egypt, specially found in Fayoum and in Mediterranean. Cultivated widely in South America.
- History and authority** : *German Homoeopathic Pharmacopoeia*, Deutscher, Apotheker Verlag Stutt-gart, Govi-Verlag GmbH, Frankfurt, 1985, 147.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                      |        |
|--------------------------------------|--------|
| Ammi Visnaga in <i>coarse powder</i> | 100 g  |
| Purified Water                       | 400 ml |
| Strong Alcohol                       | 640 ml |
- to make one thousand milliliters of Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## AMMONIACUM GUMMI

(Amon. gum.)

**Common names** : *English*: Gum ammoniac; *French*: Bommeammonique; *German*: Ammonike.

**Description** : A gum-resin obtained from the stem of *Dorema ammoniacum* D. Don. and other allied species of family Apiaceae (Umbelliferae). Irregular rounded tears, yellowish or brownish outside and whitish within, brittle when cold, but soft when warm; also masses, darker in colour and less homogenous; odour characteristic; taste, slightly bitter, somewhat acrid. Partly soluble in *water, alcohol, ether, dilute acetic acid* and *alkali solution*; forms emulsion with *water*.

**Identification** : (i) Dissolve about 0.1 g in 5 ml *alcohol* and add a few drops of *ferric chloride solution*; a violet brown colour develops.

(ii) Dissolve about 0.1 g in 5 ml *water*; filter, add a few drops of *Molisch's reagent* and add *sulphuric acid* along the walls of test tube; a violet ring develops at the junction of two liquids.

**History and authority** : Proved by Buchner; Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1874, I, 249.

**Preparation** : (a) Trituration 1X Drug strength 1/10

Ammoniacum Gummi	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I 6x may be converted to liquid 8x, HPI, Vol. I.



## AMMONIUM NITRICUM

(Amm. n.)

NH<sub>4</sub>NO<sub>3</sub>

Mol. wt.: 80.04

- Common name** : *English*: Ammonium nitrate.
- Description** : Colourless crystals or crystalline powder; odourless. Hygroscopic; soluble in *alcohol*. Freely soluble in *water*. Contains not less than 99.5% of NH<sub>4</sub>NO<sub>3</sub> calculated with reference to the substance dried to constant weight at 105°.
- Identification** : Yields the reactions characteristic of *ammonium* salts, HPI, Vol. I, and of nitrates, HPI, Vol. I.
- Reaction** : pH of 5% w/v solution is not less than 4.6.
- Sulphated ash** : Not more than 0.05%.
- Arsenic** : Not more than 1 part per million.
- Heavy metals** : Not more than 5 part per million.
- Iron** : 10 g complies with the *limit test for iron*, HPI, Vol. I, .
- Sulphate** : 10 g complies with the *limit tests for sulphates*, HPI, Vol. I.
- Chloride** : Dissolve 5 g in 50 ml of *water* and add 1 ml of dilute *nitric acid*. Add 1 ml of strong *silver nitrate* solution; no turbidity is appeared.
- Assay** : Dissolve about 3.0 g accurately weighed in 50 ml of *water* in a 500 ml flask, add 50 ml of 1 N *sodium hydroxide*. Place a funnel on the flask and boil for 10 to 15 minutes to expel all the *ammonia*. Cool and titrate the excess alkali with 1 N *sulphuric acid* using *thymol blue* as indicator. Each ml of 1 N *sodium hydroxide* is equivalent to 0.8004g of NH<sub>4</sub>NO<sub>3</sub>.
- History and authority** : Introduced by Wibmer; Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 305.
- Preparation** : (a) Trituration 2x Drug strength 1/100
- |                   |       |
|-------------------|-------|
| Ammonium Nitricum | 10 g  |
| Saccharum Lactis  | 900 g |
- to make one thousand grammes of the Trituration.

- (b) Potencies: 3x and higher to be triturated accordance with the method, HPI, Vol. I, 6x be converted to liquid 8x, HPI, Vol. I.









Original Monograph Appeared in HPI Vol. I

Revised Monograph Appeared in HPI Vol. X

**APOCYNUM CANNABINUM**

(Apoc. can.)

- Botanical name** : *Apocynum cannabinum* Linn. **Family:** Apocynaceae
- Synonyms** : *Apocynum hypericifolium* Ait.; *A. sibiricum* Jacq.; *A. pubescens* R.Br.
- Common names** : *English:* Indian hemp; *French:* Chanvredu canaded; *German:* Canadische harfwurzel.
- Description** : A perennial herb, stem erect, glabrous or downy pubescent, upto 1.25 m in height, having opposite or sub-opposite branches; root creeping, rarely branched, longitudinally wrinkled, greyish-brown externally. Leaves pale-green, short petioled on the main stem and nearly sessile on the branches, varying from nearly oval to oblong and sometimes lanceolate. Flowers greenish-white, bell-shaped and appear from June to September in terminal and lateral cymes. Fruit a pair of follicles, 12.5 cm long, slender and pendulous.
- Part used** : Rhizomes and roots.
- Macroscopical** : The drug occurs as cylindrical, sometimes branched segments of rhizomes and roots of varying length upto 1.5 cm in diameter; rhizome vertical, gemmiferous; root horizontal, externally reddish-brown to brownish, longitudinally wrinkled, transversely fissured; odour indistinct; taste bitter and acrid.
- Microscopical** : Transection shows cork of 4 to 8 layers of tangentially elongated cells, a few stone cells present below cork. Cortex parenchymatous, cells packed with starch grains, numerous resin ducts and a few latex cells. Phloem narrow made up of phloem parenchyma, sieve tubes, resin ducts and uniseriate medullary rays; cambium 2 or 3 layered; xylem a broad zone containing wood parenchyma, large vessels and tracheids; pith small, parenchymatous.
- Distribution** : Common in U.S.A. and Canada.
- History and authority** : Proved by Freitag, Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, I, 426; Hering, C., *Guiding Symptoms*, 1879, I, 488.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                     |        |
|---------------------|--------|
| Apocynum Cannabinum | 100 g  |
| Purified Water      | 400 ml |
| Strong Alcohol      | 635 ml |
- to make one thousand milliliters of the Mother Tinctures.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**ARECA CATECHU**

(Areca c.)

- Botanical name** : *Areca catechu* Linn. **Family**: Palmae (Arecaceae)
- Common names** : *Hindi*: Supari; *English*: Betel Nut Palm; *French*: Noix d arec; *German*: Arekanusse, Betelnuse.
- Description** : A tall, slender palm with a smooth whitish stem reaching a height of 12 to 30 m. The trunk is about 50 cm in diameter and surrounded by a crown of pinnate leaves, 1.2 to 1.8 m in length in which upper pinnate are confluent. The lower portion of the petiole is expanded into a broad tough, sheath-like structure. The inflorescence is a spadix encased in a spathe and comprises a much branched rachis which bears both male and female flowers. The former are small and numerous, while the later are much larger. Male flowers are numerous, sessile, stamens 6, sagittate. Female flowers solitary or 2 or 3 together at or near the base of each branch of the spadix; sepals 3; staminodes 6, connate; stigmas 3, short, triangular. The pericarp (65%) is hard and fibrous and kernel (seed, 35%), is about 2.5 to 3.8 cm in diameter and greyish brown in colour.
- Part used** : Seed (Nut).
- Macroscopical** : Seed rounded, conical, externally weak reddish-brown to light yellowish-brown with a network of paler lines. The adhering portions of silvery brittle endocarp and fibres of the mesocarp are usually found at the base of the seed. Seed hard, about 17 to 27 mm long and 22 to 30 mm wide; the cut surface exhibiting a marbled appearance of a brownish tissue of seed coat, alternating with whitish tissue of ruminant endosperm. Odour not characteristic; taste astringent, bitter.
- Microscopical** : Diagnostic characters are: cells of endosperm with thick, colourless, cellulosic wall perforated by large, circular, simple pits and containing small amounts of protein and oil; the sclerenchymatous cells of ruminations which have thin pitted walls and dark reddish-brown contents; the thick-walled fibrous cells from the funicle.
- Powder: light reddish-brown to light brown in colour; odour slight; taste astringent, slightly bitter; consists principally of fragments of the endosperm tissue with porous reserve-cellulose walls; irregularly thickened stone cells of the seed coat, a few aleurone grains upto 40  $\mu$  in diameter, a few oil globules and a few tracheids; starch absent.

**Distribution** : The native of Malaysia, cultivated along the west coast, coastal regions of southern Bombay, Madras, Mysore, Kerala, Bengal and Assam. Thrives in areas upto 1000 m.

**History and authority** : Mentioned in *Homoeopathic Materia Medica* by William Boericke, 1927, 70.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Areca Catechu 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, 13, H.P.I. Vol. I; 6x may be converted to liquid 8x.

Original Monograph Appeared in HPI Vol. III

**ARISTOLOCHIA SERPENTARIA**

(Arist. s.)

- Botanical name** : *Aristolochia serpentaria* Linn. **Family**: Aristolochiaceae
- Common names** : *English*: Virginia Snakeroot; *French*: Serpent taire de virginie; *German*: Virginische Schlangenwurzel.
- Description** : A small perennial herb, with short horizontal rhizome, bearing long slender rootlets below, branched at the base, jointed, flexuous, cylindrical, fine with a reddish tinge, upto 60 cm high, erect, thinly pubescent. Leaves thin variable in shape from ovate to oblong or nearly linear, acuminate, truncate, at base straight, hastate or commonly cordate with rounded auricles and sinuses, 6 to 12 cm long, lower leaves represented by scales only. Flowers appear close to ground, have a stiff feathery texture and dull brownish-purple colour with many bracts. Calyx tube smooth, contracted in the middle, bent in the form of letter ‘S’. Root has a penetrating odour, somewhat like valerian and bitter pungent taste.
- Part used** : Rhizome.
- Microscopical** : Transverse section circular or oval in outline; epidermis single layered; cortex 6 to 9 layered, thin walled, parenchymatous containing starch grains. A narrow inner bark interrupted by a ring of sclerenchyma fibres; vascular bundles in a ring, xylem porous with wood edges separated by parenchymatous, multicerate medullary rays, upto about 8 cells wide. Pith parenchymatous containing starch grains.
- Distribution** : Indigenous to USA.
- History and authority** : Proved by Jorg in 1825; Allen, T.F, *Encyclop. of Pure. Mat. Med.*, 1877, **8**, 659; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 168.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Aristolochia Serpentaria* in *coarse powder* 100 g  
Purified Water 300 ml  
Strong Alcohol 635 ml  
to make one thousand millilitres of the Mother Tincture
- (b) Potencies: 2x to contain one part Mother Tincture, 3 parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ASCLEPIAS TUBEROSA**

(Ascl. tub.)

- Botanical name** : *Asclepias tuberosa* Linn. **Family:** Asclepiadaceae
- Common names** : *English:* Pleurisy Root; *French:* Racine d' asclepiade tubereuse; *German:* Knollige Schwalbenwurz.
- Description** : A perennial herb with erect, hirsute stem, frequently branched at the top. Leaves alternates, sessile or short petiolate, lanceolate or oblong-lanceolate with acute or obtuse apex and rounded on cordate base. Inflorescence terminal cymes, umbel, the peduncles of which are shorter than the leaves. Calyx small and 5-parted, corolla deeply 5 parted, the segments greenish orange; corona of 5-erect, oblong orange hoods, each bearing a filiform horn; stamens with filaments united to form a tube and winged anthers; stigma flat, 5 lobed. Fruits fine hairy, 2-follicles, each containing numerous seeds.
- Part used** : Root.
- Macroscopical** : Fusiform, upto 25 cm in length and 5 cm in diameter or as transverse segments or longitudinal slices of variable lengths; externally orange brown or greyish brown, longitudinally furrowed, annulate in upper region, the crown with short, hollow stem bases and circular or elliptical scars; fracture of thicker parts, tough and uneven; thinner parts short; inner surface whitish and showing many cavities. Odour indistinct; taste starchy, bitter and acrid.
- Microscopical** : Transection shows, cork of tangentially-elongated and slightly lignified cells. Phellogen, of thin-walled meristematic cells. Secondary cortex, a broad zone of parenchyma cells, some of which contain starch grains, others rosette aggregates of calcium oxalate. The outer region of this zone occurs as a closed band of stone cells, each of which has a thick, lignified wall and branching pores. Phloem, of narrow patches separated by wide phloem rays. Cambium, of more or less collapsed meristematic cells. Xylem, a broad zone of xylem patches composed mostly of starch and crystal-containing wood parenchyma and wood fibres, scattered amongst which are a few broad porous and scalariform tracheids. Separating xylem patches from each other are broad xylem rays, the cells of which are thin-walled and contain starch. Scrappings of the fractured surface of the drug when mounted in water, show that the starch grains are simple or 2 to many compound, the individual grains being spheroidal, polyhedral or plano-convex, with central hilum, up to 15  $\mu$  in diameter. The calcium oxalate crystals are present in the form of rosettes up to 50  $\mu$  in diameter.

**Distribution** : United States of America.

**History and authority** : Proved and introduced by M.A. Savory in 1856; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 591; Hering, C., *Guiding Symptoms*, 1879, **2**, 218; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 210.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Asclepias Tuberosa in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 635 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## ASPARAGUS OFFICINALIS

(Asp. off.)

- Botanical name** : *Asparagus officinalis* Linn. **Family**: Liliaceae
- Common names** : *English*: Asparagus; *French*: Asperge; *German*: Spargel.
- Description** : A perennial deciduous herb, up to 2 m in height. Stem erect, unarmed, terete, branching, ultimate branches filiform, 8 to 15 mm long, cladodes 3 to 8 in a fascicle, 0.6 to 2.54 cm long, terete; leaf scales with a short soft spur at base. Pedicels of flowers solitary or paired, lateral, 5 to 10 mm long, jointed in the middle. Flowers greenish-white. 1 to 4 in axils of cladodes or branches, companulate, 3 to 5 mm long. Fruit a berry, red, spherical about 8 mm thick.
- Part used** : Young shoots.
- Macroscopical** : The drug consists of smooth, round stem parts, more often containing 3 to 8 cladodes in fascicle, leaf scale with a short soft spur at base; greenish white axillary flowers, varying from 1 to 4; globular red berries.
- Identification** : Evaporate 60% alcoholic extract on a water-bath to remove alcohol. Extract with *chloroform*, separate the two layers and carry out TLC as follows:
- (i) Carry out TLC of *chloroform* extract on silica gel 'G' using *chloroform* as mobile phase. Four spots appear at  $R_f$  0.05, 0.12, 0.30 and 0.35 (all blue fluorescence) in UV light. On spraying with *antimony trichloride* and heating, an additional spot appears at  $R_f$  0.20.
  - (ii) Carry out TLC of the aqueous extract on *silica gel* 'G' using *n-butanol* : *acetic acid* : *water* (4 : 1 : 1 v/v) as mobile phase. On spraying with *ninhydrin reagent* and heating at 110°C, two violet spots appear at  $R_f$  0.21 and 0.54.
  - (iii) Carry out paper chromatography of aqueous extract on Whatman paper using *butanol* : *acetic acid* : *water* (4:1:1 v/v) as mobile phase. On spraying with *ninhydrin reagent* and on heating at 110°C, two spots appear at  $R_f$  0.14 and 0.25 (violet).
- Distribution** : Cultivated in India.

**History and authority** : Introduced and proved by Dr. Buchner in 1840; Hygea XII, 426; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 599; Hering, C., *Guiding Symptoms*, 1879, **1**, 231.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Asparagus Officinalis in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 635 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ATISTA INDICA**

(Atis. ind.)

**Botanical name** : *Glycosmis pentaphylla* (Retz.) Corroa. **Family:** Rutaceae

**Common names** : *Hindi:* Ban-Nimbu, Ashura.

**Description** : A small, odorous, evergreen, glabrous, shrub. Leaves 3 to 5-foliolate, rarely 1-foliolate, dark green. Flower small, white, fragrant; in erect, terminal or lateral pubescent panicle; ovary glabrous, covered with projecting glands, usually 5-celled; style very short and stout. Fruit a berry 8 mm across, subglobose or somewhat compressed, white pink or blue.

**Part used** : Mature leaf.

**Macroscopical** : Leaves 3 to 5 foliolate, rarely 1-foliolate; the rachis terete, tomentose, stout, up to 18 cm long. Leaflets alternate or sub opposite, 7.5 to 18 cm by 3.8 to 9 cm elliptic rhomboid or ovate, acuminate or acute, base cuneate usually acute and oblique, margin entire rarely obscurely toothed, glandular specially on the margin, pellucid-punctate, thin coriaceous aromatic when crushed.

**Microscopical** : Transection shows upper and lower cuticularised, papillose epidermis, mesophyll differentiated into single layer of palisade and spongy parenchyma; stele triangular in shape encircled by the sclerenchymateous sheath, secretory ducts present both in mesophyll and phloem.

Petiole: Transection shows uppermost papillose, cuticularised epidermis, followed by a wide zone of thin walled parenchymatous tissue containing secretory ducts just below the epidermis, stele encircled by a sclerenchymatous sheath. Xylem contains conjunctive tissue while phloem contains secretory ducts; pith parenchymatous.

**Distribution** : Tropical and subtropical Himalayas, Assam, Orissa and South India.

**History and authority** : Bhattacharya, M., *Homoeopathic pharmacopoeia*, 1927, 107.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Atista Indica, moist magma containing  
solids 100 g and plant moisture 110 ml 210 g

Strong Alcohol 925 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x with *Strong Alcohol*, 3x and higher with *Dispensing Alcohol*.



## AURUM SULPHURATUM

(Aur. sul.)



Mol. wt.: 490.20

- Common names** : *English*: Gold trisulphide; *French*: Sulfure dlor; *German*: Aure Sulphate.
- Description** : Blackish brown powder; odourless; tasteless; soluble in *ammonium* and *potassium sulphides*; insoluble in *alcohol* and *water*. Freshly prepared and unheated gold trisulphide is yellow. It is sensitive to light and decomposes at 200°. Contains not less than 79% of Au, with reference to the substance dried to constant weight at 105°.
- Identification** : Dissolve 10 mg in 5 ml of *sodium sulphide* solution, divide into two parts.
- (1) To one drop of the solution in a micro-test-tube add one drop of 1% *mercuric chloride* solution and one drop of 10% *stannus chloride* solution after 5 minutes centrifuge the suspension and pour off clear solution. Wash the residue several times with dilute *hydrochloric acid*. After decanting and pipetting the last wash-liquid of the test tube, initially warm and then heat strongly to dispel off mercury, After cooling, run down two drops of *bromine-hydrochloric acid* (equal volumes of *bromine*, *water* and *hydrochloric acid*) from the side of the tube by means of the fine pipette. Add one drop of *hydrochloric acid* and one drop of aqueous *rhodamine* solution. Shake the mixture with 6 to 8 drops of *benzene*, the *benzene* layer turns red violet to pink.
- (2) To another drop of the solution on a filter paper add one drop of *benzidine* solution in *acetic acid*; a blue colour is produced.
- Insoluble matter** : Weigh about 0.5g and suspend in 10 ml of *water*, warm and filter. Evaporate the filtrate on a water bath. The residue weighs not more than 0.5 mg.
- Ether soluble impurities** : Weigh about 1g and shake with three successive quantities of 20 ml of *ether*. Decant each time in tared vessel. Evaporate; the residue weighs not more than 1 mg.

**Assay** : Weigh accurately about 0.2g into a conical flask containing 50 ml of *water* and 5 ml of concentrate *hydrochloric acid* and heat the solution to boiling; add 25 ml of 5% aqueous *hydroquinone* solution. (3 ml for every 25 mg of Au) and boil for 30 minutes. Allow to cool and filter through whatman filter paper No. 42. Wash thoroughly with hot *water*. The small particles of gold remaining in the bottom of the beaker (easily Visible with a small flash lamp) are best removed with pieces of ashless filter paper; burn the filter paper in silica crucible and ignite upto a constant weight and weigh, each g is equivalent to 1.241g of  $Au_2S_3$ .

**History and authority** : Introduced by Molin; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, 2, 23.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Aurum Sulfuratum in *Coarse powder* 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I; may be converted to liquid 8x, HPI, Vol. I.

**Storage** : Keep in a well-closed container, protected from light.

**BACILLUS NO. 7**

(Bacil. 7)

**Microbiological name** : *Citrobacter freundii* Werkmen and Gillen 19.

**Synonym** : *Eschrechia freundii*.

**History and authority** : O.A. Julian, *Treatise on dynamised micro immunotherapy* Part-II, 1985, 388.

**Biological distribution** : It is found in soil and water and in the faeces and urine of human.

**Source for preparation:** It is isolated from the faeces of human.  
**of Homoeopathic Drug**

**Morphology** : Form-short, plump rods, sometimes coccus like, cell grouping occurs singly in pairs or in short chains. It is 0.5  $\mu$  in size. It stains well with aniline dye gram negative, motile with peritrichous flagella. Non sporing and non encapsulated.

**Cultural characteristic:** Eosin methylene blue agar-moist circular colonies about 2 to 3 mm in diameter after 24 hours incubation at 37°C. These colonies have dark centers when examined by transmitted light.

**Mac conkeys agar** : They appear as mucoid red colonies 3 mm in diameter.

**Wilson and Blair medium** : No growth because of presence of brilliant green broth. It is able to grow on mullers tetrathionate broth, sodium desoxy cholate citrate agar, Wilson and Blairs bismuth sulfite medium kristensens brilliant green phenol red agar all of which inhibit or retard the growth of *E. coli*.

**Resistance and meta-bolism** : It is aerobic and facultative anaerobe. Optimum temp. for growth is 37°. It is killed at 60° in about 15 to 30 minutes. Growth not inhibited by KCN.

**Biochemical** : It can use citrate as sole carbon source. Trimethylene glycol formed glycerol. Ferments mannitol usually with gas production. May or may not ferment lactose but nearly always form B galactosides. H<sub>2</sub>S produced, indole methyl red test positive and Proskouer test negative.

- Preparation** : (a) Under Nosode groups No. II suspension consisting of  $20 \times 10^{10}$  bacteria/ml is obtained. Proceed according to general instruction for preparation of nosode group II to obtain 1x.
- (b) Trituration 2x Drug strength 1/10  
 Bacillus No. 7 10 ml  
 Saccharum Lactis 900 g  
 to make one thousand grammes of the Trituration.
- (c) Potencies: 3x and higher to be triturated in accordance with the method, HPI Vol. I, 6x may be converted to liquid 8x, HPI Vol. I.
- Storage** : Preparation below 6x should be stored about 0° to 5° and not to be allowed to freeze.
- Caution** : (a) Not to be dispensed below 6x.
- (b) 6x should be free from live bacteria and should pass the test for sterility as mentioned in Drugs Act.

**BAPTISIA CONFUSA**

(Bapt. con.)

**Botanical name** : *Baptisia australis* (L.) R. Br.      **Family:** Fabaceae (Leguminosae)

**Synonyms** : *Baptisia confusa* Sweet ex G. Don.; *B. caerulea* Eaton & Wright;  
*B. exaltata* Sweet.

**Common name** : *English:* Blue false indigo.

**Description** : Perennial herb, spreading up to 1.5 m, much branched, forming huge clumps, glabrous. Leaf petiolate, petiole up to 18 mm long, compound, 3-foliolate, leaflets up to 5 cm long, oblanceolate to ovate, entire, obtuse. Inflorescence loosely flowered, long terminal raceme, up to 40 cm. Bracts early caducous. Pedicel 5 to 15 mm long. Calyx 8 to 10 mm long, typical bilabiate, upper lip entire or slightly notched, lobes of lower lip ovate or triangular. Fruit a pod, 3 to 6 cm long.

**Part used** : Whole plant.

**Microscopical** : Petiole: kidney-shaped in transverse section; epidermis single-layered of barrel-shaped cells with thick cuticle; vascular bundle arc-shaped, centrally placed, capped by isolated patches of lamellated-fibres above phloem; ground tissue parenchymatous.

Leaflets: dorsiventral, show the mesophyll differentiated into two layers of palisade and loosely arranged spongy parenchyma; traces of vascular tracheary elements with spiral thickenings; upper and lower epidermis single layered; anomocytic and anisocytic stomata with sub-stomatal chambers. Midrib much pronounced on the lower side, epidermis single-layered with thick cuticle; centrally located slightly arc-shaped vascular bundle capped above phloem by patches of lamellated fibres; ground tissue parenchymatous.

Stem: circular in transverse section, epidermis single-layered with thick cuticle, cortex parenchymatous; pericycle is represented by striated fibre patches; vascular bundle is a solid column of xylem and phloem; medullary rays usually uniseriate, occasionally biseriate; pith broad parenchymatous; few cells of pith and medullary rays have prominent pits.

**Distribution** : Native of U.S.A.

**History and authority** : Introduced by Meredith, J., *Hom. World* (xxxii, 267); Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 242.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Baptisia Confusa in <i>coarse powder</i> | 100 g  |
| Purified Water                           | 433 ml |
| Strong Alcohol                           | 700 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**BARIUM SULPHURATUM**

(Bar. sul.)

BaSO<sub>4</sub>

**Mol. wt.:** 233.43

**Common names** : *English:* Barium sulphate; *French:* Burilsulphas; *German:* Darteyevoess.

**Description** : Fine, white, heavy powder, free from grittiness. Odourless; tasteless; soluble in hot *sulphuric acid*; practically insoluble in *water*. Contains not less than 97.5 percent and not more than 100.5 percent of BaSO<sub>4</sub>, with reference to the substance dried to constant weight at 105°.

**Identification** : (i) Fuse 0.5 g with 4 g (anhydrous *sodium carbonate* and *anhydrous potassium carbonate*, 1:1) of the fusion mixture, treat the resulting fused mass with hot *water* and filter; the filtrate acidified with *hydrochloric acid* responds to the tests for sulphates.

(ii) Dissolve a portion of the well-washed residue from test (i) in *acetic acid*; the solution responds to the tests for *barium*.

**Acidity or alkalinity** : Digest 1 g with 20 ml of *water* for 5 minutes; the *water* remains neutral to *litmus*.

**Loss on ignition** : Loses not more than 2.0 percent of its weight.

**Organic matters** : Heat 1g in a dry test tube; no white fumes appear and no appreciable darkening is produced.

**Phosphate** : Boil 1g with a mixture of 3 ml *nitric acid* and 5 ml *water* for 5 minutes and add *water* to restore the original volume. Filter and warm, add to the warm filtrate an equal volume of *ammonium molybdate*; no yellow precipitate is formed.

**Sulphide** : Boil 1g with mixture of 10 ml dilute *hydrochloric acid* and 90 ml *water* for 10 minutes in a 250 ml conical flask and expose *lead acetate paper* to the escaping vapours; the paper does not darken.

**Arsenic** : 2g complies with the *limit test for arsenic*.

**Assay** : Weigh accurately about 0.6 g in a tared platinum crucible; add 10g of *fusion mixture*. Fuse until a clear melt is obtained and heat for additional 30 minutes. Cool, transfer fused mass to beaker; add 250 ml of *water* and heat to dissolve the melt. Cool the beaker in an icebath until the precipitate settles, decant the clear liquid, filter and wash the residue with about 10 ml of *dilute hydrochloric acid*, 10 ml *ammonium acetate solution* 25 ml *potassium dichromate solution* and 10 g *urea* at 80° for 16 hours. Filter through a sintered glass crucible. Wash the precipitate with *potassium dichromate solution* and finally with about 20 ml *water*. Dry at 105° for 2 hours. Cool and weigh. Each g of precipitate so obtained is equivalent to 0.9213 g of BaSO<sub>4</sub>.

**History and authority** : Introduced by Kent, *New Remedies* (Indian Edition, 1963), 45.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Barium Sulphuratum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method. HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : To be kept in well-closed container.



**BAROSMA CRENATA**

(Bar. cren.)

- Botanical name** : *Barosma crenulata* (Linn.) Hook. **Family:** Rutaceae
- Synonym** : *Agathosma crenulata* Linn.
- Common names** : *English:* Oval Buchu; *French:* Feuilles de Bucco; *German:* Bukublater.
- Description** : Small shrub with slender stem which shows leaf scars in opposite and decussate pairs, internodes being about somewhat tough on the surface owing to the presence of oil glands. Flower pentamerous, about 12 mm across, petal lobe white or pinkish, narrow, acute, lanceolate. Fruit a capsule, 5-valved about 7 mm long and 10 mm wide at the apex when dehisced, with surface greenish-brown and rough due to presence of oil glands; single seed in each locule; seeds hard, smooth, oblong-ovoid, shining black, non-endospermic.
- Part used** : Leaf.
- Macroscopical** : Leaf oval-oblong, margin serrate, apex blunt but not-recurved; petiole rigid and brittle when dry but cartilaginous when moist; surface glabrous or nearly so. Lamina punctate owing to presence of the oil glands. Also at the base of each dentation and at the apex of the lamina marginal glands are present and at the apex of the lamina. Odour strong aromatic somewhat peppermint like and with similar taste.
- Microscopical** : Leaf shows upper epidermal cells half filled with mucilage and lack in stomata. Lower epidermis shows anomocytic and a patch of modified thin walled cells on each oil gland.
- Distribution** : South Africa.
- History and authority** : Boericke, W., *Homoeopathic Materia Medica with Reportory*, 1927, 125.
- Preparation** : (1) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Barosma Crenata in moderately <i>coarse powder</i> | 100 g  |
| Purified Water                                     | 200 ml |
| Strong Alcohol                                     | 824 ml |
- to make one thousand millilitres of the Mother Tincture.
- (2) Potencies: 2x and higher with *Dispensing Alcohol*.

**BAROSMA SERRATIFOLIA**

(Bar. ser.)

- Botanical name** : *Barosma serratifolia* (Curtie) Willd. **Family:** Rutaceae
- Common names** : *English:* Long Buchu, Buku; *German:* Gesagtblatteriger Buccostrauch.
- Description** : A low shrub with slender stem, about 2 mm in diameter, showing the leaf scars in opposite and decussate pairs, internodes about 8.20 mm long marked by 4 longitudinal ridges, brownish-red and somewhat rough on the surface owing to presence of oil glands. Leaves opposite, linear-lanceolate, 3-nerved, with rounded or truncate apex and acute base. Flowers pentamerous, about 12 mm across the corolla which has white or pinkish, narrow acute lanceolate lobes. Fruit is a capsule, 5-valved, about 7 mm long and 10 mm wide at the apex when dehisced, surface greenish-brown and rough due to presence of oil glands with a single seed in each locule. Seed hard, smooth, oblong ovoid, shining black and non-endospermic.
- Part used** : Leaves.
- Macroscopical** : Leaves linear-lanceolate; with rounded or truncate apex and acute base, 8 to 40 mm × 4 to 10 mm, coriaceous, upper surface dark green to yellowish-green, papillose, lower surface greyish-green to yellowish-green, papillose; margin serrulate with an oil gland at the base of each tooth. Odour aromatic mint-like; taste pungent camphoraceous.
- Microscopical** : Transection of the leaf shows the following, diagnostic characteristics: upper epidermis devoid of stomata but with a thick uneven and striate cuticle and with cells containing spherocrystals or crystal aggregates of hesperidin. The inner walls of these cells are composed of mucilaginous modification of cellulose, which breaks down into mucilage, when its dry; cut transection are mounted in water, causing separation of the epidermis from the underlying layer of hypodermal cells with resultant elongated rent in the section. Hypodermis of subepidermal layer of larger cells containing mucilage and often dark feather-like crystal aggregates. Palisade parenchyma of a single row of columnar cells rich in chloroplast, a few containing rosette aggregates of calcium oxalate. Spongy parenchyma of loosely arranged mesophyll cells and air spaces, the cells mostly containing chloroplast, a few rosette aggregates of calcium oxalate. Fibrovascular bundles of the open collateral type. In the mid-rib and larger vein regions they are

arranged in crescent shaped groups, separated from the lower epidermis by collenchyma. Lower epidermis thick outside with numerous broadly oval anomocytic stomata. The lower epidermal cells are polygonal in surface view and contain spherocrystals of hesperidin. A few unicellular non-lignified, non-glandular hairs occur on petiole and stem epidermis. Spherical-shaped internal glands containing oil globules occur in the mesophyll, mostly near the margins of the leaf. Palisade ratio is never less than 8.

**Distribution** : South Africa.

**History and authority** : It is one of the official drugs of *Homoeopathic Pharmacopoeia of United States*.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Barosma Serratifolia in moderately <i>coarse powder</i>	100 g
Purified Water	200 ml
Strong Alcohol	824 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

## BENZOINUM

(Benzoin.)

- Common names** : *English*: Gum benjamin; *French*: Benjoin; *German*: Benizoe.
- Description** : Hard, brittle masses consisting of whitish tears embedded in a greyish-brown translucent matrix, also occurring in the form of tears with cream coloured surface. When broken, exhibits surface having milky-white colour. Odour agreeable and balsamic; taste slightly acrid. It is resin obtained from the incised stem of *Styrax benzoin* Dryand, *Styrax paralleloneurus* and of *S. tonkinensis* Crarb (Family: Styracaceae). Contains not less than 25% of total *balsamic acids*, calculated as *cinnamic acid*, with reference to the dried material.
- Identification** : (1) Heat 0.5 g gently in a dry test tube, it melts and gives irritating whitish fumes, which condense to form a white crystalline sublimate.
- (2) Warm gently about 1 g in powder with 5 ml of *potassium permanganate* solution in a test tube, a distinct odour of benzaldehyde is produced.
- (3) Triturates 0.1 g in powder with 5 ml of alcohol (95%) filter and to the filtrate add 0.5 ml of a 5% of *ferric chloride* solution in *alcohol* (95%); no bright green colour is produced.
- Benzoic acid** : To 1 g add 15 ml of warm *carbon disulphide*. Filter through a small pledget of cotton, wash the cotton with an additional 5 ml of *carbon disulphide* and allow the filtrate to evaporate spontaneously, the weight of the residue is not less than 6% (sumatra benzoin) of the weight of benzoin taken. This residue yields the reactions characteristic of *benzoates*, HPI, Vol. I.
- Ash** : Not more than 2%.
- Loss on drying** : Losses not more than 10% of weight when coarsely powdered dried to constant weight on phosphorus pentaoxide.
- Alcohol (90 %) insoluble matter** : Not more than 20% when determined by the following methods. Weigh accurately about 2 g into a sintered glass crucible, macerate and wash with hot *alcohol* (90%) until all the soluble matter is extracted. Dry the residue to constant weight at 100°.

**Assay** : Boil about 2.0 g accurately weighed with 25 ml of 0.5 N *alcoholic potassium hydroxide solution* under a reflux condenser for one hour, remove the *alcohol* and digest the residue with 50 ml of hot *water* until uniformly diffused. Cool the liquid and add 150 ml of *water* and 2.5 g of *magnesium sulphate*, dissolved in 50 ml of *water*, mix thoroughly and set aside for 10 minutes. Filter the liquid through a suction filter and wash the residue with 20 ml of *water*. Acidify the combined filtrate and washing with *hydrochloric acid* and shake vigorously with successive quantities of 50, 40, 30, 30 and 30 ml of *solvent ether*; mix the ethereal layers and reject the aqueous layer. Shake the mixed ethereal solutions vigorously with successive quantities of 20, 20, 10 and 10 ml of *sodium bicarbonate solution*, separate the aqueous layer and wash each aqueous layer with the same 20 ml of *solvent ether*. Reject the ethereal liquid. Acidify the combined aqueous layers successively with 30, 20, 10 and 10 ml of *chloroform*, separate and filter each *chloroform* layer through a plug of cotton wool and on which a layer of *anhydrous sodium sulphate* is placed. Evaporate the *chloroform* in a current of air stopping immediately when last trace of solvent is removed. Dissolve the residue by warming with 10 ml of *alcohol* previously neutralised to *phenol red* solution cool and titrate with 0.1N *sodium hydroxide* using *phenol red* as indicator. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.01482 g of total balsamic acids calculated as *cinnamic acid*.

**History and authority** : Short proving by J. S. Wright; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, **10**, 385.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Gum benzoin	100 g
Saccharum Lactis	900 g

to make one thousand millilitres of the trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, 19, Vol. I, HPI. 6x may be converted to liquid 8x, 20, Vol. I, HPI. 9x and higher with *Dispensing Alcohol*.

**BIXA ORELLANA**

(Bix. or.)

**Botanical name** : *Bixa orellana* Linn. **Family:** Bixaceae

**Common names** : *Hindi:* Latken; *English:* Annalto; *French:* Rocou.

**Description** : A shrub or small tree, usually 3 to 4 m high but sometimes growing upto 9 m. Leaves alternate, simple, entire, palmately veined, ovate, cordate or truncate at the base, acuminate, stipulate and 7.5 to 18 cm long. Inflorescence terminal, panicle. Flowers white or pink hermaphrodite, pedicels with 5 glands below the calyx; sepals 5, imbricate, deciduous; petals 5, large, free, anthers horse shoe-shaped, 2-celled; ovary superior, unilocular, with 2 parietal placentae; ovules numerous; style recurved in bud, stigma 2. Fruit a capsule, 2-valved loculicidal, white flowered, wild form have green capsules and pink flowers but cultivated form have red capsules; each capsule contains about 50 seeds; seeds pyriform, with thick funicle and dye yielding pulpy testa, endosperm copious, embryo large, with broad cotyledons.

**Part used** : Seeds.

**Macroscopical** : Seeds pyriform, sub angular, two sides broad and concave, while the third narrower end bears a groove along which runs the raphe; chalaza in depression at the broad end and the hilum situated slightly to one side of the apex; about 5 to 7 mm long and about 4 mm across the broad end; brick red to reddish-brown in colour.

**Microscopical** : Transverse section of seed shows testa 4 to 6 cells thick, pulpy, with secretory cells; outer and inner epidermis thin-walled except around the chalaza where the outer epidermis is sclerotic and inner epidermis is palisade like; mesophyll 4 or 5 cells thick, thin-walled, containing large, oily red secretory cells (Bixin cells). Tegmen 7 to 9 cells thick, outer epidermis palisade like with pale yellow lignified walls followed by single layer of outer hypodermis of pyriform cells, slightly thick walled, with brown contents, the outer pointed end projecting slightly between the palisade cells of outer epidermis; mesophyll 4 to 5 layers of thick walled, more or less crushed cells containing brown contents, secretory cells absent in this region; inner hypodermis is a layer of well formed, thick walled, hour-glass type (stellate ends and columnar body) cells; inner epidermis with ridge-like thickenings on the anticlinal walls. Endosperm with slightly thickened walls and large starch.

**Distribution** : Native of Central America and cultivated throughout India.

**History and authority** : Boericke, W., *Mat. Med. and Repertory* (9th Ed.), 1927, 579.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Bix Orellana in moderately *coarse powder* 100 g

Purified Water 300 g

Strong Alcohol 700 g

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**BLATTA AMERICANA**

(Blatta a.)

**Zoological name** : *Periplaneta americana* Linn. **Family:** Orthoptera

**Common name** : *Hindi:* Telchitta; *English:* American Cockroach; *German:* Kiinchenschabe.

**Description** : Body elongated, segmented, flattened dorsiventrally divided into three distinct regions, the head, thorax and abdomen. Head connects the thorax by a slender, soft neck or cervicum. The body is covered by a hard brown segmented chitinous exoskeleton, while the exoskeletal covering the head is called sclerites which forms a head capsule. Head is movable around, ovate but flattened antero-posteriorly and formed by the fusion of six segments visible in adults and bears paired antennae, mandible, maxillae, an unpaired labium and a hypo pharynx (within the mouth cavity enclosed by mouth parts). Eyes two, large, black-coloured, compound present on the upper side. Thorax consists of prothorax, mesothorax and a metathorax, each bearing a pair of walking legs, mesothorax and metathorax also bearing a pair of wings each. Both the sex are weak fliers. The tergum of first thoracic segment bears two dark patches surrounded by light brown margins. Abdomen broad, flattened anteriorly, bearing 10 segments. A typical abdominal-segment has a dorsal tergum, ventral sternum and between them a narrow membranous pleuron on each side; the tenth segment bears a pair of long, tapering fifteen jointed anal Caci. In male ventrally, sterna nine while only seven visible externally in the female. The ninth sternum of the male bears a pair of slender and styles which are absent in female. Spiracles (openings to tracheal system) occur along the sides of the abdomen and thorax, eight pairs being on the abdomen and two on thorax, each spiracle being provided with a spiracular valve. *Blatta orientalis* is generally confused with *B. americana*, can be differentiated from their elytra possessing a distinct yellow strip.

**Part used** : Whole insect.

**Distribution** : Found commonly in India usually in Kitchens and in more roomy accommodation such as bakeries, restaurants and the sewage, where there is plenty of food and warmth.

**History and authority** : Proved by Mure; Pathosensie, Bresilienne; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, **2**, 187; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 290.



- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Blatta Americana 100 g  
Strong Alcohol in sufficient quantity 580 ml  
to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

## BOLETUS LURIDUS

(Bol. lur.)

**Botanical name** : *Boletus luridus* Schaeff ex. fr. **Family:** Boletacea

**Common name** : *English:* Lurid Boletus.

**Description** : A soil dwelling fungus with basidiocarp (fruit body) having a central stipe and fleshy cap whose hymenium i.e. the lower surface consists of a large number of pores and fine, long, deeply depressed tubes. The stipe is up to 15.5 cm long and up to 3 cm wide at base, often flared at apex, dry, covered wholly or partially with conspicuous net like ridges; yellow at the top and brown to earth coloured at the bottom, staining greenish blue when bruised. Stipe has a conspicuous purple brown reticulum with elongated webs. The fleshy cap is up to 15 cm in diameter, convex, becoming shallowly depressed at maturity, smooth subtly velvety, felt when dry, moist to viscid when wet; olive to greenish brown with tints of yellow orange, pink, red, olive, staining greenish-blue when bruised. Odour pleasant.

**Part used** : Whole fungal body.

**Microscopical** : Pores of hymenium bright and fading to orange red, tubes initially yellow and then greenish; both staining greenish blue when bruised. Spores olive brown, 9.5 to 17  $\mu\text{m}$   $\times$  4 to 7  $\mu\text{m}$  in size, elliptical, smooth.

**Distribution** : British Isles, North, Eastern and Central America in broad leafed woodlands on calcareous soil.

**History and authority** : Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, **2**, 190.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Boletus Luridus 100 g

Saccharum Lactis 900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI Vol. I, 6x and higher may be converted to 8x, HPI, Vol. I.



## CARBONEUM OXYGENISATUM

(Carb. oxy.)

CO

Mol. wt.: 28.00

**Common name** : *English*: Carbon monoxide.

**Description** : Highly poisonous, odourless, colourless, tasteless gas. Very flammable, burns in air with a bright blue flame. Sparingly soluble in *water*; freely absorbed by a concentrated solution of *cuprous chloride* in *hydrochloric acid* or in *ammonia*. Appreciably soluble in organic solvents, such as *ethyl acetate*, *chloroform* and *acetic acid*, the solubility in *methanol* and *ethanol* is about 7 times as great as the solubility in *water*. Produced on an industrial scale by partial distillation of *hydrocarbon* gas from natural gas or by the gasification of coal and coke. Conveniently prepared in the laboratory, by heating *calcium carbonate* with *zinc* dust and by dehydration of *formic acid* with *sulphuric acid*.

**Identification** : (1) A filter paper dipped in 5 % *lead chloride solution* turns green or black when comes in contact with the drug.

(2) To 5 ml of 1% *iodine pentaoxide* solution in *water* add 2 ml *carbon disulphide* and pass the gas; a violet colour appears in the *carbon disulphide* solution.

**Assay** : Collect the sample in a 50 ml glass stoppered test tube or absorption cell designed to fit in the cell compartment of the colourimeter or spectrophotometer. Add 3 ml of the mixed carbon monoxide reagent and then 3 ml acetone. Quickly stopper the tube. Equilibrate the sample by agitating in a water bath at 60° to 61° for 1 hour. After equilibration, cool the tube to room temperature, clean and dry them before measuring in the colourimeter. Measure the absorbance against a reagent blank at 650 mm. Measurements should be made within 24 hours. Prepare a standard curve using the same procedure with a series of standard solutions.

**History and authority** : Introduced and proved by Meglin, *Jour. de Med.*, 1786; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 2, 610.

**Preparation** : (a) Mother Solution 2x Drug strength 1/10

Carboneum Oxygenisatum saturated solution in water 500 ml

Purified Water 500 ml

to make one thousand millilitres of the Mother Solution.

Carboneum Oxygenisatum is passed to saturate Purified Water and then diluted with equal Part by weight of Purified Water.

(b) Potencies: 3x and higher with *Dispensing Alcohol*.

**Caution** : Store in a well closed container.

**CHIMAPHILA MACULATA**

(Chim. mac.)

- Botanical name** : *Chimaphila maculata* Pursh. **Family:** Ericaceae
- Common name** : *English:* Spotted wintergreen.
- Description** : A perennial shrub. Leaves 2 to 7 cm long, a fourth to a third as wide, deep olive green, striped with white along the midvein, acute, sharply dentate, acute to rounded at the base, short petioled. Flowers 2 to 5, white, in umbels, 12 to 18 mm wide; dilate portion of the filament of stamen villous. Taste pleasantly bitter, astringent and sweetish.
- Part used** : The whole fresh plant.
- Macroscopical** : Leaves deep olive in colour, striped with white along the midvein. Flowers white, dilated portion of stamen filament villous.
- Identification** : (i) Evaporate 25 ml Mother Tincture on a water bath to remove *alcohol*. Extract the aqueous part three times with 20 ml of *chloroform* each time. Combine and concentrate to 2 ml and carry out TLC of *chloroform* extract on silica gel ‘G’ coated plates using *chloroform* : *methanol* (99 : 1 v/v) as solvent system and saturated solution of *antimony trichloride* in *chloroform* as spray reagent. After heating the plates three brown spots appear at  $R_f$  0.2, 0.4 and 0.68.
- (ii) Carry out TLC of aqueous extract on silica gel ‘G’ coated plates using *butanol* : *acetic acid* : *water* (4:1:1 v/v) as mobile phase. Two spots giving blue fluorescence are observed under UV light at  $R_f$  0.89 and 0.80.
- Distribution** : Massachussets to Michigan, California, Alaska in U.S.A.
- History and authority** : Introduced and proved by George H. Bute; Hering, C., *Guiding Symptoms*, 1879, 4, 50.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| <i>Chimaphila Maculata</i> in moderately <i>coarse powder</i> | 100 g  |
| Purified Water  | 300 ml |
| Strong Alcohol  | 730 ml |
- to make one thousand millilitres of Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CITRUS VULGARIS**

(Auranoum)

- Botanical name** : *Citrus vulgaris* Risso. **Family**: Rutaceae
- Synonym** : *Citrus aurantium* Linn.
- Common names** : *Hindi*: Khatta; *English*: Bitter orange, peel; *French*: Ecorce or zeste oranges Ameres; *German*: Pomeranzenschale.
- Description** : Arboraceous, rarely shrubby; young shoots, glabrous, greenish-white. Leaves 1-foliolate, leaflet glabrous, 7 to 16 cm, elliptic or ovate, acuminate; petiole usually winged, wings often obovate as large as the leaflet or nearly so. Flowers large, pure white, strongly scented, bisexual; stamens 15 to 30. Fruit globose, often depressed 6 to 10 cm.
- Part used** : Fruit peel (with oil glands which are present below the epidermis).
- Identification** : Evaporate 20 ml of 70% alcoholic extract to remove *alcohol*, extract it three times with 20 ml *chloroform* each time, concentrate the chloroform extract to 2 ml and carry out Co-TLC with an authentic sample of hesperatin on silica get 'G' using *chloroform* : *methanol* (9:1 v/v) as mobile phase and 1% *alcoholic aluminium chloride* as spray reagent. On Co-TLC, one spot corresponding to standard hesperatin appears.
- Macroscopical** : Fresh peel consists of the outermost part of pericarp with as little as possible of the white pithy part or "zdst" which later is devoid of volatile oil, but contains most of bitter principle, large about 0.3 to 0.5 mm in diameter, numerous small projections on the outer surface of the fresh peel.
- Distribution** : Cultivated throughout India.
- History and authority** : First proved and introduced by Imbert Gourbeyre; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1876, **3**, 337; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 223; Hering, C., *Guiding Symptoms*, 1879, **2**, 268.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Citrus Vulgaris, moist magma containing solids 100 g and plant moisture 250 ml | 350 g  |
| Strong Alcohol   | 765 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.



## COCAINUM MURIATICUM

(Coca. mur.)

 $C_{17}H_{21}NO_4HCl$ 

Mol. wt.: 339.81

- Common names** : *English*: Cocaine hydrochloride; *French*: Chlorohydrate de cocaine.
- Description** : Colourless crystal or white crystalline powder; hygroscopic. Odourless; taste bitter; numbs tongue and lips. Very soluble in *water*; freely soluble in *alcohol*, soluble in *chloroform* and almost insoluble in *ether*. Contains not less than 98.0% of  $C_{17}H_{21}NO_4HCl$  with reference to the substance dried to constant weight over  $P_2O_5$ .
- Identification** : (1) To 50 mg add 1.5 ml of *water*, shake well, add 8.5 ml of *solution of alum* and 5 ml of *potassium permanganate solution* and stir briskly for sometime; characteristic rectangular violet plates are produced.
- (2) Yields the reactions characteristic of *chlorides*.
- (3) 0.002% w/v solution in 0.01 M *hydrochloric acid* gives two maxima at 233 nm and 273 nm in UV range.
- Melting range** : 195° to 197°.
- Acidity** : Dissolve 0.5 g in 10 ml of *water* and titrate with 0.02N *sodium hydroxide*, using *methyl red* as indicator; not more than 0.5 ml is required.
- Specific rotation** : In a 2 % w/v solution 70° to 72°.
- Loss on drying** : Not more than 1.0 % of its weight when dried over *phosphorus pentoxide* for three hours.
- Sulphated ash** : Not more than 0.1 %
- Assay** : Weigh accurately about 0.8 g, dissolve in 50 ml of *glacial acetic acid* previously neutralised with *perchloric acid*; add 10 ml of *mercuric acetate solution* and titrate with 0.1 N *perchloric acid* using *crystal violet* as indicator. Each ml of 0.1 N *perchloric acid* is equivalent to 0.03398 g of  $C_{17}H_{21}NO_4HCl$ .
- History and authority** : Boericke, W., *Materia Medica with Reportory*, 1927, 216.

- Preparation** : (a) Trituration 1x Drug strength 1/10  
Cocainum Muriaticum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted into liquid 8x, HPI, Vol. I.
- Storage** : Preparation below 6x to be kept in well closed containers.
- Caution** : Not to be dispensed below 3x.

**CORTISONE**

(Cortis.)

$C_{23}H_{30}O_6$

**Mol. wt.:** 402.5

**Common names** : *English:* Cortisone acetate, 11-Dehydro-17-hydroxycorticoster one acetate.

**Description** : White or creamy-white crystals or a crystalline powder, odourless, initially tasteless but followed by a persistent bitter taste. Sparingly soluble in *water* and *alcohol*. Contains not less than 96.0% of *cortisone acetate* and not more than the equivalent of 104% calculated with reference to the substance dried to constant weight at 105°.

**Identification** : (i) Dissolve 40 mg in 1 ml of *glacial acetic acid* heated to about 60°, add 22 mg of *2:4-dinitro-phenylhydrazine* and continue heating on water-bath for three minutes. Remove from the water-bath and cautiously add while stirring 1 ml of *methyl alcohol*. The *2:4-dinitrophenylhydrazine* crystallises out. The precipitate, after washing with *dilute methyl alcohol* is recrystallised from *ethylacetate* and dried for one hour. It melts between 232° to 240° with decomposition.

(ii) Dissolve 1 mg in 2 ml of *sulphuric acid*, a yellowish-green colour is produced which becomes yellowish-orange. Set aside the solution for five minutes and expose to ultra-violet light; it exhibits a pale yellow fluorescence (distinction from prednisolone).

(iii) Dissolve 0.2 mg in 1 ml of *alcohol*, evaporate to dryness under reduced pressure, add 5 ml of 1N *sodium hydroxide* and heat at 70° for 30 minutes; a yellow solution having a strong absorption at 370 nm is produced (distinction from prednisolone).

(iv) To 50 mg add 2 ml of *alcoholic solution of potassium hydroxide* and heat in a boiling water-bath for five minutes. Cool, add 6 ml of diluted *sulphuric acid* (1 volume of *sulphuric acid* dilute to 3.5 volume with *water*) and boil gently for one minute; the odour of *ethyl acetate* is perceptible.

**Melting range** : 235° to 238° with decomposition.

**Loss on drying** : Loses not more than 1.0% of its weight when dried to constant weight at 105°.



## CUPRUM SULPHURICUM

(Cup. s.)

CuSO<sub>4</sub>.5H<sub>2</sub>O

Mol. wt.: 249.70

- Common names** : *English*: Copper sulphate; *French*: Sulfate de cuivre; *German*: Kupfersulfat.
- Description** : Blue triclinic prisms of blue crystalline powder, slightly efflorescent in air. Almost odourless. Very soluble in *water*, freely soluble in *glycerol*, very slightly soluble in *alcohol*. Contains not less than 98.5% and not more than the equivalent of 101% of CuSO<sub>4</sub>.5H<sub>2</sub>O with reference to the substance dried to constant weight on *silica gel*.
- Identification** :
- (i) To 10 ml of 1 % w/v solution in *water* add 1 ml dilute *hydrochloric acid* and add *hydrogen sulphide saturated solution*, a brownish black precipitate on standing is produced which is insoluble in *ammonium sulphide* solution.
  - (ii) To 10 ml of a 2 % w/v solution in *water*, add dilute *ammonium hydroxide* solution, drop wise, a pale blue precipitate is formed which dissolves in excess of the reagent forming a deep blue solution.
  - (iii) To 5 ml of 2 % w/v solution in *water*, add 2 ml *potassium iodide* solution, a brown precipitate is formed and a brown liquid is produced. Dilute to 50 ml with *water* and add *starch mucilage*; a deep violet colour is produced.
  - (iv) Yields the reactions characteristic of *sulphates*, HPI, Vol. I.
- Reaction and clarity of solution** : Dissolve 1.0 g in 20 ml of *water*; a clear blue solution is produced. The pH of the solution is not less than 3.8.
- Arsenic** : Not more than 8 parts per million, HPI, Vol. I.
- Iron** : Boil 5.0 g with 25 ml of *water*, add 2 ml of *nitric acid*, cool, make alkaline to litmus paper with *strong ammonium hydroxide solution*, filter, wash the residue with a mixture of 1 volume of *dilute ammonium hydroxide solution* and 4 volumes of *water*; dissolve the residue in a mixture of 2 ml of *hydrochloric acid* and 10 ml of *water*, make alkaline to *litmus paper* with *dilute ammonium hydroxide solution*, wash the residue with *water*, dry and ignite to constant weight; the residue after ignition is not more than 0.14 %.



## Original Monograph Appeared in HPI Vol. II

**DAMIANA**  
(Damiana)

- Botanical name** : *Turnera diffusa* Willd. ex. Schult. **Family**: Turneraceae
- Synonym** : *Turnera aphrodisiaca* (Ward) Urb.
- Description** : A small shrub; leaves smooth and pale green on upper surface underneath glabrous, with a few hairs on the ribs, ovate-lanceolate, shortly petiolate with two small glands at the base; flowers yellow arising singly from axils of the leaves; capsule one celled, splitting into three pieces; aromatic; taste characteristic, aromatic, bitter and resinous.
- Part used** : Whole plant.
- Macroscopical** : Leaves pale-green or yellowish green, about 10 to 25 mm long and 3.5 to 10 mm wide, broadly lanceolate and shortly petiolate. Margin serrate with three to six comparatively large teeth on each side. Surface smooth, veins pinnate and prominent on lower surface. Odour and taste aromatic.
- Microscopical** : Leaf: the upper epidermis is formed of cells with almost straight walls, without stomata, the lower epidermis with somewhat wavy walls and abundant paracytic stomata. Sometimes isobilateral mesophyll is present. The trichomes are simple, filiform, unicellular, upto 900  $\mu$  long often undulating and bent near the base with unligified, strongly thickened walls and a warty surface. There are numerous, small clusters and occasional prisms of calcium oxalate.
- Stem: Reddish brown, with cork cells thin walled and pith cells lignified, stone cells few and occasional starch grains, upto 12  $\mu$ m in diameter.
- Distribution** : Indigenous to Texas and Mexico.
- History and authority** : Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **3**, 1469.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                 |        |
|---------------------------------|--------|
| Damiana in <i>coarse powder</i> | 100 g  |
| Purified Water                  | 350 ml |
| Strong Alcohol                  | 685 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



## Original Monograph Appeared in HPI Vol. IV

**DAPHNE INDICA**

(Daph. ind.)

- Botanical name** : *Wikstroemia veridiflora* Meillu **Family:** Thymelaceae
- Synonyms** : *Daphne indica* Linn.; *Wikstroemia indica* M.Y.
- Common names** : *English:* Sweet-scented Spurge Laurel; *French:* Laureola de Chine; *German:* Lorbeer blatteriger Spitz noast.
- Description** : Evergreen shrub 0.6 m to 1 m in height, with erect stem branching at the top, branches glabrous or slender, silky-hairy, up to 5 cm long, thin and glabrous. Leaves ovate and obtuse to ovate-lanceolate and tapering at both ends. Flowers very shortly pedicellate in small terminal heads, sometimes in short spikes; perianth greenish-yellow, glabrous or slightly hairy, tubular hypogynous scales 4, small narrow, approximate in opposite pairs, sometimes the connate at the base. Fruit a drupe, red, about 1.3 cm in diameter with the endocarp rather hard.
- Part used** : Bark of branches.
- Microscopical** : Transection shows a several layered bark, 4 to 8 layered cork cambium, secondary cortex of 5 to 8 layers of tangentially elongated parenchyma cells, followed by a wide primary cortex of isodimetric parenchyma cells. Phloem large, radiating with bast fibres and uniseriate parenchyma rays.
- Identification** : (i) Extract 5 g of the drug with 50 ml *alcohol*, filter and to 1 ml add 10 ml *dilute sodium hydroxide solution*; yellow colour is produced.
- (ii) To 10 ml of the above alcoholic extract, add 2 ml *dilute hydrochloric acid* and heat on water-bath to dryness. Extract the residue in *ether*. Dry with anhydrous *sodium sulphate* and then concentrate by evaporation. To the aqueous solution of the concentrate add a few drops of *alcoholic ferric chloride solution*; green colour is produced which turns red on addition of *sodium carbonate*.
- Distribution** : West Indies and China.
- History and authority** : Proved and introduced by Bute in 1837; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1876, **4**, 66; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 655; Blackwood, A.L., *Mat. Med. Therapeutics & Pharmacology*, 1959, 281.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Daphne Indica in moderately *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**DIGITALIS PURPUREA**

(Dig. pur.)

- Botanical name** : *Digitalis purpurea* Linn. **Family**: Scrophulariaceae
- Common names** : *English*: Common Foxglove; *French*: Gant de Notre Dame; *German*: Fingerhut.
- Description** : A biennial, sometimes perennial herb, up to 2 m in height. It bears during the first year, a rosette of radical rugose, somewhat downy leaves, 15 to 30 cm long, ovate to obovate-lanceolate with long winged petioles. From the centre of the leaf-rosette arises in the second year, a single erect flowering axis with sessile and subsessile leaves terminating in a one sided raceme. Flowers 5 to 8 cm long, declines, tubular, campanulate, purple, yellow or white; seed, small and light.
- Part used** : Leaves of the second year's growth.
- Microscopical** : Leaf, bearing on the apex of each marginal tooth, one rarely two large hydathode; epidermal cells polygonal, about 30 to 60  $\mu$  long with smooth cuticle, anticlinal walls slightly wavy on the upper surface, markedly wavy on the lower surface. Covering trichomes, usually 3 to 5 cells long, uniseriate, bluntly pointed and finely warty, sometimes with collapsed cells, glandular trichomes having a unicellular or uniseriate stalk and unicellular or bicellular head. Stomata, anomocytic; more numerous on the lower than on the upper surface. Midrib, strongly convex below, covered with simple and glandular trichomes, containing an arc of radiate xylem; a narrow phloem and a collenchymatous pericycle; Mesophyll with a palisade in one layer occasionally in 2 or 3, spongy mesophyll of stellate cell; mesophyll sometimes not differentiated.
- Identification** : (i) Evaporate 1 ml 45% alcoholic extract on water-bath. Dissolve the residue in 2 ml *glacial acetic acid* by gentle heat, cool and add one drop of *ferric chloride solution* cautiously, add 1 ml of *sulphuric acid* under the two liquids without mixing; a brown ring develops at the interface which gradually becomes blue and finally the *acetic acid layer* acquire a blue colour.
- (ii) Take 1 ml 45% alcoholic extract, treat it with five drops of *dinitrobenzoic acid solution* and two drops of *dilute sodium hydroxide solution*; the suspension turns violet.

**Distribution** : Cultivated in India, Southern and Central Europe, England, Norway.

**History and authority** : Proved by Hahnemann in 1805; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1879, **4**, 92; 10, 505; Hering, C., *Guiding Symptoms*, 1879, **5**, 100, Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 664.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Digitalis Purpurea in moderately <i>coarse powder</i>	100 g
Purified Water	567 ml
Strong Alcohol	468 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**DIGITOXINUM**

(Digitox.)

$C_{41}H_{64}O_{13}$

**Mol. wt.:** 764.92

- Common name** : *English:* Digitoxin.
- Description** : A crystalline glycoside obtained from *Digitalis purpurea*, extracted from dried leaves with 50 percent *alcohol*. White crystalline powder, odourless and taste bitter. Insoluble in water sparingly soluble in *chloroform* and slightly soluble in *alcohol* and *ether*.
- Melting range** : 256° to 257°.
- Identification** : (i) Dissolve 1 mg in 2 ml of *glacial acetic acid* and add 1 drop of *ferric chloride* solution and 2 ml of *sulphuric acid* to form a subadjacent layer. A brown ring is formed at the junction of two liquids, which gradually becomes blue and finally the *acetic acid* layer acquires a blue colour.
- (ii) Dissolve 10 mg in 2 ml of *alcohol* in a test tube. Add 2 ml of 0.5% solution of *cholesterol in alcohol* and mix the solution by gentle agitation. No precipitate is formed within 10 minutes.
- Loss on drying** : Loses not more than 1% of its weight when dried to constant weight at 105°.
- Sulphated ash** : Not more than 0.5percent.
- History and authority** : Proved by Dr. Kopfe; Allen, T.F., *Encyclop. of Pure. Mat. Med.*, 1877, **4**, 121.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                                   |       |
|-----------------------------------|-------|
| Digitoxinum in <i>fine powder</i> | 100 g |
| Saccharum Lactis                  | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x and higher may be converted to liquid 8x, HPI, Vol. I.

**DIPHThERINUM**

(Diphth.)

**Microbiological name** : *Corynebacterium diphtheriae* Klobs and Loeffler 1884.

**Biological distribution** : Organism present in skin and mucous membrane of pharynx, larynx, trachea and nose of subjects suffering from diphtheria.

**Source of preparation** : Membrane, Diphtheria infected.  
**of Homoeopathic drugs (part used)**

**Description** : The club froned. This organism is indeed characteristically pleomorphis. One of the most typical forms in films prepared from a 24 hour's culture on Loeffler's serum is that of a long, rather slender bacillus, often slightly curved, with rounded somewhat swollen ends and sometimes with localised swellings elsewhere and staining unevenly with dyes as *methylene blue* in the presence of meta chromatic granules is characteristic features. A single cell may contain one or more of these granules, which are coloured reddish-purple when a film preparation is stained with *methylene blue*. These are Gram positive, non-capsulated, non motile and non-flagellated.

**Cultural** : *On Loeffler's serum*: Characteristics of colonies after 24 hours incubation at 27°, are about 1 mm in diameter, circular, convex, with a slightly raised centre, a smooth or finely granular surface and an entire edge; granular in structure when viewed by transmitted light, butyrous in consistency, pale or deeper cream in colour, moderately opaque and easily emulsifiable in water or saline. After 48 to 72 hours incubation the colony shows a varying degree of enlargement, the centre becomes more raised, more opaque and deepens in colour, while the periphery remains flat, extends outwards and appears more transparent than the centre, giving the so called "Poached egg" on appearance of *tellurite blood agar plate* (specific characters of Mitis type of *C. diphtheriae*). Usually long, curved, pleomorphic rods, with prominent meta chromatic granules. Except for some shadow areas, protoplasm stains evenly. Some stains show barring, with or without granules. Occasional stains are coccoid and others yeast like.

*C. diphtheriae* is aerobic and facultative anaerobic. The optimum temperature for growth is in the nearly 37°; with a range from about 5° to 40° over which growth occurs.



**DIRCA PALUSTRIS**

(Dir. pal.)

**Botanical name** : *Dirca palustris* Linn. **Family:** Thymelaeaceae

**Common names** : *English:* Wicopy, American mezereon.

**Description** : A deciduous shrub, 1 to 2 m high with erect stem. Much branched, branches appear to be jointed due to presence of scars; bark smooth, yellow-brown, fibrous, remarkably tough and glabrous. Leaves alternate, entire, oval, obovate with obtuse apex, 5.8 cm long, green, smooth above, whitish and downy below; petiole short, 2 to 5 mm long, petiole base conceals the bud of the following seasons. Flowers light yellow, 7 to 10 mm long, nearly sessile, 3 in a cluster, 3 dark hairy scales forming an involucre; stamens protruding about 3 mm. Leafy branches appear from an involucre of three hairy scales. Fruit a drupe, ellipsoid, about 8 mm long, reddish or pale-green, remains hidden by abundant foliage.

**Part used** : Inner bark of branches.

**Distribution** : East-North America to Florida and Canada.

**History and authority** : Proved by Spooner, E.H.; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1876, **4**, 161.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Dirca Palustris in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	730 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**EMETINUM**

(Emet.)

$C_{29}H_{40}O_4N_2 \cdot 2HCl, 7H_2O$

**Mol. wt.:** 679.70

- Common name** : *English:* Emetine hydrochloride.
- Description** : White or slightly yellowish crystalline powder, odourless. bitter in taste. Freely soluble in *water and alcohol*. Solid and solution turn yellow on exposure to light or heat. It contains not less than 98.0 % and not more than 101.5% calculated with reference to the substance dried to constant weight at 105°.
- Identification** : (1) Add 2 mg to 1 ml of *sulphuric acid* containing about 5 mg of *molybdic acid*; A bright green colour develops.  
(2) Yields the reactions characteristic of chlorides.
- Loss on drying** : Loses not less than 15 % and not more than 19 % of its weight, when dried to constant weight at 105°.
- Sulphated ash** : Not more than 0.1 %, HPI, Vol. I.
- Assay** : Weigh accurately about 0.2 g and dissolve in 20 ml of *water* and 10 ml of solution of *sodium hydroxide*. Shake three times with 50 ml of *solvent ether*, collect the ethereal solution and wash three times each of 10 ml of *water*. Shake each aqueous solution with a further 50 ml of *solvent ether*, until the aqueous solution is neutral to *litmus paper*. Mix the ethereal solution, add 20 ml of *water* and 20 ml of 0.1 N *sulphuric acid*, shake, allow to separate and collect the aqueous layer. Shake the ethereal solution with two further quantities each of 20 ml of *water*. Mix the aqueous solutions and titrate with 0.1 N *sodium hydroxide* using solution of *methyl red* as indicator. Each ml of 0.1 N *sulphuric acid* is equivalent to 0.02768 g of  $C_{29}H_{40}O_4N_2 \cdot 2HCl, 7H_2O$ .
- History and authority** : Proved by Magendie and Pelletier; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1877, s, 512.
- Preparation** : (a) Trituration 2x Drug strength 1/100  
                   Emetinum in *fine powder* 10 g  
                   Saccharum Lactis 990 g  
                   to make one thousand grammes of the Trituration.
- (b) Potencies: 3x and higher to be triturated in accordance with the method, Vol. I, HPI, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : Preserve in a well-closed container, protected from light.

**Caution** : Not to be dispensed below 3x.

**EPHEDRA VULGARIS**

(Ephe. vul.)

- Botanical name** : *Ephedra gerardiana* Wall. **Family**: Ephedraceae
- Synonym** : *Ephedra vulgaris* Hook.
- Description** : Low, rigid tufted shrub, upto 30 cm high; stem woody, gnarled; branchlets green, ascending, internodes 1.3 to 3.8 cm long, 1.3 to 2 mm in diameter striate, smooth or slightly scabrid on the ridges. Leaves reduced to sheaths 2 cm long, 2-toothed. Male cones ovate, solitary or 2 to 3 together; flowers 4 to 8; bracts round, obtuse, connate 1.5 to 2 mm long; staminal column exserted, anthers 5 to 8; female cones usually solitary 1 to 2; flowers tubulus exserted, straight. Fruit 7.5 to 10 mm long, ovoid, red, sweet, edible.
- Part used** : Stem.
- Macroscopical** : Stem greenish cylindrical, branchlets cylindrical, green, main branch having internodes of about 3 to 3.5 cm long and 5 mm in diameter, branching decussate and opposite, whorls of branchlets form nodes, internodes of branchlets 1 to 2.5 cm long and 1 to 2 mm in diameter. Scale leaves subulate, usually in whorls of 2 from each node, bases dark brown and joined on all sides of the node forming a sheath 0.5 to 1 mm long. Odour heavy, aromatic recalling that of pine needles; taste strongly astringent.
- Microscopical** : Stem shows ridges and furrows; single layered epidermis of straight walled rectangular cells; sunken stomata between the slightly lignified ridges; bundles of nonlignified fibres below each ridge; cortex of several layered radially elongated chlorenchymatous cells, except the endodermal layer; numerous small crystals in the cortical region; pericycle of non lignified fibres in scattered groups of 2 to 6 at the top of primary phloem. In mature stem xylem bundles wedge shaped inside the pith. Pith large rounded parenchymatous cells with intercellular spaces; scattered fibres (1 to 3 in a group), some containing reddish mucilagenous substance.
- Distribution** : Drier regions of temperate and alpine Himalayas, from Kashmir to Sikkim at 2300 m to 5330 m, frequently met with at Pangi (Chamba). Lahul and Spiti (Kulu), Chini and Kilba-Kailash, Ranges of Kanawar (Bashahr). Shali hill (north of Simla), Kashmir and Ladakh.
- History and authority** : Introduced by Mouravow; Boericke, W., *Homoeopathic Materia Medica and Therapeutics*, 1927, 413.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Ephedra Vulgaris in <i>coarse powder</i> | 100 g  |
| Purified Water                           | 150 ml |
| Strong Alcohol                           | 870 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Dilutions: 2x and higher with *Dispensing Alcohol*.
- Dose** : 2x and 3x are generally used.

**ETHERUM**

(Ether)

$C_4H_{10}O$

**Mol. wt.:** 74.12

**Common names** : *English:* Diethyl ether, ethoxyethane, Ethyl oxide; *French:* Ether, ether anesthisique.

**Description** : Colourless mobile liquid, very volatile and extremely flammable, with vapour heavier than air. Odour characteristic sweetish, pungent and burning taste. Under the influence of air light, it is slowly oxidised and converted to explosive-peroxide. Slightly soluble in *water* but freely soluble with *alcohol*, *benzene* and *chloroform*. Contains not less than 96 % and not more than 98 % of  $C_4H_{10}O$ .

**Boiling Point** : 34° to 35°.

**Weight per ml** : 0.714 to 0.716 g.

**Non-volatile matter** : 50 ml when evaporated and dried to constant weight at 105°C leaves not more than 1 mg of residue. It is dangerous to perform this test if the sample does not comply with the test for peroxides.

**Aldehyde** : Place 20 ml in a glass-stoppered cylinder and add 7 ml of a mixture of 1 ml of *alkaline mercuric potassium iodide* and 17 ml of a saturated solution of *sodium chloride*. Insert the stopper in the cylinder, shake vigorously for 10 seconds, then set aside for 1 minute. The water layer shows no turbidity.

**Identification** : Complies with the tests for boiling point and relative density.

**Acidity** : To 20 ml of *ethanol* add 25 ml of *bromothymol blue* solution and 0.02N *sodium hydroxide* drop wise until the blue colour persists for 30 seconds. Add 25 ml of the substance being examined, shake and add 0.02 M *sodium hydroxide* drop wise until the blue colour reappears and persists for 30 sec. Not more than 0.4 ml of 0.02 N *sodium hydroxide* is required.

**Peroxides** : Transfer 8 ml of *potassium iodide* and a drop of *starch solution* to a stoppered tube of about 12 ml capacity and about 1.5 cm in diameter. Fill completely with the substance being examined, shake vigorously and allow to stand, protected from light for 30 minutes. No colour is produced.

**History and authority** : Proved by Cardon and Berridge; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1877, **5**, 219; **10**, 517; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 718.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Etherum 10 ml  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 3x and higher with *Dispensing Alcohol*.

**Storage** : Preparation below 6x are to be stored in well closed container.

**EUCALYPTOL**

(Eucatul)

 $C_{10}H_{18}O$ **Mol. wt.:** 154.30

- Common names** : *English:* Cajeputul, Cineole.
- Description** : A colourless liquid, odour like camphor and tastes spicy and cooling. Solidifies at 1.5° and boils at 176° to 177°. Insoluble in water but soluble in *ethanol, chloroform, ether, glacial acetic acid* and oils. It is a chief constituent of oil of Eucalyptus, a volatile oil obtained from the fresh leaves of Eucalyptus globules.
- Identification** : Dissolve 0.1 g of the substance to be examined in 10 ml of *toluene* and 0.1 g of standard cineol in 10 ml of *toluene*. Apply separately to the plate 2 µl of each solution on silica gel 'G' plate. Develop the plate using a mixture of *toluene : ethyl acetate* (9:1 v/v) over a path of 15 cm. Develop the plate by spraying with *anisaldehyde solution* and heat at 105° for 10 minutes. Dark brown spots appears at  $R_f$  0.5. Under UV light the spot shows a brown fluorescence.
- Wt. per ml.** : Between 0.922 and 0.927.
- Refractive index** : 1.456 to 1.460 at 20°.
- Phenol** : Shake 1 ml with 20 ml of *water*, allow to separate and to 10 ml of the aqueous layer, add 0.1 ml of *Ferric chloride solution*. No violet colour develops.
- Terpentine Oil** : Dissolve 1 ml in 5 ml of *alcohol*. Add drop wise freshly prepared bromine water. Not more than 0.5 ml is required to give a yellow colour lasting 30 minutes.
- Phellandrene** : Mix 1 ml with 2 ml of *glacial acetic acid* and 5 ml of *light petroleum*, add 2 ml of *saturated solution of sodium nitrate* and shake gently. No crystalline precipitate is formed in the upper layer within one hour.
- Assay** : Determination of Cineole: Place 2.1 g accurately weighed of melted o-cresol into a stout-walled test-tube, about 15 mm diameter and 80 mm in length, together with 3 g, accurately weighed, of the oil previously dried by shaking with *anhydrous calcium chloride*. Insert a thermometer graduated in fifths of a degree and stir the mixture well with a loop of glass or wire to induce crystallisation;

note the highest reading of the thermometer. Warm the tube gently until the contents are completely melted, insert the tube through a bored cork into a wide-mouthed bottle which is to act as an air jacket and allow to cool slowly until crystallisation commences or until the temperature falls to the point previously noted. Stir the contents of the tube vigorously with the loop, rubbing the latter on the side of the tube with an up and down motion to induce rapid crystallisation; continue the stirring and rubbing as long as the temperature rises. Take the highest point as the freezing point.

Remelt the mixture and repeat the determination of the freezing-point until two consecutive concordant results are obtained, because the first temperature noted is always lower than the true freezing point.

Find the percentage w/w of cineole corresponding to the freezing-point from the following Table, obtaining intermediate values by interpolation.

<b>Table</b>			
Freezing point in degree	Percent w/w of cineole	Freezing point in degree	Percent w/w of cineole
24	45.6	41	68.6
25	46.9	42	70.5
26	48.2	43	72.3
27	49.5	44	74.2
28	50.5	45	76.1
29	52.1	46	78.0
30	53.4	47	80.0
31	54.7	48	82.1
32	56.0	49	84.2
33	57.3	50	86.3
34	58.6	51	88.8
35	59.9	52	91.3
36	61.2	53	93.8
37	62.5	54	96.3
38	63.8	55	99.3
39	65.2	55.2	100.0
40	66.8	—	—

The *o-cresol* used must be pure and dry with a freezing point not below 30°. It is hygroscopic and should be stored in a small well stoppered bottle because the presence of moisture may lower the results to the extent of 5%.



**History and authority** : Proved by Seigen, Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, 4, 228; Boericke, W., *Med. and Repertory*, 1927, 272.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Eucalyptol 90.6 to 92.5 g (depending upon the specific gravity)  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.  
  
(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**EUPATORIUM AROMATICUM**

(Eup. arom.)

**Botanical name** : *Eupatorium aromaticum* Linn. **Family:** Asteraceae (Compositae)

**Common name** : *English:* White snake root.

**Description** : A perennial, deciduous herb, up to 80 cm tall, firm, with more generally distributed pubescence or somewhat glabrous. Stem simple with loosely corymbos at the summit. Leaves relatively thick and firm textured, opposite, short petioled, mostly crenate or crenate-serrate, acute or obtuse, 3-nerved, mostly scabrous-pubescent, obtusely dentate-serrate, commonly 3 to 10 cm long and 2 to 5 cm wide. Inflorescence stalk loosely corymbose, somewhat paniced; capitula 8 to 20, commonly 12 to 15 flowered; scales of involucre 10 to 14, linear-lanceolate, nearly equal, pubescent, with slightly scarious and obtuse tips. Corolla 4 to 6 mm long, narrowed below, campanulate at the summit, rather exceeding the pappus. Fruit an achene, glabrous.

**Part used** : Roots.

**Distribution** : Massachussets to Florida in U.S.A.

**History and authority** : Introduced by Hall in 1864, *New Remedies*; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 727.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Eupatorium Aromaticum 100 g  
                   Purified Water 500 ml  
                   Strong Alcohol 537 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water, five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**FAGOPYRUM ESCULENTUM**

(Fago. esc.)

- Botanical name** : *Fagopyrum esculentum* Moench. **Family**: Polygonaceae
- Synonym** : *Polygonum fagopyrum* Linn.
- Common names** : *Hindi*: Kotu; *English*: Buckwheat; *French*: Sarasi.
- Description** : Plant herbaceous, 20 to 60 cm in height. Stem jointed, glabrous below, pubescent above, round, hollow, generally green, sometimes brown or tinged with red, lateral branches growing out of the joints. Leaves alternate, heart-shaped to broadly triangular-hastate, lower leaves long petioled, but the upper short petioled to sessile. Flower in clusters usually crowded and compact; sepals elliptic, obtuse, 2 to 5 mm long, dimorphic, one with short styles and long stamens and the other with long styles and short stamens. Fruit achene smooth and shining, about 7 mm long with smooth entire angles much exceeding the sepals.
- Part used** : Whole plant.
- Microscopical** : Leaf dorsiventral, epidermis single layered, upper epidermal cells much pronounced; hairs unicellular, papillae like more frequent on lower surface and margins; stomata anomocytic. Mesophyll is differentiated into single layer of palisade and spongy parenchyma, later frequently contains cluster of calcium oxalate crystals. Midrib contains a single meristele, 2 to 3 layers of collenchyma below epidermis on both surface; ground tissue parenchymatous, containing clusters of calcium oxalate crystals.
- Petiole: in transection circular in outline with a deep cleft on one side. Epidermis single layered with unicellular papillae like hairs. Opposite to the cleft 2 to 3 layers of collenchyma present below the epidermis; vascular bundles conjoint, collateral arranged almost in a circle; ground tissue parenchymatous, containing clusters of calcium oxalate crystals and a few tannin containing cells.
- Stem: in transection circular in outline; epidermis single layered with unicellular papillae like hairs; 2 to 3 layers of collenchyma present below epidermis; cortical parenchyma 3 to 4 layered, containing clusters of calcium oxalate crystals, a few idioblast containing microcrystals and a few tannin containing cells; vascular bundles conjoint, collateral in a ring, each bundle is encapped by 2 to 3 layered sclerenchyma. Pith hollow in the centre.

Root: in transection circular in outline; few layers of sloughing off tissues present as outer most layer, epidermis not distinct; cortex parenchymatous, 6 to 8 layered containing clusters of calcium oxalate crystals. Stele in a ring with phloem above xylem; phloem contains tannin containing cells. Pith small, parenchymatous containing clusters of calcium oxalate.

**Identification** : (1) Juice extract of the plant gives green colour with few drops of *ferric chloride solution*.

(2) To 5 ml alcohol soluble extract, add several drops of concentrated *hydrochloric acid* and 50 mg of *magnesium powder*; the solution acquires a red colour.

(3) Extract on exposure gradually turns dark when kept for few hours in light.

**Distribution** : Cultivated in Khasia Hills, throughout the Himalayas, Nilgiris and Western Tibet at elevation of 700 to 4000 m.

**History and authority** : Proved and introduced by Hitchcock, *Trans. Am. Inst. H.*, 1873, 278; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1876, **4**, 277; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 749.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Fagopyrum Esculentum, moist magma containing  
 solids 100 g and plant moisture 233 ml 333 g  
 Strong Alcohol 797 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water; seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Caution** : Preparation below 3x are kept in well-closed container, protected from light.

**FERRUM PERNITRICUM**

(Fer. pern.)

 $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ **Mol. wt.:** 404.02

- Common name** : *English:* Ferric nitrate.
- Description** : Pale violet or greyish crystals, deliquescent. Soluble in *water*, *alcohol* and *acetone*. Slightly soluble in concentrated nitric acid.
- Identification** : Yields the reactions characteristic of *Iron (III)* and *nitrate*.
- Melting point** : 47° (decomposes at 125°).
- Chloride** : Dissolve 4 g in 25 ml of *water*, 2 ml of *nitric acid* and divide into two equal portions. To 1 part add 1 ml of *silver nitrate solution* and allow it to stand for 10 minutes, filter until clear and use for the control. To the other portion add 1 ml of *silver nitrate solution*. Any resulting turbidity is not greater than that produced when 0.02 mg of chloride is added to the control.
- Phosphate** : To a solution of 5 mg in 20 ml of *water* add 15 ml of *nitric acid*, 10 ml of *ammonium hydroxide* and then 40 ml of *ammonium molybdate-nitric acid* solution. Shake at 40° for 5 minutes and allow to stand for 1 hour. If a yellow precipitate is present, filter and wash with 5% solution of potassium nitrate until the filtrate is neutral to litmus. Add 0.5 ml of *water* and 10 ml of 0.02 N *sodium hydroxide* and agitate until the yellow precipitate dissolves. Add 3 drops of *phynolphthalein* and titrate the excess of *sodium hydroxide* with 0.02 N *hydrochloric acid*. 1 ml of 0.02 N sodium hydroxide is equivalent to 0.08 mg of phosphate. Not more than 3.0 ml of sodium hydroxide solution is consumed.
- Sulphate** : Dissolve 5 g in 50 ml of *water* and pour the solution into a mixture of 10 ml of *ammonium hydroxide* and 100 ml of *water*. Filter and wash with hot water to 150 ml. Take 30 ml of above solution and evaporate to about 10 ml. Add 1 ml of 0.1N *hydrochloric acid* and 2 ml of *barium chloride*. Any turbidity produced is not greater than that in a control made as follows. Boil 3 ml of *ammonium hydroxide* with 15 ml of *water* until the ammonia is expelled, add 0.1 mg of sulphate, dilute to 10 ml, then add 1 ml of 0.1 N *hydrochloric acid* and 2 ml of *barium chloride*.

**Alkalies, Earths, etc.** : Dissolve 5 g in 50 ml of water and pour it in a mixture of 10 ml *ammonium hydroxide* and 100 ml *water*. Filter and wash with hot *water* to 150 ml. Evaporate 30 ml of above solution with 0.5 ml *sulphuric acid* and *ignite*. The residue does not exceed 1.0 mg.

**Assay** : Dissolve about 5 g accurately weighed in sufficient water to produce 100 ml. To 20 ml of this solution, add 4 ml of *water*, 6 ml of 0.1N *hydrochloric acid*, 3 g of *potassium iodide* and set aside for 5 minutes in dark. Titrate the liberated iodine with *sodium thiosulphate* (0.1N) using *starch solution* as indicator. Carry out a blank determination omitting the sample by adding 40 ml of *water* just before the end point and subtract the result from that obtained with the sample. Each ml of 0.1 N sodium thiosulphate is equivalent to 0.0404 g of  $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ .

**History and authority** : Clinically used by Cooper; Clarke, J.H., *A Dict. of Pract. Mat. Med.* 1900, **1**, 769.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Ferrum Pernitricum in <i>coarse powder</i>	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method HPI. Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**FORMALINUM**

(Formlin.)

CH<sub>2</sub>O**Mol. wt.:** 30.0

- Common name** : *English:* Formalin.
- Description** : A colourless liquid; odour pungent; taste irritating. A slight white cloudy deposit is formed on long standing, due to separation of *paraformaldehyde*. The white deposit disappears on warming the solution. Miscible with *water* and *alcohol*. Contains not less than 34.0 % w/w and not more than 38.0 % w/w of CH<sub>2</sub>O.
- Identification** : (i) Dilute 2 ml with 10 ml of *water* in a test tube and add 1 ml solution of *silver ammonium nitrate*. A metallic silver is produced either in the form of a finely divided, grey precipitate or as a bright metallic mirror on the sides of the test tube.
- (ii) To 2 ml add 2 drops of *salicylic acid-sulphuric acid* (5 ml of *sulphuric acid* contains about 20 mg of *salicylic acid*) and warm the liquid very gently. A permanent deep red colour appears.
- Acidity** : To 10 ml add 10 ml of carbon dioxide free water and titrate with 0.1 N *sodium hydroxide* using solution of *bromothymol blue* as indicator. Not more than 5 ml of 0.1 N *sodium hydroxide* is required.
- Assay** : Weight accurately about 3.0 g and add to a mixture of 50 ml solution of *hydrogen peroxide* and 60 ml of 1 N *sodium hydroxide*, warm on a water bath until effervescence ceases. Titrate the excess of alkali with 1 N *sulphuric acid*, using solution of *phenolphthalein* as indicator. Repeat the experiment similarly omitting *formaldehyde* solution. The difference between the titrations represents the *sodium hydroxide* required to neutralise the *formic acid* produced by the oxidation. Each ml of 1 N *sodium hydroxide* is equivalent to 0.03003 g of CH<sub>2</sub>O.
- History and authority** : Boericke, W., *Mat. Med. and Repertory*, 1927, 291.
- Preparation** : (a) Mother Solution 2x Drug strength 1/100  
 Formalinum as solution equivalent to 10 g  
 Dispensing Alcohol in sufficient quantity  
 to make one litre of the Mother Solution.
- (b) 3x and higher with *Dispensing Alcohol*.
- Storage** : Preserve in a well-closed container, preferably at a temperature not below 15°.

## FUCHSINUM

(Fuchsin.)

- Common name** : *English*: Basic Fuchsin.
- Description** : Basic fuchsin is a mixture of rosaniline and para-rosaniline hydrochlorides. Odourless, iridescent green crystalline powder. Soluble in water, alcohol and amyl alcohol forming deep red solutions, insoluble in ether. Contains not less than 88% of dyestuff, calculated as rosaniline hydrochloride  $C_{20}H_{20}N_3Cl$  to the substance dried to constant weight at  $105^\circ$ .
- Identification** : (i) To 5 ml of a 0.1% aqueous solution add a few drops of *hydrochloric acid*; a yellow colour is produced.
- (ii) To 5 ml of 0.2% aqueous solution add a few drops of *tannic acid*; a red precipitate is formed.
- (iii) To 10 ml of 1% aqueous solution add 10 ml of *ammonia*, 500 mg of *zinc dust* and agitate the mixture. The solution becomes decolourised. Place a few drops of decolourised solution on filter paper and nearly on the same paper, place a few drops of *hydrochloric acid* (3N). A red colour develops at the zone of contact.
- Loss on drying** : Dry it at  $105^\circ$  to constant weight. It loses not more than 5.0% of its weight.
- Residue on ignition** : Ignite 1 g with 0.5 ml of *sulphuric acid*. The weight of the residue is not more than 0.3%.
- Alcohol-insoluble substances** : Boil 1 g, accurately weighed with 50 ml of *alcohol* under a reflux condenser for 15 minutes, filter through a tared filtering crucible, wash the residue on the filter with hot alcohol until the washings cease to be coloured violet and dry the crucible at  $105^\circ$  for 1 hour. The amount of insoluble residue is not more than 1.0%.
- Heavy metals** : Place 1 g in a small kjeldahl flask, add 5 ml of *sulphuric acid* and insert a small funnel into the flask. Gently rotate the flask until the *sulphuric acid* has completely wetted the basic fuchsin, then heat with a small flame until carbonization is complete. Allow to cool and add in small quantity of 5 ml of *nitric acid*. Again heat gently until fumes of *sulphur trioxide* are evolved. Allow to cool, add another 5 ml *nitric acid* and heat to the evolution of *sulfur trioxide*. Allow to cool, adding about 25 ml of *water* and boiling for a few minutes. Cool neutralize with strong *ammonia* water using *litmus paper* as the indicator and add 5 ml of *nitric acid*. Transfer the solution to a 100 ml volumetric flask, dilute to volume and shake. A 20 ml portion of this solution contains not more than 30 parts per million of *lead*.



**Assay** : Dissolve about 100 mg, accurately weighed, in 175 ml of *water* in a 500 ml closed system titration vessels fitted with a gas inlet tube, an upright reflux condenser and a burette. Add about 25 ml of *sodium tartrate* solution and a polytef-coated magnetic stirring bar and heat to boiling. Flush this titration vessel for 15 minutes with nitrogen that has been passed through two successive gas, washing bottles each containing 500 ml of a mixture of water, *titanium trichloride* solution and *hydrochloric acid* to which about 10 mg of *safranin* has been added. Continue the heating and *nitrogen titanium trichloride* to a yellow end point. Each ml. of 0.05 N *titanium trichloride* is equivalent to 3.379 mg of  $C_{20}H_{19}N_3HCl$ .

**History and authority** : Introduced and proved by Dr. Charvet; Allen, T.F., *Encyclop. of Pure. Mat. Med.*, 1877, **10**, 529.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/100  
                   Fuchsinum 10 g  
                   Strong Alcohol in sufficient quantity  
                   to make one litre of the Mother Tincture.

(b) Potencies: 3x and higher with *Dispensing Alcohol*.

**GENISTA TINCTORIA**

(Genista)

**Botanical name** : *Genista tinctoria* Linn. **Family**: Fabaceae (Leguminosae)

**Synonyms** : *G. silbirica* Hort.; *G. polygalaefolia* Hort.

**Common names** : *English*: Dyer's green weed; *French*: Genet des teinturiers; *German*: Farberginster.

**Description** : Slender erect shrub, upto 1 m in height; branches striped, glabrous or slightly pubescent. Leaves simple, sessile, elliptical to lanceolate, almost glabrous, 1 to 3 cm long, 3 to 8 cm wide. Inflorescence raceme, erect, 3 to 6 cm long, often several forming a terminal panicle. Flowers bright yellow, typical papilionaceous, 12 to 15 mm long; calyx 2-lipped, upper lip deeply 2-parted and lower one 3-parted; corolla glabrous. Fruit a pod, narrow oblong, 1.5 to 3 cm long, about 5 mm wide, glabrous or slightly pubescent, 6 to 10 seeded. Plant grows from June to September.

**Part used** : Whole plant.

**Microscopical** : Stem: in transection pentagonal in outline and shows single layered epidermis with cuticle; epidermal hairs warty, papillose with unicellular stalk; 2 to 3 layers of chlorenchymatous palisade-like cells; conjoint, collateral, cortical vascular bundles, capped by patches of sclerotic cells present below each ridge; cortical parenchyma tangentially elongated and thin-walled; pericycle represented by isolated patches of fibres; phloem in a ring; wood in a broad ring traversed by uniseriate rays; pith small, parenchymatous.

Leaf: single layer of epidermis covered by cuticle, few papillose hairs with unicellular stalk present on lamina, more hairs present on midrib and margin; anomocytic and anisocytic stomata present on lower surface; mesophyll differentiated into 2 to 3 layers of palisade and spongy parenchyma; few tannin cells occurring in spongy parenchyma; meristele conjoint, collateral, capped by a 2 layers of sclerenchyma above phloem and surrounded by a bundle sheath.

**Distribution** : Indigenous to Asia and Europe, naturalised in U.S.A.

**History and authority** : Introduced by Dr. Trincks, first proved by Dr. Eugene, B. Cushing *Allg. Hom. Zeit* 1836, **9**, 287; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1876, **4**, 403; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 814.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Genista Tinctoria in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 300 ml |
| Strong Alcohol                            | 730 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## GINKGO BILOBA

(Ginkgo)

- Botanical name** : *Ginkgo biloba* Linn. **Family:** Ginkgoaceae
- Synonym** : *Salisburia adiantifolia* Smith.
- Common names** : *English:* Maiden hair tree, Ginkgo.
- Description** : A straight, sparsely branched, usually slender tree, up to 24 m high. Two types of branches present, viz. long branch and short spur; long branches grow rapidly, about 0.5 m in a year, but a spur grows only 2 to 3 cm in length in several years; a spur with its leaf scar and scale leaf scars and with half a dozen leaves coming out from top almost at the same level recalls the cycad trunk. Sometimes a spur, even after reaching an age of 5 to 10 years grows out into a long slender shoot with widely scattered leaves instead of producing a crown of leaves. Leaves 3 to 5 in cluster, long shoot leaves fan-shaped, bilobed, divided at summit with thickened margin; leaves on spur shoot have only wavy margins without deep lobings; leaf venation dichotomous. Flowers dioecious. Male catkins slender, stalked; slender microsporophyll is surmounted by a hump and bears 2 pendent microsporangia. Female strobili with long stalks, borne in a large number of spur shoots, each stalk on peduncle bears 2 ovules of which one aborts early. Fruit a drupe, consisting of an acrid, foul-smelling pulp, surrounding a smooth, angular, oval, cream-coloured, thin-shelled, kerneled seed.
- Part used** : Fresh leaves (during spring).
- Macroscopical** : Petioles gradually widen into leaves. Leaves are of two types viz. (a) on long shoots usually deeply bi-lobed, incision reaching almost up to midrib, (b) one on spur shoot having wavy margins and without deep clefts. Leaves glabrous, with no midrib, venation regularly dichotomous, prominent on both the surfaces, upper surface slightly darker than lower. Odour and taste faintly peculiar.
- Microscopical** : The lamina tissue is almost uniform throughout the leaf. Palisade not well marked in leaves of spur-shoots while in leaves of long shoots, specially in larger leaves, it is well defined. Large conspicuous mucilage cavities surrounded by well marked epithelial cells are present, 1 to 5 mm in length. Cells containing large calcium oxalate crystals and tanniferous contents frequently present. Stomata present on abaxial surface and are slightly sunken. In petiole, two strands are exarch, protoxylem elements are spirally thickened. A few cells above protophloem are present in a sheath of thick-walled cells.

**Distribution** : America, China and Japan, very rarely found in India.

**History and authority** : Proved by Maury, E.A., 1933, Julian, O.A., *Materia Medica of New Homoeopathic Remedies*, 1984, 122.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Ginkgo biloba in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 635 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**GLYCERINUM**

(Glyc.)



- Common names** : *English:* Glycerin, Glycerol, 1, 2, 3- Propanetriol Trihydroxypropane.
- Description** : A clear, colourless liquid of syrupy consistency, odourless, taste sweet followed by a sensation of warmth. Very hygroscopic. Obtained from the oils and fats of plants and animals. After prolonged cooling at 0° it solidifies forming shining orthorhombic crystals which melts on being heated to 18° and decomposes at 290°. Freely soluble in *ether*, insoluble in *chloroform*, *carbon tetrachloride*, *carbon disulfide*, *petroleum ether* and in oils. Contains not less than 98% v/v and not more than 101% v/v of  $C_3H_8O_3$  calculated with reference to the anhydrous substance.
- Identification** : (i) Heat a few drops with 0.5g of *potassium bisulphate*. Acrolein is evolved which is recognised by its characteristic pungent odour.
- (ii) Heat on a bunsen flame on a borax bead. It produces a green flame.
- (iii) Mix 1 ml with 1 ml of *nitric acid* and 1 ml of *potassium dichromate*. A blue ring is formed at the interface of the liquids. The blue colour does not diffuse into the lower layer in ten minutes.
- Wt. per ml.** : 1.252 and 1.257 g.
- Refractive index** : 1.470 and 1.475 determined at 20°.
- Arsenic** : Not more than 2 parts per million.
- Copper** : To 10 ml add 30 ml of *water*, 1 ml of *dilute hydrochloric acid* and 10 ml of *hydrogen sulphide* solution. No colour is produced.
- Iron** : 10 g complies with the *limit test for iron*.
- Acraldehyde and glucose** : Heat strongly. It assumes not more than a faint yellow and not a pink colour. On further heating it burns with little or no charring and with no odour of burnt sugar..
- Sugar** : Heat 5 g with 1 ml of *dilute sulphuric acid* for 5 minutes on a water bath. Add 2 ml of *dilute sodium hydroxide solution* and 1 ml of *copper sulphate solution*. A clear blue coloured solution is produced. Continue heating on the water bath for five minutes. The solution remains blue and no precipitate is formed.

- Sulphated ash** : Not more than 0.01%.
- Water** : Not more than 2%.
- Assay** : Thoroughly mix about 0.1 g accurately weighed with 45 ml of water, add 25 ml of a 2.14% w/v solution of *sodium metaperiodate*, 1 ml of 1 M *sulphuric acid* and allow to stand for 15 minutes. Add 5 ml of a 50% *solution of ethane-1, 2-diol* and titrate with 0.1 N *sodium hydroxide* using *phenolphthalein* as indicator. Repeat the procedure without the substance being examined. The difference between the titrations represents the amount of *sodium hydroxide* required. Each ml of 0.1 N *sodium hydroxide* is equivalent to 0.00921 g of C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>.
- History and authority** : Boericke, W., *Materia Medica and Repertory*, 1927, 306.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Glycerinum 100 ml  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitre of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- Storage** : Should be kept in an airtight container.
- Caution** : Contact with strong oxidising agent such as *chromium trioxide*, *potassium chlorate* or *potassium permanganate* may produce explosion.

**GUACO**

(Guaco)

**Botanical name** : *Mikania amara* Willd. **Family**: Asteraeaceae

**Common name** : Climbing Hemp weed.

**Description** : A herbaceous shrubby, climbing plant with round-furrowed, hairy branches. Leaves uncostate, 5 to 10 cm in diameter, petiolate, ovate, acuminate, shortly narrowed at the base, dentate, netted, rough above, hairy beneath. Flowers in axillary, corymbose, somewhat ternate heads, involucre 7.5 cm long, pappus pale rusty.

**Part used** : Leaf.

**Microscopical** : Leaf: dorsiventral, midrib more pronounced towards the upper surface than the lower surface. Upper epidermis and lower epidermis single layered; mesophyll differentiated into single layer of palisade and spongy parenchyma; midrib shows collenchyma beneath both upper and lower epidermis. Vascular bundles consisting of xylem towards the upper side and phloem towards the lower side, xylem arranged in three groups being separated by narrow layer of compressed parenchyma; phloem small; sclerenchymatous fibres present in patches on both the sides of vascular bundle. Anomocytic stomata present on the lower surface only.

**Identification** : Carryout TLC of 70% alcoholic extract using *chloroform: methanol* (9:1 v/v) as mobile phase and exposed in iodine vapour. Two spots appear at  $R_f$  0.50 and 0.96.

**Distribution** : North & South America specially in Venezuela, Columbia and Jamaica.

**History and authority** : Mentioned in the *Allg. Hom. Zeit.* I, 128 in 1832; a medico-historical sketch by Dr. Dunham, *Am. Hom. Rev.* III, 428; mentioned in *Homoeopathic Pharmacopoeia of United States*, 1964, 7th Ed., 305.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Guaco, moist magma containing	
solids 100 g and plant moisture 300 ml	400 g
Strong Alcohol	730 ml
to make one thousand milliliters of the Mother Tincture.	

(b) Potencies: 2x to contain one part of Mother Tincture, two parts of Purified Water, seven parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**GYMNOCLADUS CANADENSIS**

(Gym. can.)

**Botanical names** : *Gymnocladus dioicus* (Linn.) Koch.

**Family:** Fabaceae (Leguminosae)

**Common names** : *English:* Kentueky Coffee tree.

**Description** : Tree up to 30 m in height with very rough bark; unarmed; leaves up to 1 m long with 3 to 7 pairs of pinnae which are ovate, abruptly acuminate, short petiolate, entire, glabrous, 2.5 to 7.5 cm long. Flowers greenish white, softly pubescent, in terminal 6 to 20 cm long panicles; hypanthium 10 to 15 mm long; sepals and petals oblong or oblanceolate 8 to 10 mm long, exceeding the stamens. Fruit a pod 8 to 15 cm long, 3 to 5 cm wide, seeds thick, very hard nearly black, 10 to 15 mm wide and long.

**Part used** : Pulp surrounding the seed.

**Distribution** : United States.

**History and authority** : Introduced and proved by Hering in 1851; *N. Am. J. of Hom.* **1**, 156; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1876, **4**, 519; Hering, C., *Guiding Symptoms*, 1879, **5**, 502.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Gymnocladus Canadensis in *coarse powder*                   100 g  
                   Purified Water   400 ml  
                   Strong Alcohol   635 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HOANG NAN**

(Hoang n.)

**Botanical name** : *Strychnos malaccensis* Benth. **Family:** Loganiaceae

**Synonym** : *Strychnos gauthierana* Pierre ex. Dop

**Common name** : *English:* Tropical Bind weeds.

**Description** : A pubescent climbing shrub, climb by axillary clubbed tendrils, leaves coriaceous, opposite, ovate to elliptic-ovate, acute, base round glabrous except nerves, nerves 5 and hairy beneath, upto 9 cm long and 4.5 cm wide, dense. Inflorescence axillary, small corymbose paniced cymes, Flowers small peduncles and pedicels pubescent; calyx lobes triangular-ovate, glabrous; corolla tube campanulate, corolla lobes and tubes equi long, corolla lobes ovate acute, with a horizontal line of hairs at base; anthers with very short filaments, inserted in notches of corolla lobes, anthers beared at the base; ovary 2 celled, ovules many. Fruit a berry, ovoid, above 2.5 cm long, 1 seeded, seed ovoid flat.

**Part used** : Bark.

**Microscopical** : Rhytidoma sometimes present; cork cells square to rectangular, thin walled with wide lumina; superficial in origin; cork cambium indistinct; phelloderm 10 to 12 layers in thickness, cells rectangular, containing prismatic crystals of calcium oxalate and starch grains; occasional cells of phelloderm converted into stone cells. Primary cortex parenchymatous, made up of tangentially flattened cells, containing isolated patches of stone cells, prismatic crystals of calcium oxalate, simple and 3 to 4 compound starch grains. The middle or inner part of primary cortex contains a ring of 3 to 5 layers of stone cells; stone cell having branched pits and faint striations. Pericycle represented by isolated patches of stone cells in a ring. Secondary phloem contains very indistinct unit to bi-seriate rays, mostly merged with the rest part of the secondary phloem, some of the cells contains dark brown to yellowish brown contents. All over the tissue simple to 3 to 4 compound, starch grains and prismatic crystals of calcium oxalate present.

**Distribution** : Burma, Malaysia, Singapore.

**History and authority** : J.H. Clarke, *A Dict. of Pract. Mat. Med.*, 1900, **1**, 909.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                   |        |
|-----------------------------------|--------|
| Hoang Nan in <i>coarse powder</i> | 100 g  |
| Purified Water                    | 350 ml |
| Strong Alcohol                    | 680 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HOMARUS**

(Homarus)

**Zoological name** : *Homarus gammarus* **Family:** Decapoda

**Common names** : *English:* Lobster; *French:* Homard blew.

**Description** : Body subcylindrical, 0.5 to 20 kg in weight. Abdomen well developed having a broad tail fan. First and third pairs of paraeopoda similar. Gills numerous; rostrum usually well developed.

**Part used** : Digestive fluid taken from behind the mouth of live lobster.

**Identification** : Extract with 65 percent *alcohol*. Carry out TLC on silica gel 'G' by using solvent system *n-butanol : acetic acid : water* (4 : 1 : 1 v/v) as mobile phase, one blue spot under UV light appears at  $R_f$  0.35 and on spraying with *ninhydrin* two reddish-violet spots appears at  $R_f$  0.05 and 0.5.

**Distribution** : Mediterranean region eg. France, Spain, Turkey, Greece, Austria.

**History and authority** : Proved by Cushing; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, 1, 910; Bleach, *A Manual of Mat. Med. Therapeutics and Pharmacology*, 330.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                                 Homarus Digestive Fluid 100 ml  
                                 Purified Water 333 ml  
                                 Strong Alcohol 700 ml  
                                 to make one thousand millilitres of the Mother Tincture.

(b) Trituration 1x Drug strength 1/10  
                                 Homarus in *fine powder* 100 g  
                                 Saccharum Lactis 900 g  
                                 to make one thousand grammes of the Trituration.

(c) Potencies: 2x and higher to be triturated in accordance with the method, HPI; 6x may be converted to liquid 8x, HPI.

**ILEX PARAGUAYENSIS**

(Ile. para.)

**Botanical name** : *Ilex paraguayensis* Hook. **Family:** Aquifoliaceae

**Common names** : *English:* Paraguey tea, Yerba Mate.

**Description** : Shrub or small tree, upto 6 m high, branchlets glabrous or puberulous. Leaves shortly petioled, obovate to obovate-oblong, narrowed at the base, obtuse or short and obtusely acuminate, crenate-serrate, glabrous or pubescent below, 3 to 5 rarely 5 to 15 cm long. Flowers white axillary fascicled or in stalked cymes. Fruit globose or ovoid, 0.5 to 0.6 cm across, red or reddish brown.

**Part used** : Leaves.

**Microscopical** : Leaf with thick cuticle, epidermis single layered; stomata anomocytic confined to lower surface; palisade 2 or more layers; spongy parenchyma variable with well developed intercellular spaces bearing aggregates of fat bodies at places and crystals often occurring as round idioblasts.

Petiole: with an arc-shaped vascular bundle with strongly incurved ends, often accompanied by 2 small accessory strands, which are accompanied externally by sclerenchyma; fat bodies scattered in ground tissue.

**Distribution** : A native of Brazil and Paraguay.

**History and authority** : Proved by Mantegazza, *Gaz. Med. Ital.*, in 1859; mentioned in Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **4**, 173.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Ilex Paraguayensis in <i>coarse powder</i>	100 g
Purified Water	500 ml
Strong Alcohol	537 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture; four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**KALI SILICATUM**

(Kal. sil.)

- Description** : Colourless or yellowish, translucent to transparent, hygroscopic, glass like pieces usually very slowly soluble in cold *water* or depending upon the composition almost insoluble. More readily soluble in *water* when heated under pressure. Insoluble in *alcohol*; decomposed by acids with precipitation of silica.
- Identification** : Yields the reactions characteristic of *potassium* and *silicate*, HPI, Vol. I.
- Refractive index** : 1.521, HPI, Vol. I.
- History and authority** : Boericke W., *Materia Medica and Repertory* 1927, 379.
- Preparation** : (a) Trituration 1x Drug strength 1/10  
Kali Silicatum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**KOUSSO**

(Kous.)

- Botanical name** : *Hogenia abyssinica* (Bruce) Gmelin. **Family:** Rosaceae
- Synonym** : *Brayera anthelmintica* Kunth.
- Common names** : *English:* Koussou Brayers; *French:* Cousso; *German:* Kosoblunthen.
- Description** : A beautiful monoecious tree, up to 6 metres or so in height. Branches cylindrical somewhat flattened, zigzag furrowed and wrinkled longitudinally, light brown, hairy and glandular; internally exhibiting a circle of wedge shaped bundles, the bast and woody fibres of which are yellow and a large yellowish-brown pith each node with a scar or branch and subtended by a sheathing bract; internode generally up to 2 cm in length. Leaves compound imperipinnate with 3 to 6 pairs of leaflets below the sessile, serrate terminal leaflet. Flowers subtended by two ovate, reddish, glandular pubescent bracts, pedicles short; calyx pubescent beneath, subtended by 5 rigid, spready, obovate bractlets, persistent and becoming elongated in fruit, alternating and larger than the 5 somewhat shrivelled, reflexed sepals; petals 5, caducous; carpels 2, styles exerted stigmas broad and hairy with prominent papillae; fruit an ovoid achene.
- Part used** : Flowers.
- Macroscopical** : The drug occurs as rolls or flattened bundles of panicles, 25 to 60 cm long, bound or in broken panicles or more or less stripped from the larger portions of panicles. Odour indistinct taste bitter.
- Microscopical** : Powdered drug brown in colour and shows numerous simple, non glandular hairs, with thick lignified walls; glandular hairs with 1 to 3 celled stalk and 1 to 2 to 4 celled head, calcium oxalate in rosette aggregates, up to 40 µm in diameter and occasionally in prisms about 15 µm in length; fragments of tracheids and thick walled, lignified sclerenchyma fibres. The tracheids annular, spiral, pitted and scalariform having the thickening and up to 54 µm in width, fragments of epidermis of the calyx and bracts with elliptical stomata, up to 30 µm in length; fragments, of tissue from the fruits wall, consisting of many elongated, porous, lignified cells; few nearly spherical pollen grains, up to 40 µm in diameter, each possessing 3 pores.
- Distribution** : North-East Africa, cultivated in Abyssinia.

**History and authority** : Proved and introduced into homoeopathy by Cattell, Br. J. of Hom. 11, 340; Allen, T.F., *Encyclop of Pure Mat. Med.*, 1877, **5**, 407; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, **2**, 175.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Kousso in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.



**LACTUCA**

(Lactuc.)

**Botanical name** : *Lactuca virosa* Linn. **Family**: Asteraceae (Compositae)

**Synonym** : *Lactuca sylvestris* Garsault.

**Common names** : *English*: Wild lettuce; *French*: Laitue Fetide; *German*: Giftlattich.

**Description** : A biennial herb, up to 2 m in height. Stem often prickly below, otherwise glabrous, pale green, sometimes spotted with purple. Leaves large, radical leaves from 10 cm to 45 cm, entire, obovate-oblong; cauline leaves few, alternate, small, clasping the stem with two small lobes. Midrib often bears a row of strong, long hairs on the ventral aspect. Heads numerous shortly stalked. Corolla pale, yellow strap shaped. Fruit an achene, black, minutely scarbrous, tuberculate, oval with a broad wing along the edge and prolonged above into a long white beak carrying silvery tufts of hairs. Plant is rich in milky juice which flows freely if cut anywhere. Taste of juice bitter; odour, narcotic; when dry it hardens and turns brown and is known as lactucarium.

**Part used** : Whole plant.

**Microscopical** : Leaf: dorsiventral; lamina thin, midrib pronounced towards lower surface; epidermis single layered with cuticle; in midrib a layer of collenchyma present beneath both upper and lower epidermis. Palisade present on both the sides but not continuous on the midrib; upper palisade double layered and sometimes 3-layered, lower palisade single layers and at some places double layered. Meristele conjoint, collateral, capped by thick walled parenchyma and incompletely surrounded by bundle sheath, some cells of which contain some granular contents. Stomata anomocytic. Midrib bears strong big, multicellular hairs on the ventral side.

Stem: epidermis double layered with cuticle, second layer of epidermis made up of smaller cells; 4 to 6 layered parenchymatous cortex, endodermis distinct; made up of barrel shaped, rather thick walled cells; pericycle not distinct; vascular bundles present in a ring. Thick walled xylem parenchyma present surrounding tracheary elements, metaxylem placed towards cortex and protoxylem towards pith; phloem present on both the sides of tracheary bundles; pith large; distinct medullary rays present in between vascular bundles.

Root: Transverse section shows 1 to 2 layers of flaking off cork, followed by parenchymatous cortex. Medullary rays bi to tri seriate, ray cells broadens tangentially and become funnel shaped in phloem. Laticiferous cells present in the upper part of phloem. Wood diffuse porous type and form a solid core. Pith absent.

**Identification** : Evaporate 20 ml of 50 percent alcoholic extract on a water bath to remove alcohol. Extract the remaining part with 3×20 ml *chloroform*, concentrate the chloroform extract to 2 ml and carryout TLC on silica gel ‘G’ using *chloroform* : *methanol* (9:1 v/v) as mobile phase and *aluminium chloride* reagent for spray. Three spots appear at  $R_f$  0.40 (green). 0.58 (bluish green) and 0.67 (violet).

**Distribution** : Central and Southern Europe.

**History and authority** : Introduced and proved by Seidol; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **5**, 10.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Lactuca in *coarse powder* 100 g  
                   Purified Water 500 ml  
                   Strong Alcohol 537 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LAMIUM ALBUM**

(Lam. alb.)

**Botanical name** : *Lamium album* Linn. **Family:** Labiatae (Lamiaceae)

**Common names** : *English:* Blind nettle, Deed nettle; *French:* Oritie morte; *German:* Taubnessel.

**Description** : A perennial herb; stem pubescent, erect or ascending from a document base, simple or branched. Leaves green, 2 to 10 cm long, petioled, ovate or more commonly deltoid, coarsely crenate, narrowed with flat or concave sides to an acute apex, calyx 10 to 13 mm long sparsely hirtellous, the lobes conspicuously longer than tubes, the terminal setaceous portion long than the triangular base; corolla white, 2.5 to 3.0 mm long, the upper lip more than half as long as the tube villous, the tube with an oblique constriction near the base.

**Part used** : Leaf and Flower.

**Macroscopical** : Leaves green, 2 to 10 cm long, long petioled (except the uppermost), ovate, blunt round toothed; flower 2.5 cm long, ascending in clusters, the upper lip strongly arched or hooded.

**Microscopical** : Leaf: Transection shows single layer of epidermis with thin cuticle, nonglandular and glandular trichomes. Glandular trichomes with unicellular head and non-glandular trichomes uniseriate, multicellular, 2 to 3 celled with bristles. Midrib contains collenchyma below the epidermis. Meristele contains three closely placed collateral vascular bundles, sclerenchymatous sheath present capping in the lower side of the vascular bundles; ground tissue parenchymatous; mesophyll differentiated into single layer of palisade and spongy parenchyma; stomata anomocytic.

Petiole: Transection shows single layer of epidermis with glandular and nonglandular trichomes, a layer of collenchyma present below the epidermis but in wing 2 to 3 layered collenchyma; ground tissue parenchymatous; two large and one small vascular bundle present in the centre of the petiole and 2 subsidiary vascular bundles in the petiolar wings.

**Distribution** : Europe and Asia. Now introduced in North America.

**History and authority** : Proved by Hahnemann and other including stapf. Archiv f. Hom. XXX, 2, 170; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, 5, 501; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, 9, 244.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                      |        |
|--------------------------------------|--------|
| Lamium Album in <i>coarse powder</i> | 100 g  |
| Purified Water                       | 200 g  |
| Strong Alcohol                       | 537 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water, five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## Original Monograph Appeared in HPI Vol. III

**LEPTANDRA**

(Leptan.)

- Botanical name** : *Veronicastrum virginicum* (L.) Farwell. **Family:** Scrophulariaceae
- Common names** : *English:* Culvers root; *French:* Racine de veronique; *German:* Leptandra wurzel.
- Description** : An erect, somewhat pubescent perennial herb, with quadrangular stem, attaining a height up to 2 m. Leaves in whorls of 4 to 7, lanceolate, upto 10 cm long, serrulate, smooth above and pubescent beneath; short petioled. Flowers in erect, long dense, terminal racemes, white or pale-blue, short pedicelled. Fruit, capsule oblong-ovate, longer than broad, pointed twice, exceeding the calyx, opening by four apical teeth.
- Part used** : Rhizome and root.
- Macroscopical** : Rhizome: horizontal in growth, nearly cylindrical, somewhat branched, the branches readily separable from the main rhizome, up to 10 cm in length and from 4 to 14 mm in diameter, externally light brown to moderate yellowish-brown, annulate from circular scar of bud scale; upper surface showing hollow stem bases, buds and circular stem scar; lower and lateral surface beset with wrinkled, fragile, rigid roots or remnants of roots; fracture of rhizome, very tough, woody and uneven; internally bark thin, brown and resinous, wood of nearly the same thickness as bark, yellowish-white to light brown and porous, pith large, brown and more or less hollow. Roots up to 10 cm in length and from 0.5 to 2 mm in diameter, of the same colour as rhizome, smooth or faintly longitudinally wrinkled; fracture short, internally showing a thick dark coloured cortex and a small light coloured central cylinder, Odour indistinct unless powdered, then characteristic; taste very bitter and acrid.
- Microscopical** : Rhizome: narrow layer of cork composed of thin-walled cells; parenchymatous cortex; pericycle containing a slightly interrupted ring of thick-walled pitted fibres and stone cells; absence of sclerenchymatous elements from the broad phloem; absence of true xylem rays from the cylindrical xylem; scattered vessels up to about 40  $\mu$ m in diameter provided with oval bordered pits or horizontally elongated pits with less conspicuous borders and very oblique, simple perforations; spongy parenchymatous pith, abundant starch in the cortex and pith, the individual grains nearly spherical or polygonal and generally less than 9  $\mu$ m in diameter; occasional yellow or orange contents in some parenchymatous cells.

**Distribution** : Canada and United States.

**History and authority** : Introduced by Hale and Proved by Burt; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **5**, 556; Hering, C., *Guiding Symptoms*, 1888, **7**, 48.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Leptandra in *coarse powder* 100 g

Purified Water 400 ml

Strong Alcohol 635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LEVOMEPRMAZINE**

(levomep.)



**Mol. wt.:** 328.70

**Description** : A fine white crystalline powder. Practically insoluble in *water*, sparingly soluble in *ethanol*, freely soluble in *ether*, *chloroform* and *methanol*. Contains not less than 98 percent and not more than 101 percent of  $C_{19}H_{24}N_2OS$ .

**Identification** : (1) Dissolve 10 mg in 1 ml of *formaldehyde-sulphuric acid reagent*; blue colour appears.

(2) Dissolve 10 mg in a minimum volume of 2 N *hydrochloric acid* and add equal volume of the *forrest reagent*; violet colour appears.

(3) Dissolve 10 mg in a minimum volume of 2 N *hydrochloric acid* and add equal volume of the *FPN reagent*; violet colour appears.

**Assay** : Dissolve accurately weighed about 0.7 g of drug in 100 ml of *chloroform* and add 1 drop of 0.2 percent solution of *crystal violet in chloroform* and titrate with 0.1 N *perchloric acid* to the first disappearance of violet tinge. Perform the blank determination and make necessary correction. Each ml of 0.1 N *perchloric acid* is equivalent to 0.0328 g of  $C_{19}H_{24}N_2OS$ .

**History and authority** : Introduced and proved of Julian, O.A., *Mat. Med., of New Homoeotherapeutics*, 1979, 170.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
 Levomepromazine in fine powder 10 g  
 Sacchrum Lactis in sufficient quantity  
 to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI; 6x may be converted to liquid 8x.

**MANDRAGORA OFFICINARUM**

(Mand. off.)

- Botanical name** : *Mandragora officinarum* Linn. **Family**: Solanaceae
- Description** : A herb with stem less foliage and large root. From the crown of the root, arise several large dark green leaves which are at first erect, but after attaining a size of 30 cm or more in length and 12 to 15 cm in width spread open and lie upon the ground; lower leaves rounded, upper ones pointed and of foetid odour. From these leaves spring flowers, each on a separate stalk, 7 to 10 cm high, bell shaped, 5-lobed. Corolla bell-shaped, cut into 5 spreading segments, whitish in colour and somewhat tinged with purple; calyx 5-fissured, teeth lanceolate. Fruit berry, yellow, 2 to 3 cm thick bell-shaped. Flowers from March to April.
- Part used** : Dried roots.
- Macroscopical** : Root large, brown, beetroot-shaped, somewhat like a parsnip, running about 100 cm deep into ground, single or divided into 2 or 3 branches.
- Microscopical** : The outermost layer, the cork is very irregular and consists of flat, thin-walled cells which appear polygonal in surface view. Cortex parenchymatous, consisting of large, rounded, thin walled cells with intercellular spaces and an ill-defined band of several layers of cells with yellow walls dividing the cortex into outer and inner zones. The outer cortex contains relatively large intercellular spaces, progressively becoming smaller and fewer towards the inner margin. Phloem appear as collapsed patches of sieve elements and parenchyma cells. Cambium present. Xylem loosely arranged in smaller groups or as isolated patches. Medullary rays multiseriate, ray parenchyma 2 to 3 times longer than breadth. Xylem also contains anastomosing groups of collapsed, vertically stretched, thick-walled cells. Parenchyma contains starch grains.
- Distribution** : Southern Europe, England and U.S.A.
- History and authority** : Firstly proved by Dr. Julius Mezger, *Dtsch. Hom. Mschr.*, 3, 129, 1951; English translation white-mont Stephenson in *Journ. Amer. Inst. Hom.*, 51; 10, 1958; mentioned in *Homoepathic Pharmacopoeia of United States*, 1976, supplement, 707.



- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Mandragora Officinarum in <i>coarse powder</i> | 100 g  |
| Purified Water                                 | 200 ml |
| Strong Alcohol                                 | 824 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- (c) Trituration 1x Drug strength 1/10
- |  |       |
|--|-------|
| Mandragora Officinarum in <i>coarse powder</i> | 100 g |
| Saccharum Lactis                               | 900 g |
- to make one thousand grammes of the Trituration.
- (d) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**MANGIFERA INDICA**

(Mang. ind.)

- Botanical name** : *Mangifera indica* Linn. **Family**: Anacardiaceae
- Common names** : *Hindi*: Aam; *English*: Mango.
- Description** : A large evergreen tree, up to 45 m in height with heavy dome shaped crown and a straight, stout bold; bark thick, rough, dark grey, flaking off when old. Leaves linear-oblong or elliptic-lanceolate, 10 to 30 cm long and 2 to 9 cm wide. Inflorescence, a large panicle containing in some types more than 3,000 flowers. Flowers tiny, reddish-white or yellowish-green; odour pungent and milliferous; staminate and hermaphrodite flowers borne in the same panicle. Fruit a drupe, large exceedingly variable in form and size, with epicarp leathery, green yellowish or red, often dotted numerous glands; flesh (mesocarp) whitish-yellow, yellow or orange, firm, soft or juicy, sub-acid or sweet, aromatic; fibres throughout the flesh, in some types absent or very little in others; seed solitary, ovoid-oblique, encased in a hard compressed fibrous endocarp.
- Part used** : Bark.
- Microscopical** : Phellem up to 12 layers; phellogen 4 to 5 layers, cortex 7 to 9 layers with oval, elongated parenchyma cells and numerous secretory cells. Resin ducts absent in cortex. Pericycle a band of sclereids, 3 to 5 layered, interrupted at places; secondary phloem containing numerous scattered groups of secretory cells, fibres and sclereids, scattered resin ducts encircled by several layers of fibres and sclereids; uniseriate parenchyma rays only in secondary phloem. Solitary rhomboid crystals of calcium oxalate occasional in cortex and phloem. Powder containing separate bast fibres; numerous branched, septate secretory ducts and several macro and brachysclereids.
- Identification** : 1. To 1 ml of 65% alcoholic extract, add a few drops of *sodium hydroxide* solution; green fluorescence with red precipitate is appeared.
2. Evaporate 20 ml of 65% alcoholic extract on water-bath to remove *alcohol*. Extract the aqueous part 3 times by using 20 ml *chloroform* each time. Concentrate the chloroform layer to 2 ml and carry out TLC using *chloroform* : *methanol* (9:1 v/v) as mobile phase and spray with *antimony trichloride* reagent. Spots appear at  $R_f$  0.42, 0.61, 0.78 (brown) 0.73, 0.82 (both pink) and 0.89 (Orange).
- Distribution** : Throughout India.

**History and authority** : Boericke, W., *Mat. Med. and Repertory*, 1927, 424.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Mangifera Indica in *coarse powder* 100 g  
Purified Water 360 ml  
Strong Alcohol 670 ml  
to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- (c) Trituration 1x Drug strength 1/10  
Mangifera indica in *coarse powder* 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.
- (d) Potencies: 2x and higher to be triturated in accordance with the method, HPI; 6x may be converted to liquid 8x, HPI.

Original Monograph Appeared in HPI Vol. IV

**MERCURIALIS PERENNIS**

(Mer. per.)

- Botanical name** : *Mercurialis perennis* Linn. **Family**: Euphorbiaceae
- Common names** : *English*: Dog’s Mercury; *French*: Mercuriale vivace; *German*: Bingelkraut.
- Description** : A deciduous herb with creeping roots. Stem square, unbranched, leafy above, about 30 cm high. Leaves 5 to 7.5 cm long, opposite, petiolate, ovate, acute, serrate, with small stipules. Flowers in long lateral erect spikes, with sterile flowers higher in number than the fertile ones; male and female plants on separate stalks.
- Part used** : Whole plant.
- Microscopical** : Leaf: transection shows single layer of cuticularized epidermis with simple, uniseriate long hairs with pointed apex and anomocytic stomata. Midrib contains 3 collateral vascular bundles in an arc, 2 layers of collenchyma beneath both the epidermis, ground tissue parenchymatous, a few cells of which contains aggregate crystals of calcium oxalate, mesophyll differentiated into single layer of palisade and spongy parenchyma, occasional cells of later contain aggregate crystals of calcium oxalate.
- Petiole: transection shows single layer of epidermis, two layers of collenchyma below the epidermis, ground tissue parenchymatous, a few cells of which contain aggregate crystals of calcium oxalate. Vascular bundles 3, collateral and arranged in a shallow arc.
- Stem: transection almost circular in outline with collenchymatous projection on opposite sides; single layer of epidermis, cortex parenchymatous occasional cells of which contain crystals calcium oxalate. Vascular bundles: collateral, arranged in a ring with interxylary thick-walled cells; endodermis indistinct. Pith parenchymatous, large occasional cells of which also contain the aggregate crystals of calcium oxalate.
- Distribution** : Europe.
- History and authority** : Proved and introduced by Hesse, H. *Archiv. f. Hom.*, (1), (2), 141; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **6**, 193; Hering, C., *Guiding Symptoms*, 1888, **7**, 342; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, **2**, 435.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Mercurialis Perennis in <i>coarse powder</i> | 100 g  |
| Purified Water                               | 537 ml |
| Strong Alcohol                               | 500 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MERCURIUS PRECIPITATUS ALBUS**

(Merc. p. a.)

$\text{NH}_2\text{HgCl}$

**Mol. wt.:** 252.10

**Common names** : *English:* Amino mercuric chloride, Ammoniated Mercury; *French:* Chloramidure-de-mercure; *German:* Quecksilber-Chloridamidid.

**Description** : A white odourless powder. Stable in air, insoluble in *water* and *alcohol*. It is soluble in *hydrochloric acid* and in warm *acetic acid*. Gradually decomposes by prolonged washing with *water* with the production of yellow basic salt.

**Identification** : (1) Heat 0.1 g with 2 ml *sodium hydroxide* solution; *ammonia* is evolved and a precipitate of yellow *mercuric oxide* is produced. Filter, acidify the filtrate with *nitric acid* and add *silver nitrate solution*; a dense white precipitate is produced.

(2) Dissolve 0.1 g in 2 ml of *acetic acid* by heating and then add 7 ml *water* and divide in two parts:

(A) To one part add 1 ml *stannous chloride* solution, a white precipitate appears which rapidly turns grey.

(B) To second part add *potassium iodide* solution a bright red precipitate appears which dissolves in excess of reagent.

**Mercurius chloride, carbonates** : Triturate 0.2 g with 10 ml of *acetic acid*, heat to about 70° with occasional shaking, a complete solution is produced within a few minutes without effervescence.

**Sulphated ash** : Moisten 2 g with *sulphuric acid* in a *silica* dish and ignite at about 600°. The residue so obtained is not more than 4 mg.

**Assay** : Heat about 0.4 g accurately weighed with 5 ml *water* and 5 ml of 6N *acetic acid* on a water bath with frequent agitation until dissolved. Add 4 to 5 g *zinc powder*, cover the flask and heat on a water bath for 15 minutes with frequent shaking. Decant the supernatant liquid without loss of *zinc* and wash *zinc* by decantation with 25 ml *water* until the last washing is free from *chloride*. Add 30 ml *nitric acid* (30%) in portions, through a funnel inserted in the neck of the flask, allowing the reaction to subside before each successive portion is added.

Heat gently until complete solution is effected and rinse the funnel and steam with *water*, collecting *water* in the flask. Dilute with 15 to 20 ml of *water* and then add 0.1 N *potassium permanganate* in small quantities until a permanent pink colour is obtained. Decolourise by adding 1 N *oxalic acid* drop wise, cool, add 50 ml *water* and titrate with 0.1 N *ammonium thiocyanate* using *ferric alum* as an indicator. Each ml of 0.1 N ammonium thiocyanate is equivalent to 0.1260 g NH<sub>2</sub>HgCl.

**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **6**, 294; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **2**, 470.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Mercurius precipitatus albus 100 g

Saccharum Lactis 900 g

to make one thousand grammes of the Trituration.

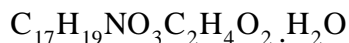
(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : Ammoniated Mercury should be protected from light.

**Caution** : Not to be dispensed below 6x potency.

**MORPHINUM ACETICUM**

(Mor. ace.)



**Mol. wt.:** 399.40

**Description** : A white amorphous or crystalline powder; odour, faintly acetic. Decomposes with age, losing *acetic acid* and becoming brownish in colour. Freely soluble in *water*, soluble in *alcohol*. Contains the equivalent of about 71% anhydrous morphine.

**Identification** : (1) To neutral solution add *ferric chloride* solution. A blue colour is produced which is destroyed by *hydrochloric acid*, alcohol or by heating.

(2) Yields the colour reactions as mentioned under *Morphinum*.

(3) Carry out TLC on silica Gel 'G' using *methanol : ammonia* (100:1.5 v/v) as the mobile phase. Spray with acidified *iodoplatinate reagent*. One spot appears at  $R_f$  0.34 (violet colour).

**Other alkaloids** : Complies with the limit test for other alkaloids as mentioned in *Morphinum Muriaticum*.

**Assay** : Dissolve about 0.8 g, accurately weighed, in alcohol. Add *ether* in quantity just enough to precipitate the base. Filter and dissolve the residue in 30 ml of 0.1 N *sulphuric acid*. Titrate with 0.1N *sodium hydroxide* using *methyl red* as indicator. Each ml of 0.1N *sulphuric acid* is equivalent to 0.02853g of anhydrous *morphine* due to its solubility.

**History and authority** : Known by the experimental and toxicological effect. Mentioned in Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **6**, 378; **10**, 585.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Morphinum Aceticum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of Trituration.

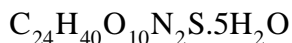
(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 9x and higher with *Dispensing Alcohol*.

**Storage** : All Preparations below 6x are to be kept in well closed containers protected from light.



**MORPHINUM SULPHURICUM**

(Mor. sulph.)

**Mol. wt.:** 758.90

- Description** : It is the sulphate of *morphine*, an alkaloid of *opium*, white acicular crystals or cubical masses or a white crystalline powder; odourless; taste bitter. Soluble in *water*, sparingly soluble in *alcohol*; practically insoluble in *chloroform* and in *solvent ether*. Contains not less than 98% and not more than the equivalent of 100.5% of  $\text{C}_{24}\text{H}_{40}\text{O}_{10}\text{N}_2\text{S}$ , calculated with reference to the substance dried at  $145^\circ$  for one hour.
- Identification** : (1) Sprinkle 0.1 g in powder form on the surface of a drop of *nitric acid*; an orange-red colour is produced.
- (2) To a 2% w/v solution add *solution of potassium ferricyanide* containing one drop per ml of *ferric chloride solution*; a bluish green colour is produced.
- (3) Yields the reactions characteristic of sulphate; HPI, Vol. I.
- Acidity** : Dissolve 0.2 g in 10 ml of freshly boiled and cooled *water* and titrate with 0.02N *sodium hydroxide* using *methyl red solution* as indicator; not more than 0.2 ml of 0.02 N *sodium hydroxide* is required.
- Ammonium salts** : Heat 0.2 g with 5 ml of solution of *sodium hydroxide* on a water bath for one minute; no odour of ammonia is perceptible.
- Other alkaloids** : Wash the *chloroform* solution reserved from the first extraction in the assay with the two successive quantities, each of 5 ml of *water*; evaporate the *chloroform* solution to dryness on a water bath; the residue weighs not more than 1.5%, calculated with reference to the substance dried at  $145^\circ$  for 1 hour.
- Chloride** : To 10 ml of a 1% w/v solution add 1 ml of dilute *nitric acid* and 1 ml of *solution of silver nitrate* no precipitate or turbidity is produced immediately.
- Assay** : Weigh accurately about 0.5 g and transfer to a separator, add 15 ml of *water*, 5 ml of 1N *sodium hydroxide* and 10 ml *chloroform*. Shake, allow to separate and transfer the *chloroform* solution to another separator, repeat the extraction with two further quantities, each of 10 ml of *chloroform*, wash the mixed *chloroform solution* with 10 ml of 0.1 N *sodium hydroxide*, reserve the



**MYRTUS COMMUNIS**

(Myrt. com.)

- Botanical name** : *Myrtus communis* Linn. **Family**: Myrtaceae
- Common names** : *Hindi*: Vilayati Mahendi; *English*: Common myrtle.
- Description** : An evergreen shrub, 1.0 to 3.0 m or more high, leaves strongly scented, small, ovate or lanceolate, entire smooth, shining, coriaceous; peduncles solitary; flowers white and reddish with two axillary linear bractlets; berries ellipsoid, blue black; seeds white, kidney shaped.
- Part used** : Whole plant excluding root.
- Identification** : Carry out TLC of 70% alcoholic extract on silica gel 'G' plate having mobile phase *butanol : acetic acid : water* (4:1:1 v/v), gives two yellow spots at  $R_f$  values 0.84 and 0.92 after spraying with 1% *ethanolic aluminium trichloride*.
- Distribution** : North-west Himalayas.
- History and authority** : Introduced by Walhle, Ruck. Kl. Erf., Vol. 6, 842, *N. A. Jour. Hom.* I, 74; Hering, C., *Guiding Symptoms*, 1888, 7, 528.
- Preparation** : (a) Mother Tincture Drug strength 1/10  
                   Myrtus Communis, moist magma containing  
                   solids 100 g and plant moisture 300 ml 400 g  
                   Strong Alcohol 730 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**NABALUS SERPENTARIA**

(Nab. serp.)

**Botanical name** : *Prenanthes serpentaria* Pursh. **Family**: Asteraceae (Compositae)

**Common names** : *English*: Rattle snake root, White lettuce; *French*: Pied d’Leon, Laitue blanche; *German*: Weisser lattich.

**Description** : A perennial herb, 60 to 120 cm high. Root tuberous spindle shaped. Stem stout, upright, sometimes purple spotted. Leaves irregularly, alternate, distinctly pinnately lobed, broadest in the distal half, lobes generally more rounded. Inflorescence 8 to 16 flowered, corymbose, thyrsoid, paniculate, drooping head. Involucre glabrous, broader, commonly with at least a few long coarse hairs; bracts obscurely to conspicuously speckled with the fine black dots; reduced outer involucral bracts, narrow, commonly lance triangular; pappus straw-coloured. Fruit achene, often narrowed on both ends. Taste of root very bitter.

**Part used** : Whole fresh plant.

**Distribution** : Eastern North America to Alabama, Massachussets to Florida, Mississippi; found in rich soil on the borders of wood, sometimes in sterile soil in open ground.

**History and authority** : Proved by Lazarus, M.E.; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1873, **6**, 444; *Homoeopathic Pharmacopoeia of United States*, 1964, 410.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Nabalus Serpentaria, moist magma containing  
solids 100 g and plant moisture 300 ml 400 g

Strong Alcohol 730 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**NATRUM FLUORICUM**

(Nat. fl.)

NaF

**Mol. wt.:** 41.99

- Description** : A white odourless powder. Soluble in *water*, insoluble in *alcohol*. Aqueous solution slowly attacks glass. Contains not less than 98% of NaF calculated with reference to the substance dried to constant weight at 130°.
- Identification** : (a) Place 0.1 g in a platinum crucible and 1 ml of *sulphuric acid*. Cover the crucible with a piece of clear, polished glass and heat on a water-bath for 15 minutes. Remove the glass cover, rinse with *water* and wipe to dry, the surface of the glass is etched.
- (b) Add a few mg to a mixture of 0.1 ml of a freshly prepared 0.1% w/v solution of *sodium alizarin sulphonate* and 0.1 ml of *zirconyl nitrate* solution the red colour becomes yellow.
- (c) Take about 100 mg of drug and 5 ml of concentrated *sulphuric acid* in a test tube and heat to boil. Bring a moistened glass rod at the mouth of the test tube; gelatinous precipitate is obtained on the glass rod.
- Acidity or alkalinity** : Dissolve 1.0 g in 20 ml of *water* in a platinum dish, add 3 g *potassium nitrate* in the solution and cool to 0°. At this temperature, the solution requires not more than 20 ml of 0.05N *sodium hydroxide* or not more than of 0.5N *sulphuric acid* for neutralisation using *phenolphthalein* solution as indicator.
- Fluorosilicate** : Heat to boiling the solution obtained in test for acidity or alkalinity and titrate while hot with 0.05N *sodium hydroxide* until a permanent pink colour is produced, not more than 1.5 ml of 0.05N *sodium hydroxide* is required.
- Lead** : Not more than 20 parts per million, HPI, Vol. I.
- Loss on drying** : When dried to constant weight at 130° losses not more than 0.5% of its weight.
- Assay** : Dissolve about 80 mg, accurately weighed, in 45 ml of *water*, add 0.2 g of *sodium chloride*, 20 ml of *alcohol*, heat to boiling. Add drop-wise 50 ml of 0.05 M *Lead nitrate* at first and then more rapidly, with constant stirring. Continue the heating to coagulate the precipitate, allow to cool to about 20°, filter and wash the residue three times with small volumes of *alcohol* (20%). To the combined filtrate and washing, add 1 g of *hexamine* and titrate the excess of lead nitrate with 0.05 M *disodium edetate*, using *xylene orange* solution as indicator and continuing the titration until the solution becomes yellow. Each ml of 0.05N *lead nitrate* is equivalent to 2.099 mg of NaF.

**History and authority** : Introduced by Gutman, W., the Journal of the American Institute of Homoeopathy, 49:8, 8-10, 1956; *Homoeopathic Pharmacopoeia of United States*, 1980, 414; O.A. Julian, *Mat. Med. of New Homoeopathic Remedies*, 1979, 366.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Natrum Flouricum 100 g  
Saccharum Lactis 900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I, 9x and higher with *Dispensing Alcohol*.

**NATRUM HYPOCHLOROSUM**

(Nat. hypo.)

NaClO

**Mol. wt.:** 74.44

**Common name** : *English:* Sodium hypochlorite.

**Description** : Colourless crystals. Pentahydrate is highly unstable. Anhydrous form may be obtained by freeze drying in a vacuum oven conc. *sulphuric acid*. Very explosive. Soluble in *water*. Aqueous solution contains not less than 4% w/v and not more than 6% w/v of NaClO.

**Identification** : (a) Solution of sodium hypochlorite first colours red litmus blue and then bleaches it.

(b) Addition of 3 N hydrochloric acid causes evolution of chlorine.

**Assay** : Weigh accurately about 3 ml (4% solution) in a glass stoppered flask and dilute it with 50 ml of *water*. Add 2 g of *potassium iodide* and 10 ml of 6 N, *acetic acid* and titrate the liberated iodine with 0.1 N *sodium thiosulphate* adding 3 ml of *starch* as the end point is approached. Perform the blank determination. Each ml of 0.1 N sodium thiosulphate is equivalent of 3.722 mg of NaClO.

**History and authority** : Proved by Dr. Robert Cooper, Brit. Allen, T.F., *Encyclop. of Pure. Mat. Med.*, 1877, **10**, 506. Clarke J.H., *A Dict. of Pract. Mat Med.*, 1901, **2**, 545.

**Preparation** : (a) Mother Solution Drug strength 1/10  
 Natrum hypochlorosum 100 g

Purified Water in sufficient quantity

to make one thousand milliliters of the Mother solution.

(b) Potencies: 2x with Purified Water. 3x and higher with *Dispensing Alcohol*.

**Caution** : The solution is not suitable for application to wounds.

**Storage** : Preserve in air tight, dark coloured containers, at a temperature not exceeding 25°.

**NEGUNDIUM AMERICANA**

(Neg. ame.)

**Botanical name** : *Acer negundo* Linn. **Family:** Aceraceae

**Synonym** : *Negundo aceroides* Moench.

**Common names** : *English:* Box elder, Ash-leaved mapple.

**Description** : A perennial, upto 20 m high with widely spreading branches. Leaves pinnately compound, leaflets 3 to 5 ovate, oblong-lanceolate, coarsely and irregularly serrate or three lobed, pubescent or glabrous; staminate flowers appearing before or with leaves; staminate flowers in sessile umbel-like fascicles drooping on slender pedicles; pistillate in drooping on slender pedicles, winged 3.0 to 4.50 cm long.

**Part used** : Whole plant.

**Microscopical** : Leaf: Stomata anomocytic, confined to the lower surface, palisade upto 4 layers; small veins vertically transcurrent by thin or thick walled tissues; idioblasts each consisting of small crystalline mass and a large solitary crystal, often with its long axis at right angles to the leaf surface.

Petiole in transection through distal-end exhibiting an adaxially flattened ring of separate bundles in the ground tissue and few medullary bundles; clustered crystals fairly frequent in parenchymatous tissue.

Stem: Cortex containing stone cells; pericycle with a compound and continuous ring of sclerenchyma; secondary phloem containing bundles of sclerenchyma and groups of sclereids; fibres non-septate.

Root: bark containing sclerotic, crystalliferous and tanniferous cells; vessels large, numerous often in radial clusters of five; rays numerous, straight, 1 to 2 cells wide, tannin abundant in old roots. Xylem containing, tracheids, both thin and thick walled. Young roots contain large sap-storage cells and canals.

**Distribution** : North America. South to Texas, Florida.

**History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 17.



- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Negundium Americana in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 400 ml |
| Strong Alcohol                              | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. III

Revised Monograph Appeared in HPI Vol. X

**NYCTANTHES ARBORTRISTIS**

(Nyct. arb.)

- Botanical name** : *Nyctanthes arbortristis* Linn. **Family:** Oleaceae
- Common names** : *Hindi:* Harsinghar; *English:* Night Jasmine.
- Description** : A small tree with grey or greenish rough bark. Branchlets quadrangular. Leaves opposite, ovate, 10.5 by 6.2 cm, small, sessile. Bracteate heads disposed in terminal trichotomous cymes, 3 to 7 flowers in each head, sweet-scented, bracts elliptic up to 1.2 cm; calyx ovoid, cylindrical, subtruncate; corolla salver-shaped, white. Stamen 2, inserted on the top of the corolla tube; filaments short, anthers almost sessile; style cylindrical, shortly bifid; ovary 2-celled, 1-ovule in each chamber. Capsule orbicular, compressed parallel to partition. Seed erect orbicular, flattened.
- Part used** : Leaves.
- Macroscopical** : Short petioled, cordate or oblong, pointed, entire or coarsely serrate, scabrous. Taste bitter, astringent and stain the saliva when chewed.
- Microscopical** : A layer of epidermis with thick cuticle. Hairs abundant, unicellular, short or long with pointed end. Cystoliths of calcium carbonate at the base of hairs. Upper epidermis devoid of stomata while many are present on the lower epidermis. The lower epidermis also shows many glands with 4-celled heads. Palisade cells of two layers and 10 layers of spongy parenchyma. The spongy parenchyma cells are filled with oil and other cell contents. The midrib shows a small ridge of collenchymatous cells. Vascular tissue is arranged in the form of U-shaped are at the centre showing xylem at the ventral side and phloem on the dorsal side.
- Distribution** : Native of India, occurring in the sub-Himalayan region from Chenab to Nepal upto 1500 m and Chotanagpur, Rajasthan, Madhya Pradesh and southwards to Godavari.
- History and authority** : Introduced by S.C. Ghosh, *Drugs of Hindoosthan*, 1965, 232, Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, 2, 631.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Nyctanthes Arborescens, moist magma containing solids 100 g and plant moisture 350 ml | 450 g  |
| Purified Water  | 50 ml  |
| Strong Alcohol  | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*.

**OLDENLANDIA HERBACEA**

(Old. herb.)

**Botanical name** : *Oldenlandia corymbosa* Linn. **Family:** Rubiaceae

**Common names** : *Hindi:* Khet papera; *English:* Two flowered Indian madder.

**Description** : A spreading annual plant, upto 38 cm in height. Stem serrate, slender, erect, pubescent. Leaves subsessile small, 2.0 to 4.5 cm by 1.5 to 4.0 mm, linear to linear-lanceolate, acute often with recurved margins; stipules short, membranous, truncate with a few short bristles. Flowers white, solitary, axillary, on filliform pedicles which are longer than the calyx, usually 2 to 3 (rarely 1 or very rarely 4); bracteate, bracts 1.25 to 1.5 mm long, subulate; calyx 2 mm long, pubescent, calyx teeth narrowly triangular, about equalling the calyx tube when in flower; corolla white, 2.5 mm long, lobes acute, about 1.25 mm long. Fruit a capsule, globose or sometimes slightly pyriform, the top rather flat or not protruded beyond the calyx, glabrous; seeds pale brown, angular; 2.0 to 2.5 mm by 1.0 to 2.0 mm.

**Part used** : Whole plant.

**Microscopical** : Leaf: Dorsiventral; mesophyll differentiated into 2 layered palisade, continuous on midrib and spongy parenchyma. Epidermis single layered. In surface view epidermal cells mostly irregular, undulated, rarely isodiametric; stomata paracytic, present mostly on lower surface. Stomatal index 16.60 to 22.04 to 25.0 for lower surface. Palisade ratio 7.50 to 11.21 to 15.20. Veins islet no/sq mm 11.0 to 14.28 to 22.0. Midrib much pronounced on the lower surface and contains large parenchymatous cells below the vascular bundle.

Stem: Circular in transection with 4 distinct angles, epidermis single layered, covered with thin cuticle, cortex 3 to 4 layered, but 7 to 9 layered at angles, endodermis distinct, single layered, phloem a ring of 3 to 4 layers of sieve tubes and parenchyma cells, xylem a ring of vessels, thick walled wood parenchyma cells and uniseriate rays. Pith large, oval, isodiametric parenchymatous cells.

Root: Cork-thin, phellogen 1 to 2 layered; cortex 2 to 3 parenchyma cells; endodermis indistinct; phloem 4 to 5 layered; xylem, a solid core of vessels and wood fibres with 3 distinct annulation; pith scanty or absent.

**Distribution** : Throughout India, It is very common in the fields during rainy season.

**History and authority** : Short proving by Biswas; Ghose, S. C., *Drugs of Hindoosthan*, 1965, 256.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Oldenlandia Herbacea, moist magma containing  
solids 100 g and plant moisture 310 ml 410 g

Strong Alcohol 720 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## Original Monograph Appeared in HPI Vol. III

**OLEANDER**

(Oleand.)

- Botanical name** : *Nerium oleander* Linn. **Family**: Apocynaceae
- Common names** : *English*: Rose laurel; *French*: Laurier rose; *German*: Oleander.
- Description** : An evergreen shrub or a small tree, up to 6.0 m high; leaves opposite in pairs or in whorls of 3, narrowly oblong-lanceolate, 6 to 20 cm in length and 1 to 3 cm in width, leathery, transversely feather veined. Flowers salver shaped, pink or white, scentless, in terminal cymes; calyx with many glands inside at the base; corolla tube cylindrical at the base; throat bell-shaped and containing 5 wide or narrow teeth; lobes twisted to the right; anthers 2-tailed at the base, appendages of the anthers scarcely protruding; style 1; ovaries 2, forming pods; follicles 8 to 15 cm long, straight appressed, longitudinally striate, yellowish-green to light brown. Seeds numerous with tuft or brown hairs.
- Part used** : Leaves.
- Macroscopical** : Leaves 6 to 20 cm in length and 1 to 3 cm in breadth, dark green, whorled in three, short petioled, oblong, lanceolate, ribbed beneath, coriaceous thick at midrib and several secondary veins running almost parallel to each other.
- Microscopical** : Shows multi-layered upper and lower epidermis of compactly arranged thick-walled cells, covered with cuticle; stomata confined to lower epidermis, present in stomatal pits lined by unicellular hairs; mesophyll differentiated into palisade cells on both surfaces and loosely arranged spongy parenchyma cells, both containing chloroplast; mid-rib possessing U-shaped vascular bundle, the protoxylem towards the upper side and phloem on both sides. Other important features are the long fibres; crystals of calcium oxalate and unbranched or branched laticifers in the mid-rib region.
- Distribution** : Mediterranean region, often grown in gardens of India.
- History and authority** : First proved and introduced by Hahnemann, *Mat. Med. Pura.*, Vol. II, 270; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1877, 7,138.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Oleander, moist magma containing solids 100 g and plant moisture 300 ml | 400 g  |
| Purified Water  | 100 ml |
| Strong Alcohol  | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**OLEUM RICINI**

(Ol. ricin.)

**Common names** : *Hindi*: Erandi ka tel; *English*: Caster oil; *French*: Huile de ricin; *German*: Richinuool.

**Description** : A fixed oil, expressed from seeds of *Ricinus communis* Linn. (Euphorbiaceae). A nearly colourless or faintly yellow, viscid oil; odour, slight, somewhat characteristic; taste at first bland, but afterwards slightly acrid. Soluble in 2.5 parts of 95% *alcohols*, miscible with dehydrated *alcohol*, with *chloroform* and with *solvent ether*. Miscible with half its volume of light petroleum (boiling range 40° to 60°C) and only partially soluble in two volumes.

**Wt. per ml.** : 0.95 to 0.965, HPI, Vol. I.

**Acid value** : Not more than 2.0, HPI, Vol. I.

**Iodine value** : 82 to 90, (Iodine monochloride method), HPI, Vol. I.

**Refractive index** : 1.4758 to 1.4798, HPI, Vol. I.

**Optical rotation** : Not less than +3.5°, HPI, Vol. III; Appendix V.

**Saponification value** : 177 to 185, HPI, Vol. I.

**Identification** : Add to an equal volume of alcohol, a clear liquid is obtained; cool to 0° for three hours; the liquid remain clear (distinction from other fixed oils).

**History and authority** : Introduced by Hale and proved by Sales.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Oleum Ricini 100.5 g  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.





**ORIGANUM VULGARE**

(Origan. v.)

- Botanical name** : *Origanum vulgare* Linn. **Family**: Labiatae (Lamiaceae)
- Synonyms** : *Origanum norrmale* Don; *O. laxiflora* Royle.
- Common names** : *Hindi*: Sathra; *English*: Common or Wild majoram.
- Description** : An aromatic, branched, perennial herb, 30 to 90 cm high. Leaves broadly ovate, entire or rarely toothed, about 2.5 cm long, hairy beneath; flowers purple or pink in corymbose cyme; bracts purplish, about the length of calyx; calyx of 5 nearly equal teeth; corolla longer than the calyx, thin lipped; stamens 2 or 4, exerted; nutlets smooth and brown. The whole plant has peculiar fragrant balsamic odour and a warm bitterness taste.
- Part used** : Whole plant in flower.
- Microscopical** : Leaf: Epidermis single layered, covered with thin cuticle, cells rectangular except around the base of hairs where they are angular; hairs on both the surfaces, both non-glandular and glandular; non-glandular curved pointed unicellular, some papillose, smooth unicellular capitate hairs with multicellular stalks; glandular hairs small, bicellular, biseriate with unicellular stalks; mesophyll of single layer of palisade cells and spongy tissue; vascular tissue traversing the spongy mesophyll; collenchyma tissue separating vascular bundle of mid-rib and veins from the upper and lower epidermis. Oil glands about 40  $\mu$  in diameter; gland cells of biseriate hairs about 32  $\mu$  and small capitate hairs with head about 22  $\mu$  in diameter, stomata on both the surfaces more numerous on the lower.
- Petiole: shows rectangular epidermal cells; numerous non-glandular and glandular hairs; collenchyma tissue in corners and underlying upper and lower epidermis; palisade like parenchymatous cells with chloroplast on the sides of petiole underlying the epidermis; isodiametric, oval or elliptical mesophyll cells; central main vascular bundle and a small vascular bundle on each upper corner of petiole.

Stem: Square in outline, with rectangular epidermal cells, angular where hairs arise; 3 layers of collenchyma in each corner and 1 layer underlying epidermis on each side of stem; a broken ring of fibres and few stone cells in cortex; cortex cells having brown contents excerpts in about 3 layers of cells adjoining phloem tissue; fibrovascular tissue forming an unbroken ring around the pith; pith cells isodiametric and mostly pitted. Bract and calyx have similar structure as that of leaf but in calyx no hairs on the inner epidermis; corolla tube having irregular cells in inner lobe and regular papillose towards end at lobes.

**Distribution** : Found in temperate Himalayas from Kashmir to Sikkim at altitude of 1,500 to 3,600 m.

**History and authority** : Clarke, J.H., *A Dict. of Pract. Mat. Med.* 1962, 677; W. Boericke, *Mat. Med. Therapeutics & Repertory*, 1927, 489.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Origanum vulgare in moderately *coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousands millilitres of the Mother Tincture.

(b) Potencise: 2x and higher with *Dispensing Alcohol*.

**PARTHENIUM**

(Parth.)

**Botanical name** : *Parthenium hysterophorous* Linn.

**Family:** Asteraceae (Compositae)

**Common name** : *English:* Congress grass.

**Description** : A herb, up to 1.0 m in height, stem longitudinally grooved, diffusely branched; leaves irregularly dissected; pubescent; flower heads terminal or axillary, 5 mm in diameter, white, ray florets 5, white or light yellowish, small, pistillate with bifid stigma. Disc florets, tubular with anthers at the base of the corolla, style undivided. Both the florets are subtended by innermost series of bracts involucre of 2 to 4 series of broad, dried herbaceous bracts. Fruit achene broadly obovoid, dark brown.

**Part used** : Whole plant.

**Macroscopical** : Stem herbaceous, longitudinally grooved; leaves highly divided; with abaxial and adaxial leaf surfaces covered with trichomes; head rectangular, flowers characterized by the presence of five fertile ray florets, one at each of the five angles of the head and each with two attached subjacent seed sterile disc florets. In addition there are about 40 other disc florets all fertile. In the head when mature, fruit (achene) sheds. The two disc florets attached at the base. The ray florets and underlying subtending bracts fall together along with the fruits, forming a unit called achene complex.

**Microscopical** : Leaf: in transection shows single layered epidermis with thin cuticle; a anomocytic stomata; glandular and non-glandular trichomes; glandular are of three types: (a) uniseriate, multicellular, (b) bicelled and (c) biseriate, multicellular; each type having secretory sac at the top with accumulated secretions. Non-glandular trichomes are also of 3 types: (a) thick walled, uniseriate, 2 to 5 celled with unicellular base and long pointed apex, (b) uniseriate, comparatively small celled, multicellular trichomes with unicellular basal cell and long terminal cells with oval or round terminal end and (c) thick walled, uniseriate multicellular with shrivelled intermediate cell and unicellular base. Midrib region shows prominent buldge towards the lower side; epidermis followed by 1 or 2 layers of collenchyma on the lower side and 2 or 3 layers below the upper side; palisade discontinuous in this region; meristele consists of three vascular bundles, embedded in ground tissue, central bundle larger than the lateral ones. Each bundle consists of xylem and phloem, encapped by sclerenchymatous cells. The lamina dorsiventral, mesophyll differentiated into single layer of palisade and 4 to 6 layers of spongy parenchyma.

Stem: transection shows almost circular outline with ridges and furrows, single layer of epidermis consisting of oval, tangentially flattened cells with thin cuticle and trichomes; trichomes long thick walled, uniseriate, multicellular with pointed apex and biseriate to triseriate multicellular base, along with glandular and nonglandular trichomes as has been described in leaf; collenchyma in ridges and chlorenchyma in furrows; cortex parenchymatous consists of a few layers of thin walled, oval or rounded large cells; vascular bundle conjoint, collateral, open and encapped by sclerenchymatous sheath and arranged in a ring. Pith large, parenchymatous, occupying major portion of stem.

**Distribution** : Native of southern and central America, occurs as an exotic weed in India, where it has naturalised.

**History and authority** : Introduced by H. Rornias (H.R. 1. 42, 71) and proved by Dr. B.H.B. Sleight; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1901, 2, 727. B. Blackwood, *A manual of Mat. Med. Therapeutics and Pharmacology*, 1959, 489.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Parthenium, moist magma containing  
 solids 100 g and plant moisture 300 ml 400 g  
 Strong Alcohol 750 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**PENICILLINUM**

(Penicil. g.)

 $C_{16}H_{17}N_2NaO_4S$ **Mol. wt.:** 356.37

**Description** : White crystalline odourless powder, soluble in *water* and *alcohol*. Insoluble in fatty oils and liquid paraffin. It is produced by the growth of certain strains of *Penicillium notatum* or related organisms. It has potency not less than 1500 units and not more than 1750 units per mg.

**Identification** : (a) It gives the reactions of *penicillin* and of *sodium*.  
(b) It is inactivated by penicillinase solution in water at pH 6.0 to 7.0 at 57°.

**Specific optical rotation** : Not less than  $-270^\circ$  determined in a 2.0% w/v solution in freshly boiled and cooled water.

**Reaction** : 10% w/v solution is acidic to *litmus*.

**Water** : Not more than 1.0% w/w, determined on 1.0 g.

**Assay** : Weigh accurately about 0.1 g, dissolve in *water* and dilute to 100 ml with *water*. Transfer 10 ml to a stoppered flask, add 5 ml of *sodium hydroxide* and allow to stand for 20 minutes. Add 20 ml of a freshly prepared buffer solution, containing solution of *sodium acetate*, *glacial acetic acid* and 5 ml of *N hydrochloric acid* and 25 ml of 0.02 N *iodine*. Close the flask with wet stopper and allow to stand for 20 minutes protected from light. Titrate the excess of iodine with 0.02 N *sodium thiosulphate* using *starch solution* added towards the end of the titration as indicator. To a further 10 ml of the initial solution add 20 ml of *buffer solution* and 25 ml of 0.02N *iodine*. Allow to stand for 20 minutes protected from light and titrate with 0.02 N *sodium thiosulphate*, using *starch solution* as indicator. The difference between two titrations represents the volume of 0.02 N iodine equivalent to the total penicillin present. Simultaneously, carry out the assay using *benzyl penicillin sodium* to determine exact equivalent of each ml of 0.02N iodine. Calculate the potency in units of penicillin from the declared number of units of penicillin in *benzyl penicillinum sodium*.

Note: The reagents used must be protected from contamination with penicillinase producing organisms.

**Sterility** : Complies with the test of sterility.

**History and authority** : Proved by Guermoprez, Julian, O.A., *Mat. Med. of New Homoeotherapeutics*, 1984, 399.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Penicillinum 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I; 6x may be converted to liquid, 8x, HPI.

**Storage** : Store in well closed dry container in a cool, dry place.

**PENTHORUM SEDOIDES**

(Pent. sd.)

**Botanical name** : *Penthorum sedoides* Linn. **Family:** Crassulaceae

**Common name** : *English:* Virginia stonecrop.

**Description** : A small perennial herb, upto 70 cm in height. Stem erect, simple or branched above, glabrous below. Flower-stalk glandular. Leaves lanceolate to narrowly elliptic, 5 to 10 cm long, sharply serrate, acuminate at both ends. Inflorescence cymose, upto 8 cm long. Flowers small and greenish, on short stalks, in rows along the upper sides of branches of the terminal cyme; calyx 5, oblong-lanceolate; corolla 5 small; ovary 5 cleft and 5 celled, surrounded by 10 stamens with filaments twice as long as the calyx. Fruit a capsule, 5 to 6 mm wide seeds usually reddish brown.

**Part used** : Whole plant.

**Identification** : Evaporate 20 ml 70% alcoholic extract to remove alcohol extract the aqueous part three times with *chloroform* by using 20 ml *chloroform* each time and carryout TLC of chloroform extract using *chloroform* : *methanol* (95 : 5 v/v) as mobile phase. Three spots appear at  $R_f$  0.25, 0.66, 0.92 (all blue) and one spot at  $R_f$  0.98 (grey) under U.V. light. Three spots appear at  $R_f$  0.35, 0.98 (both pink) and 0.92 (violet) after spray with *antimony trichloride*.

**Distribution** : North America especially, New Brunsvick to Florida, Minnesota, Kansas, Texas.

**History and authority** : Introduced and proved by Dr. D.B. Morrow, *U.S. Med. Invest. n.s.* III, 565; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1877, 7, 301.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Penthorum Sedoides, moist magma containing solids 100 g and plant moisture 300 ml	400 g
Strong Alcohol	730 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**PERTUSSIN**

(Pertus.)

**Microbiological name** : *Bacillus pertussis* (Bardet and Gengeu 1966). Introduced by J.H. Clarke in 1906.

**History and authority** : Proved by O.A. Juliun, *Treatise on Dynamised Micro-immunotherapy*, 1985, 275.

**Source for the preparation of drug** : Respiratory tract in cases of whooping cough.

**Morphology** : Small ovoid rods, with a tendency to pleomorphism in fluid media, occurs singly and sometimes in pairs, appears in masses and clumps in exudates. 0.2 to 0.3  $\mu$  is broad and 0.5  $\mu$  long. Stains well with *alkaline methylene blue*. Gram negative, Nonmotile and nonsporing.

**Cultural characteristics**: Glycerine potato-blood agar-Colonies barely visible after 24 hours, these become visible in 48 to 72 hours and are small glistening, greyish and rather thick.

Blood agar: the blood is haemolyzed and the colonies are small, transparent and with entire edge.

Gelatin stab: No growth.

**Resistance and metabolism** : Aerobic, optimum temperature for growth is 37° but may grow at 5° to 10°. Easily killed by drying, heat and disinfectants.

**Biochemical** : Nitrates are reduced to nitrites. No indole is formed. No carbohydrates are fermented. Endotoxin formed.

**Preparation** : (a) Under Nosode, Group N-I, suspension consisting of  $20 \times 10^{10}$  germs/ml is obtained. Proceed according to “General Instructions for preparation of Nosodes” Group-N-I to obtain 1x.

(b) Trituration 2x	Drug strength 1/100
Pertussin 1x	1.0 ml
Saccharum Lactis	99.0 g

to make one hundred grammes of the Trituration.

- (c) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage**

: Preparations below 6x to be stored at a temperature about 5° and are not to be allowed to freeze.

- (a) Not to be dispensed below 6x.
- (b) 6x should be free from live germs and should pass the test for sterility as mentioned in Drugs and cosmetics Act, 1940, before use.

**PHENOBARBITAL**

(Phenob.)

$C_{12}H_{12}N_2O_3$

**Mol. wt.:** 232.20

**Description** : White crystalline powder. Taste slightly bitter. Soluble in *alcohol*, *ether*, slightly soluble in *water*, sparingly soluble in *chloroform*, contains not less than 98% w/w and not more than 101.1% w/w calculated with reference to the substance dried to constant weight at 105°.

**Melting range** : 174° to 178°.

**Identification** : 1. Dissolve 20 mg in 5 ml of *Strong Alcohol*, add one drop of *cobaltous chloride* and one drop of *strong ammonia solution*. A violet colour is produced.

2. Shake for 3 minutes 0.1 g with 4 ml of *sodium hydroxide* (0.1N) and 1 ml of *water*. Filter and to 2 ml of the filtrate, add 4 drops of 6.5% *mercuric chloride*. A white precipitate is formed, which dissolve on the addition of 5 ml of 10% *ammonia* solution.

3. Dissolve 0.1 g in 2 ml of *sulphuric acid* and add 10 mg of *sodium nitrate* and warm on a water bath for 10 minutes. An orange yellow colour with a brownish tinge is produced.

**Sulphated ash** : Not more than 0.10% w/w.

**Loss of drying** : When dried to constant weight at 105° loses not more than 10 mg/g.

**Assay** : Dissolve about 0.20 g, accurately weighed, in 30 ml of *dimethyl formamide*, add 2 drops of *thymolphthalein dimethyl-formamide* and titrate with *sodium methoxide* (0.1 mol/l) to a blue colour end point. Each ml of *sodium methoxide* (0.1 mol/l) is equivalent to 23.22 mg of  $C_{12}H_{12}N_2O_3$ .

**History and authority** : Proved by Vannier, O.A. Julian, *Mat. Med. of New Homoeopathic Remedies*, 1984, 415.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Phenobarbital	100 g
Saccharum Lactis	900 g

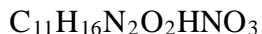
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI; 6x may be converted to liquid 8x, HPI.

**Caution** : Phenobarbital should be kept in a well closed container.

**PILOCARPINUM NITRICUM**

(Pil. nit.)



**Mol. wt.:** 271.30

**Common name** : *English:* Pilocarpine Nitrate.

**Description** : Nitrate salt of an alkaloid obtained from the leaves of *Pilocarpus microphyllus* Stapf and other species of *Pilocarpus* (Family: Rutaceae).

Colourless crystals or white crystalline powder; odourless; taste, faintly bitter. Freely soluble in *water* and sparingly soluble in *alcohol*, insoluble in *chloroform* and *ether*. Contains not less than 98% w/w with reference to the substance dried to constant weight at 100°.

**Identification** : (1) Dissolve 10 mg in 5 ml of *water*, add 2 drops of dilute *sulphuric acid*, 1 ml of solution of *hydrogen peroxide*, 1 ml of *benzene* and one drop solution of *potassium chromate*; shake well; the benzene is coloured bluish-violet and the aqueous layer remains yellow.

(2) Yields the reactions characteristic of *nitrates*.

**Melting range** : 174° to 178°, HPI, Vol. I.

**Specific rotation** : Determined in a 2% w/v solution, not less than 79.5% and not more than 82.0% calculated with reference to the substance dried to constant weight at 105°.

**Reactions** : A 5% w/v solution is slightly acidic to *litmus* and neutral to *methyl red*.

**Certain other alkaloid** : (a) To a 1% w/v solution, add a few drops of *dilute ammonia solution*; no turbidity is produced.

(b) To a 1% w/v solution, add a few drops of solution of *potassium dichromate*; no turbidity is produced.

**Loss on drying** : Loses not more than 0.5% of its weight when dried to constant weight at 105°.

**Chloride** : To 5 ml of a 2% w/v solution acidified with *nitric acid*, add a few drops of solution of *silver nitrate*; no opalescence is produced immediately.



**PIMPINELLA SAXIFRAGA**

(Pim. sax.)

**Botanical name** : *Pimpinella saxifraga* Linn.      **Family:** Apiaceae (Umbelliferae)

**Common names** : *English:* Bibernell, Pimpinell, Saxifrage; *German:* Pimpinell.

**Description** : A perennial herb with 0.3 to 0.6 m tall stem, filled with pith. Leaves lower and cauline leaves once pinnate, the leaflets varying from ovate or subrotund and nearly serrate to deeply pinnately dissected; upper leaves much reduced, the uppermost consisting sheaths only or of sheaths with a few small linear leaflets at the summit. Flowers white. Fruit glabrous, ovoid, 2.5 mm long, obscurely ribbed, each mericarp nearly semicircular.

**Part used** : Fresh root.

**Identification** : (i) Evaporate 10 ml of the 60% alcoholic extract to dryness and a little quantity of *soda lime* and heat; smell of *benzene* is produced.

(ii) On distillation the same extract gives cream coloured distillate.

**Distribution** : Distributed in Asia, Europe and Africa.

**History and authority** : Introduced and proved by Schelling, *Allg. Hom. Zeit*, XXVIII, 177; Allen, T. F., *Encyclop. of Pure. Mat. Med.*, 1874, **3**, 824.

**Preparation** : (a) Mother Tincture  $\phi$       Drug strength 1/10

Pimpinella Saxifraga, moist magma containing  
solids 100 g and plant moisture 233 ml      333 g

Purified Water      167 ml

Strong Alcohol      735 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**PRUNUS VIRGINIANA**

(Prun. vir.)

- Botanical name** : *Prunus virginiana* Linn. **Family:** Rosaceae
- Common name** : *English:* Wild black cherry.
- Description** : A tall shrub or a small tree, up to 8 m in height, rough speckled greyish bark. Leaves thin, ovate-oblong or obovate, abruptly pointed, 5 to 8 cm long, very sharply serrate with spreading or at least non incurved teeth. Flowers white, in short dense racemes in spring along with the leaves. Fruit small and globular, size of a pea, red or amber coloured. Taste very astringent but agreeable when fully ripe.
- Part used** : Inner bark.
- Identification** : (1) Evaporate 25 ml 60% *alcoholic* extract on waterbath to remove *alcohol*. Extract the aqueous part with 3x, 25 ml *chloroform*, concentrate the chloroform layers to 2 ml and carry out TLC of chloroform extract over silica gel 'G' using *toluene* : *chloroform* : *acetone* (40:25:35 v/v) as mobile phase. Under UV light, four spots appear at  $R_f$  0.46, 0.60, 0.69 and 0.78.
- (2) Carry out TLC of aqueous portion left above, spotted on silica gel 'G' using *ethyl acetate* : *butanone* : *formic acid* : *water* (50:30:10:10 v/v) as mobile phase and 1% *ethanolic aluminium trichloride* as spray reagent. Five spot appear under UV light at  $R_f$  0.57, 0.64, 0.73, 0.81 and 0.89.
- Distribution** : North America.
- History and authority** : Hale, Kent, J.T., *New Remedies*, 2, 177.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Prunus Virginiana in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 400 ml |
| Strong Alcohol                            | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**RESERPINE**

(Reserp.)

$C_{33}H_{40}N_2O_9$

**Mol. wt.:** 608.70

**Description** : An alkaloid obtained from the roots of certain species of *Rauwolfia* mainly *R. serpentina* and *R. Vomitoria*. Long prismatic crystals of white to slightly yellow colour. Sparingly soluble in chloroform, acetic acid, benzene and ethyl acetate. Slightly soluble in *acetone, methanol, alcohol, ether* and aqueous solutions of *acetic acid* and *citric acid*. Solution acquires yellow colour and fluorescence specially after the addition of acid or on exposure to light. Contains not less than 98.5% and not more than 101.0% w/w of  $C_{33}H_{40}N_2O_9$  with reference to the substance dried to constant weight at 105°.

**Identification** : (1) Dissolve 5 mg in 10 ml Strong *Alcohol* and divide in two parts:- To one part, add 0.2 ml of *vanillin* (1 mg in 10 ml of *hydrochloric acid*), in 2 minutes a pink colour appears.

(2) To 2nd part add 1 ml of 0.5 N *sulphuric acid* and 0.5 ml of 0.1N *sodium nitrate solution*. Within a few minutes, a green fluorescence appears.

**Melting range** : 268° to 272° with decomposition.

**Assay** : Dissolve about 0.3 g accurately weighed in 10 ml of *glacial acetic acid* titrate with 0.1 N *perchloric acid* using *crystal violet* as indicator, until colour changes to green. Each ml of 0.1 N *perchloric acid* is equivalent to 0.06087 g of  $C_{33}H_{40}N_2O_9$ .

**History and authority** : Proved by Jullian, O.A., *Mat. Med. of New Homoeo Therapeutics*, 1984, 276.

**Preparation** : (a) Trituration 2x Drug strength 1/100

Reserpine	10 g
Saccharum Lactis	990 g

to make one thousand grammes of the Trituration.

(b) Potencies: 3x and higher to be by trituration in accordance with the method of HPI, Vol. I, 6x may be converted to liquid 8x as per HPI, Vol. II.

**Storage** : 6x and below to be stored in well closed container protected from light.



Original Monograph Appeared in HPI Vol. I

Revised Monograph Appeared in HPI Vol. IX

**SACCHARUM LACTIS**

(Sac. Lac.)

**Mol. wt.:** 360.30

- Common name** : *English:* Sugar of Milk.
- Description** : A white, crystalline powder; odourless, taste, slightly sweet. Freely soluble in *water*, very slightly soluble in *alcohol*; practically insoluble in *chloroform*.
- Identification** : (i) Add 5 ml of 1 N sodium hydroxide to 5 ml of a hot saturated solution and gently warm the mixture; the liquid becomes yellow and finally brownish red. Cool to room temperature and add a few drops of *potassium-cupric-tartrate solution*; a red precipitate of cuprous oxide is formed.
- (ii) Heat 5 ml of a 5% w/v solution with 5 ml of *strong ammonia solution* on a water bath at 80° for ten minutes; a red colour is developed.
- Specific optical rotation** :  $[X]_D^{20}$ : Between +54.8° and +55.5° calculated on the anhydrous basis determined at 20° in a solution containing 10 g of Lactose and 0.2 ml of 6 N *ammonium hydroxide* in each 100 ml.
- Clarity, Colour and odour of solution** : A solution of 3 g in 10 ml of boiling water is clear, colourless and odourless.
- Acidity** : 5 g dissolved in 50 ml of fresh boiled *water* requires for neutralisation not more than 0.5 ml of 0.1 N *sodium hydroxide* using *phynolphthalein solution* as indicator.
- Arsenic** : Not more than 1 part per million.
- Heavy metals** : Not more than 5 parts per million. Dissolve 4 g in 20 ml of warm *water*, add 1 ml of 0.1 N *hydrochloric acid* and dilute with *water* to 25 ml.
- Alcohol-soluble matter:** Add 10 g of very finely powdered Lactose to 40 ml of *Dispensing Alcohol* and shake for 10 minutes. Filter, evaporate 10 ml of the filtrate to dryness and dry at 105° for 10 minutes; the residue does not weigh more than 20 mg.

- Sulphated ash** : Not more than 0.1%.
- Water** : Not more than 1.0% for the anhydrous form and not more than 5.5% for hydrous form.
- Microbial limits** : Total microbial count not more than 100 per gm of lactose/biochemic tablets 1 gm sample free from *Escherichia coli* and salmonellae.
- Storage** : Preserve in well-closed container.

Original Monograph Appeared in HPI Vol. VI

Revised Monograph Appeared in HPI Vol. VIII

**SAPONARIA OFFICINALIS**

(Sap. off.)

- Botanical name** : *Saponaria Officinalis* Linn. **Family**: Caryophyllaceae
- Common name** : *English*: Bouncing bet.
- Description** : A perennial herb; stem erect, arising from a horizontal rhizome and form extensive colonies. Stem coarse, 40 to 80 cm high, simple or branched, leafy, clustered, glabrous. Leaves 7 to 10 cm long and 2 to 4 cm wide, elliptic to oblong-lanceolate, acute, glabrous, 3 nerved rarely puberulent. Inflorescence compact, subcapitate to open corymbose, paniculate cyme, up to 15 cm long, primary bracts coriaceous, ultimate ones scarious. Flowers fragrant, frequently double (in horticultural varieties). Calyx 1.5 to 2.5 cm long, 20 nerved, glabrous, calyx tube toothed, triangularly acuminate, frequently becoming deeply bilobed. Petals 5, white or pinkish, petal lobes oblong to oblong-ovate, 8 to 15 mm long, entire, notched at the apex, auricles lacking appendages conspicuous. Stamens 10, exerted. Ovary 1 celled. Fruit a capsule, elliptic-oblong.
- Part used** : Root.
- Microscopical** : Externally covered by 7 to 8 layers of brown cork cells; cortex parenchymatous, 8 to 12 layered containing some contents; a continuous zone of phloem parenchyma and sieve tubes; xylem composed mainly of parenchyma, vessels scattered which are solitary tending to be in radial rows, medullary rays absent. Pith parenchymatous. All types of parenchymatous cells containing cluster crystals of calcium-oxalate. Sand crystal, starch absent. Saponin present.
- Identification** : Evaporate 2 ml of 60% alcoholic extract on a water-bath to dryness; dissolve the residue in chloroform, add a few drops of *acetic anhydride* and 2 ml *sulphuric acid* through the side; pink colour is produced.
- Distribution** : Europe, occasionally in Asia.
- History and authority** : Boericke, W., *Mat. Med. and Repertory*, 1927, 573.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Saponaria Officinalis in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 400 ml |
| Strong Alcohol                                | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SASSAFRAS**

(Sass.)

**Botanical name** : *Sassafras officinale* Nees. & Eberum. **Family:** Lauraceae

**Synonym** : *Sassafras albidum* (Nutt.) Ness.

**Common names** : *English:* Sassafras bark; *French:* Sassafras; *German:* Frenchelholzrinde.

**Description** : A tree, 4 to 30 m high with spicy aromatic bark and green to greenish-yellow twigs. Leaves show heterophylly being entire, ovate or 2 to 3 lobed. Inflorescence many flowered raceme. Flowers small, greenish-yellow, appear in spring. Fruit a drupe, blue, ovoid, borne at the end of a thick, reddish pedicel.

**Part used** : Bark.

**Macroscopical** : Irregularly transversely curved or quilled pieces of variable lengths and from 1 to 4 mm thick; outer surface weak reddish-brown to light yellowish-brown, nearly smooth and showing irregular ridges, inner surface light brown to moderate brown, finely striated fracture short, fractured surface showing a light brown cortical layer and a pale orange to reddish-brown inner bark. Odour aromatic; taste slightly mucilaginous, astringent and pungent.

**Microscopical** : Outermost layer of cork present as regularly arranged tabular cells; secondary cortex composed of numerous layers of irregularly rounded parenchyma cells, some of which contain single or 2 to 4 compound starch grains and others yellowish-red tannin masses; numerous secretory cells containing mucilage or oil globules. Phloem consists of a broad zone of polygonal sieve tubes and narrower phloem parenchyma, interspersed among are numerous isolated, angular strongly lignified bast fibres and secretory cells, containing mucilage or oil; phloem parenchyma and phloem rays contain either starch or orange-red coloured tannin masses.

Powder yellowish-brown to light reddish-brown and shows spindle-shaped bast fibres often irregular in outline with sharply pointed ends, up to 400 µm long and about 25 µm in diameter and with very thick, strongly lignified walls, the lumen often nearly obliterated; single or 2 to 4 compound starch grains, the simple grains being spheroidal or polygonal and often with a cleft, up to 20 µm in diameter, some of the grains swollen or altered and up to 30 µm in diameter; fragments of thin-walled porous tracheae associated with thin walled wood fibres, these due to wood that frequently adheres to the bark.

**Distribution** : U.S.A and Canada.

**History and authority** : Proved by Macfarlan, *High Pot. Provings, Hom., Phys.*, **12**, 100; **13**, 390, 488; **14**, 57; Bradford, T.L, *Index to Homoeopathic Provings*, 1901, 246.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Sassafras in *coarse powder* 100 g  
                   Purified Water 200 ml  
                   Strong Alcohol 824 ml  
                   to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

## SCARLATINUM

(Scarl.)

- Microbiological name** : *Streptococcus pyogenes* Fehleisen 1882.
- History and authority** : Mentioned in O.A. Julian, *Treatise on dynamised micro immunotherapy*, 1984, 368.
- Source for the preparation of Homoeo drug** : Widely distributed in man, animals, skin and air.
- Cultural Characteristics** : Small cocci, arranged in chains or pairs 0.5 to 1 µm in diameter. Gram positive, it stains well with basic aniline dyes. Nonmotile, nonsporing.
- Agar cultures** : Small discrete translucent, convex colonies with entire edge.
- Gelatin stab** : Slight growth resembling that on agar, with no liquefaction.
- Blood agar** : Pin point colonies surrounded by area of hemolysis resulting from lysis of red blood cells. Grows best on blood serum agar.
- Litmus milk** : Acid is formed causing curdling.
- Resistance and metabolism** : Aerobic, optimum temp for growth is 37°C sensitive to wide range to antimicrobial drugs but shows resistance for sulphonamides.
- Biochemical** : Acid is produced from dextrose, maltose, lactose, sucrose but not from *inulin*, raffinose, arabinose glycerol, mannitol, sorbitol and *dulcitol*. Nitrates are not produced, indole is not formed. Catalyst negative.
- Preparation** : (a) Under Nosode, Group N-11, suspension of  $20 \times 10^{10}$  germs/ml is obtained. Proceed according to General Instructions for preparation of Nosodes, Group N-11 to obtain 1x.
- |                  |                    |
|------------------|--------------------|
| Trituration 2x   | Drug strength 1/10 |
| Scarlatinum 1x   | 1 ml               |
| Saccharum Lactis | 99 g               |
- to make one hundred grammes of the Trituration.
- (b) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage**

: Preparations below 6x to be stored at a temperature about 5° and are not to be allowed to freeze.

(a) Not to be dispensed below 6x.

(b) 6x should be free from live germs and should pass the test for sterility as mentioned in Drugs Act.



**SOLANINUM**

(Solanin.)

$C_{45}H_{73}NO_{15}$

**Mol. wt.:** 868.04

**Common name** : *English:* Solanine.

**Description** : Slender needles, soluble in hot *ethanol*; sparingly soluble in *water*; insoluble in *ether* and *chloroform*. Glycoside of steroidal alkaloid, obtained from *Solanum tuberosum*, *Solanum nigrum* L. and *Lycopersicum esculantum* Mill. Not affected by alkalies but mineral acid hydrolyse it to solanidine.

**Identification** : (1) To 2 ml 1% alcoholic solution. Add a few drops of *Mayer's reagent*; brownish white precipitate is appeared.

(2) To 2 ml 1% solution, add a few drops of *Molisch's reagent* and 2 ml *sulphuric acid*, through side; a violet ring is formed at the junction of two liquid.

**Melting range** : Browns and sinters at about 190°, decomposes at about 285°.

**Specific rotation** :  $[\alpha]_D^{20} - 60^\circ$  (Pyridine).

**Reaction** : 5% alcoholic solution is basic to Litmus.

**Ash** : Not more than 0.01 % w/w.

**Loss on drying** : Not more than 0.5 % w/w.

**History and authority** : Proved by Clarus and Hughes; Allen, T.F., *Encyclop. of Pure Mat. Med.* 1877, **9**, 55; Clarke, J.H., *A Dict of Pract. Mat. Med.* 1877, **9**, 1204.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Solanium	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, 6x may be converted to liquid 8x.

**SULFA PYRIDINE**

(Sul. pyr.)

$C_{11}H_{11}N_3O_2S$

**Mol. wt.:** 249.29

- Description** : A white or slightly yellow crystalline powder; odourless; darkens on exposure to light. Very slightly soluble in *water*, slightly soluble in *alcohol*, sparingly soluble in *acetone*, freely soluble in dilute mineral acids and aqueous solution of alkali hydroxides. Contains not less than 99 percent and not more than 100.5 percent w/w of  $C_{11}H_{11}N_3O_2S$  with reference to the substance dried to constant weight.
- Identification** : To 0.1 g add 5 ml 3N *hydrochloric acid* and boil gently for about 5 minutes. Cool in an ice bath, add 4 ml of 2.5% w/w *sodium nitrate solution*, dilute with *water* to 10 ml and place the mixture in the ice bath for 10 minutes. To 5 ml of the cooled mixture add a solution of 50 mg of  $\beta$ -*naphthol* in 2 ml of 2.5 N *sodium hydroxide solution*. An orange-red precipitate is formed, which darkens on standing.
- Melting range** : 190° to 192°, HPI, Vol. I.
- Loss on drying** : When dried to constant weight at 105°, loss not more than 5% of its weight.
- Residue on ignition** : 0.1%.
- Assay** : Weigh accurately about 0.5 g and transfer to a suitable open vessel. Add 20 ml of *hydrochloric acid* and 50 ml of *water*. Stir until dissolves. Cool to about 15°C and titrate with 0.1N *sodium nitrate*. Determine the end point potentiometrically using suitable electrodes while maintaining the temperature at about 15°C. Each ml of 0.1N *sodium nitrate* is equivalent to 0.02493g of  $C_{11}H_{11}N_3O_2S$ .
- History and authority** : Introduced and proved by J. Kishore in 1970, *Actea Homeopathica*.
- Preparation** : (a) Trituration 1x Drug strength 1/10  
                   Sulfapyridine 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.
- Storage** : 6x and below store in a well closed, protected light resistant container.

**THYMUS SERPYLLUM**

(Thy. ser.)

**Botanical name** : *Thymus serpyllum* Linn. **Family:** Labiatae (Lamiaceae)

**Common names** : *Hindi:* Ban ajwain; *English:* Mother of Thyme, Creeping Thyme, Wild Thyme; *German:* Quondel, Wilder Thymian.

**Description** : Perennial creeping herb caespitose or creeping; stems wiry, prostrate and rooting below, ascending erect above, slightly puberulent, quadrangular about 1 mm in diameter, dusky-red-purple or brown to dusky greenish yellow in colour. Leaves obovate, elliptical or ovate, upto 15 mm in length and from 1 to 5 mm in width, obtuse, base attenuate, tapering into a short petiole margin revolute, ciliate, upper surface weak olive green also pellucid-punctate with a few non-glandular and glandular hairs. Inflorescence verticillasters crowded into short terminal spikes; flowers polygamous, calyx tubular bilabiate, glandular hairy with a tuft of white hairs in the throat upper lip 3-lobed, lower lip of 2-slender attenuate lobes bearing bristly marginal hairs; corolla tubular bilabiate, purple or pink, red or white in different varieties, as long or longer than the calyx; stamens slightly didymous and exerted; stigma bifid, nutlets ovoid or oblong, smooth; odour and taste characteristically aromatic. The drug contains not less than 0.5% essential oil.

**Part used** : Whole plant.

**Microscopical** : Leaf: Upper epidermal cells with thick striated cuticle and wavy vertical walls and few elliptical stomata; hairs of three types unicellular, non-glandular, papilla-like hairs, upto 30 µ in length, occasional uniseriate, non-lignified, non-glandular hairs, upto 6-celled but mostly 2 to 3 celled, upto 60 µ long and deep seated glandular hairs with a palisade layer consisting of two layers in some places; a spongy parenchyma region made up of about eight rows of irregular shaped chlorenchyma cells and numerous fibres vascular bundles; lower epidermis similar to upper except that stomata are more numerous.

Stem: Epidermis with cells having convex outer walls with a papillated cuticle, non glandular hairs of two types; 2 to 3 celled, papillated hairs upto 250 µ in length and 2 to 5 celled, non-papillated hairs, upto 500 µ in length; glandular hairs a few having 1-celled stalk and 1 to 2 celled head; a zone of collenchyma beneath the epidermis, well developed in the angles of the stem; a narrow

zone of cortical parenchyma, the inner most layer of which is largest and tangentially elongated; a narrow phloem and broad xylem of numerous wood wedges separated by medullary rays 1-celled; central pith large, disintegrated.

Powdered Drug: Pale to dusky yellow green, with short unicellular, non-glandular papilla or tooth-like hairs, upto 30  $\mu$  in length; 2 to 3 celled, non-lignified, non-glandular hairs, upto 60  $\mu$  long; 2 to 5 celled, papillated, non-glandular hairs from the stem, frequently bent, upto 50  $\mu$  in length; a few hairs from the margins of leaves and the flowers whorls, non-glandular ones, upto 9-celled and upto 8-celled head; fragments of leaf tissue composed of chlorenchyma, vascular tissue and epidermis with broadly elliptical stomata, the latter upto 24  $\mu$  in length, numerous fibres with thick lignified walls and pollen grains 20  $\mu$  in diameter.

**Distribution** : Western temperate Himalayas from Kashmir to Kumaon, 1500 to 4500 m.

**History and authority** : Proved by Paul, Allen of New York in 1902, Anshutz, *New, Old and Forgotten Remedies*.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Thymus Serpyllum, moist magma containing solids 100 g and plant moisture 300 ml 400 g  
 Strong Alcohol 730 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**TRIOSTEUM PERFOLIATUM**

(Trio. per.)

**Botanical name** : *Triosteum perfoliatum* Linn. **Family:** Caprifoliaceae

**Common names** : *English:* Wild ipecac; *French:* Tiroste; *German:* Dreistein.

**Description** : A deciduous, perennial shrub, 0.60 to 1.20 m high; stem hollow, glandularly pubescent, reddish; leaves opposite, obovate-oblong or subrhombic, 10 to 22 cm long, 4 to 12 cm wide, abruptly narrowed below into connate-perfoliate or simple connate base, sparsely setose above, usually softly pubescent bracts. Flowers sessile, 1 to 6 in axillary whorls, each axil with 2 to 3 linear bracts. Calyx 10 to 18 mm long, finely and uniformly pubescent on back and margin, often glandular, corolla crisp-pubescent, dull brown to purple. Fruit a berry, greenish orange to orange-red; seeds hard, oblong.

**Part used** : Fresh roots.

**Macroscopical** : Thick, fleshy with several horizontal sections; externally yellowish or brownish; internally whitish with sickening odour and bitter nauseous taste.

**Identification** : (1) Evaporate 25 ml of 60 percent alcoholic extract of drug on a water bath to remove alcohol. Extract three times with *chloroform* by using 20 ml *chloroform* each time and separate the two layers. Combine and concentrate to 2 ml and carry out TLC of chloroform extract silica gel 'G' using *toluene* : *methanol* (95:5 v/v) as mobile phase and *antimony trichloride* as spray reagent. On warming the plate seven spots appear at  $R_f$  0.35, 0.50, 0.80, 0.85, (all violet) and 0.6 (blue), 0.25, 0.45 (both greenish yellow).

(2) Carry out TLC of aqueous layer on silica gel 'G' using *butanol* : *acetic acid* : *water* (4:1:1 v/v) as phase and aniline phthalate as spray reagent. Two brown spots appear at  $R_f$  0.55, 0.93 on warming the plate at 105°C.

**Distribution** : Canada and U.S.A., Southward Westward to Alabama.

**History and authority** : Introduced and proved by Williamsons, *Trans. Am. Inst. Hom.* 1844-5, 249; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **10**, 25. *Homoeopathic Pharmacopoeia of United States*, 1968, 566.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Triosteum perfoliatum in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 400 ml |
| Strong Alcohol                                | 635 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part of Mother Tincture, three parts Purified Water six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

# APPENDICES

## Appendix

### 1. *Test for Sterility:*

The test for sterility are indented for detecting the presence of viable forms of bacteria, fungi and yeast in pharmacopoeal preparations. The tests must be carried out under conditions designed to avoid accidental contamination of the product during the test. Precautions taken for this purpose should not adversely affect any macro-organism which should be revealed in the test.

The working conditions in which the tests are performed should be monitored by sampling the air and surfaces of the working areas and by carrying out controls tests. The tests are based upon the principle that if bacteria or fungi are placed in a medium which provide nutritive material and water and kept at a favourable temperature, the organisms will grow and their presence can be indicated by a turbidity in the originally clear medium.

The probability of detecting viable micro-organisms in the test for sterility increases with the number present in a given amount of the preparation being tested and varies according to the species of micro-organism present. Very low levels of contamination cannot be detected on the basis of random sampling cannot be detected contamination with certainty. Compliance with the tests for sterility above cannot therefore constitute absolute assurance freedom from microbial contamination.

The test for sterility are designed to reveal the presence of micro-organisms in the samples used in the tests.

### 2. *Test for Penicillin*

To 2 mg of the substance being examined, add 2 mg of sodium salt of *chromotropic acid*, 2 ml of sulphuric acid and immerse in an oil bath at 150°. The solution, when shaken and examined every thirty seconds exhibits the colours stated in **Table**.

### 3. *Test for Sodium*

(a) Dissolve 0.1 g of the substance being examined in 2 ml of *water*. Add 2 ml of 15% w/v solution of potassium carbonate and heat to boiling. No precipitate forms. Add 4 ml of freshly prepared potassium antimonite solution and heat to boiling. Allow to cool in ice water and if necessary rub the inside of the test tube with a glass rod. A dense white precipitate is formed.

(b) Acidify a solution of the substance being examined with N acetic acid and a large excess of *magnesium uranylacetate solution*; a yellow, crystalline precipitate is formed.



*Iodine 0.1 N*

Dissolve about 14 g of iodine in a solution of 36 g *potassium iodide* in 100 ml of *water* and three drops of *hydrochloric acid*, dilute with *water* to 1000 ml and standardise as follows:

Weigh accurately about 0.15 g of *arsenic trioxide* previously dried at 105° for one hour and dissolve in 20 ml of *sodium hydroxide*, by warming if necessary. Dilute with 40 ml of *water*, add two drops of *methyl orange solution* and follow with *dilute hydrochloric acid* until the yellow colour is changed to pink. Add 2 g of sodium bicarbonate, dilute with 50 ml of *water* and add 3 ml of *starch solution*. Slowly add the iodine solution from a burette until a permanent blue colour is produced. Each 0.004946 g of arsenic trioxide is equivalent to 1 ml of 0.1 N iodine.

**Note:** Store 0.1 N solution in dark-amber-coloured, glass-stoppered bottles.

- Sodium thiosulphate : HPI, Vol. 226.  
Sodium hydroxide : Solution of HPI, Vol. I, 223.  
Sodium acetate : HPI, Vol. V, page 128.

**Table**

Time (min)	Ampicilline, Ampicilline Sodium, Ampicillin Trihydrate	Benzathine Penicilline, Benzylpenicillin Potassium	Carbencillin Sodium	Cloxacillin Sodium	Phenoxyethyl Penicillin Potassium
0	Colourless	Yellow	Colourless	Colourless	Colourless
0.5	Colourless	Yellow	Light-brown	Pale-yellow	Colourless
1	Colourless	Yellow	Yellowish brown	Greenish yellow	Colourless
1.5	Colourless	Orange yellow	Greenish brown	Yellowish green	Pale pink
2	Purple	Orange yellow	Greenish brown	Green	Purple
2.5	Deep purple	Orange yellow	Brown	Greenish purple	Purple
3	Violet	Pale orange	Dark brown	Purple	Bluish violet
3.5	Violet	Orange or may char	Dark brown	Purple	Dark blue
4	Charred	—	Dark brown	Purple	Dark blue

**APPENDIX – I**

**Standards for Biochemic Tablets**

May contain starch as binder with ash value not exceeding 3 percent w/w.

## APPENDIX – II

### Determination of Lambda Max by U.V. Spectrophotometer

**(A) For single beam instruments:-**

- (1) Take blank reading of solvent (distilled water / dispensing alcohol).
- (2) Take 0.5 to 1.0 ml sample (Mother Tincture) in the cuvette and add the solvent and adjust till the absorption is below 2.00 Optical Density (O.D.) using UV spectrophotometer. Then take 2.0 to 2.5 ml of the above sample solution in other cuvette and take reading in UV region i.e. 360 to 200 nm and record the absorption maxima.
- (3) Tolerance limit in lambda max is  $\pm 4$  nm for sharp peaks and  $\pm 7$  nm for broad peaks.

**(B) For double beam instruments:-** Corresponding adjustments can be made.

### APPENDIX – III

#### Thin Layer Chromatography (T.L.C.)

- (a) Method pertaining thin layer chromatography be followed as given in Homoeopathic Pharmacopoeia of India, Volume IV.
- (b) Concentrated Mother Tincture means Mother Tincture concentrated by evaporation on a water bath to reduce its volume to half of its original volume.
- (c) UV light means UV light of the wavelength 365 nm and 254 nm or as specified for specific drug.
- (d) Climatic factors like Temperature and Humidity may affect  $R_f$  values. Consequently the tolerance limit up to  $\pm 0.05$  is permitted.
- (e) TLC studies are to be performed on pre-coated TLC plates of aluminium sheet of silica gel 60 F<sub>254</sub>.
- (f) All solvents used for TLC purposes be of analytical grade.

**HOMOEOPATHIC PHARMACOPOEIA  
OF  
INDIA**

**(H.P.I.)**

**VOLUME – VIII**

**2000**



सत्यमेव जयते

**GOVERNMENT OF INDIA  
MINISTRY OF HEALTH AND FAMILY WELFARE  
DEPARTMENT OF INDIAN SYSTEMS OF MEDICINE & HOMOEOPATHY  
NEW DELHI**

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## FOREWORD

The present Homoeopathic Pharmacopoeia Committee was constituted by the Govt. of India, Ministry of Health and Family Welfare vide Letter No. U 13012/2/96-HPC, dated 26<sup>th</sup> May, 1997.

The material in the Eight Volume of Homoeopathic Pharmacopoeia of India consists of:

1. Preface
2. Introduction
3. Monographs
4. Appendix
5. Finished Product Standards

The Eight Volume of Homoeopathic Pharmacopoeia of India is presented herewith to the Govt. of India.

(Sd)  
(Dr. S. P. SINGH)  
*Member Secretary*  
(*Homoeopathic Pharmacopoeia Committee*)

New Delhi  
Dated: 06.04.2000

(Sd)  
(Dr. K. P. MUZUMDAR)  
*Chairman*  
(*Homoeopathic Pharmacopoeia Committee*)



## PREFACE

The Government of India constituted Homoeopathic Pharmacopoeia Committee in 1962 for the purpose of preparing the Homoeopathic Pharmacopoeia of India with the following objectives:

- (i) to prepare a Pharmacopoeia of Homoeopathic drugs whose therapeutic usefulness has been proved on the lines of American, German and British Homoeopathic Pharmacopoeiae,
- (ii) to lay down principles and standards for the preparation of Homoeopathic drugs,
- (iii) to lay down test of identity, quality, purity and
- (iv) such other matters as are incidental and necessary for the preparation of Homoeopathic Pharmacopoeia.

The Committee approved 180 monographs for Volume I of Homoeopathic Pharmacopoeia of India (1971).

The Homoeopathic Pharmacopoeia Committee was reconstituted by the Government of India, Ministry of Health & Family Welfare in 1971 which approved 100 monographs for Volume II (1974), 105 monographs for Volume III (1978) and 65 monographs for IV (1983) of Homoeopathic Pharmacopoeia of India. The term of Committee was extended vide Letter No. X. 19018/21/76-Homoeo, dated the 30<sup>th</sup> November, 1976.

The objectives of Committee were further enlarged to prepare standards for the preparation of Nosodes for the inclusion in the Homoeopathic Pharmacopoeia of India. In addition, it undertook the preparation of Homoeopathic Pharmaceutical Codex in order to give detailed information on drugs and other Pharmaceutical substances and materials that are not included in H.P.I. as well as to supplement the information on drugs already included but could not be listed in H.P.I.

The Homoeopathic Pharmacopoeia Committee was again reconstituted by the Government of India, Ministry of Health & Family Welfare vide Letter No. X. 19018/26-79-Homoeo, dated 12<sup>th</sup> November, 1980 which approved 52 monographs of Volume IV (1983), 114 monographs of Volume V and 62 monographs of Volume VI of the Homoeopathic Pharmacopoeia of India.

The Homoeopathic Pharmacopoeia Committee was further reconstituted by the Govt. of India, Ministry of Health & Family Welfare vide Letter No. X. 19018/68/88-Homoeo, dated 24<sup>th</sup> February, 1988. The members of the Committee were as follows:

1. Deputy Adviser (Homoeo) subsequently upgraded as Adviser (Homoeopathy) (Dr. V. T. Augustine), Ministry of Health & F. W. *Chairman*
2. Drugs Controller (India) (Dr. P. K. Gupta & Dr. P. Das Gupta), Director General of Health Services, New Delhi *Member*

- |   |                         |
|---|-------------------------|
| 3. Director, Central Drugs Laboratory, Kyd Street, Calcutta.<br>(Dr. S. K. Roy) 1988-92<br>(Dr. M. K. Mazumdar) 1993-96<br>(Sh. B. Mandal) From 1997  | <i>Member</i>           |
| 4. Director (Dr. D. P. Rastogi), Central Council for Research in Homoeopathy, New Delhi   | <i>Member</i>           |
| 5. Prof. & Head of the Deptt. of Microbiology<br>(Dr. Srinivas), All India Institute of Medical Sciences, New Delhi   | <i>Member</i>           |
| 6. Director (Sh. P. N. Varma), Homoeopathic Pharmacopoeia Laboratory, C.G.O. Complex, Kamla Nehru Nagar, Ghaziabad-201002   | <i>Member</i>           |
| 7. Prof. (Dr.) R. N. Khanna, M.Sc., Ph.D., Deptt. of Chemistry, University of Delhi, Delhi  | <i>Member</i>           |
| 8. Sh. G. S. Bhar, B. A. Homoeopathic Manufacturing Pharmacist, Calcutta  | <i>Member</i>           |
| 9. Dr. N. Krishna Rao, BA, Hons Homoeopathic Manufacturing Pharmacist, Hyderabad  | <i>Member</i>           |
| 10. Dr. A. U. Ramakrishnan, M.B.B.S., M.F. Hom (Lond.) Homoeopathic Physician, Madras   | <i>Member</i>           |
| 11. Prof. Dr. K. P. Muzumdar, B.Sc., D.M.S., M.B.S. MF (Malaysia), Homoeopathic Physician, Bombay   | <i>Member</i>           |
| 12. Dr. Dilip Kumar Saha, DMS (Cal.) Homoeopathic Physician, Calcutta   | <i>Member</i>           |
| 13. Dr. R. K. Bhandari, Homoeopathic Manufacturer, New Delhi  | <i>Member</i>           |
| 14. Dr. P. N. Mehra, D.Sc., F.N.A. F.N.A.Sc., Prof. Emer, Punjab University, Chandigarh (Till 1992)<br>Prof. (Dr.) S. C. Gupta, M.Sc., Ph.D., Deptt. of Botany University of Delhi, Delhi (from 1993-1996)                    | <i>Member</i>           |
| 15. Assistant Adviser (Homoeo), Ministry of Health & F. W., New Delhi (Dr. B. P. Misra) from Feb., 1988 to March, 1992<br>(Dr. J. K. Asthana) from April, 1992 to Dec., 1993<br>(Dr. Eswara Das) from Jan., 1994 to May, 1997 | <i>Member-Secretary</i> |

This Committee finalised 42 monographs of Volume VI of H.P.I. and 100 monographs for Volume VII of the Homoeopathic Pharmacopoeia of India.

After the creation of new independent Department of I.S.M. & Homoeopathy, the H.P.C. was reconstituted in 1997 by the Govt. of India, Deptt. of ISM & H, Ministry of Health & Family Welfare vide Letter No. U. 13012/2/96-HPC, dated 26<sup>th</sup> May, 1997.

The members of the Committee are as follows:

- |  |                         |
|--|-------------------------|
| 1. Prof. Dr. K. P. Muzumdar, B.Sc., D.M.S. M.B.S. MF (Malaysia)<br>Homoeopathy Physician, Bombay                                     | <i>Chairman</i>         |
| 2. Drugs Controller General of India, (Dr. P. Das Gupta)   | <i>Member</i>           |
| 3. Director, (Sh. B. Mandal), Central Drugs Laboratory, Calcutta   | <i>Member</i>           |
| 4. Director, (Shri Vikramaditya), Homoeopathic Pharmacopoeia Laboratory,<br>Ghaziabad  | <i>Member</i>           |
| 5. Director, Central Council for Research in Homoeopathy,<br>New Delhi (Dr. D. P. Rastogi upto July, 99) (Dr. R. N. Shaw August, 99) | <i>Member</i>           |
| 6. Prof. (Dr.) R. N. Khanna, M.Sc., Ph.D., Deptt. of Chemistry,<br>University of Delhi, Delhi  | <i>Member</i>           |
| 7. Prof. (Dr.) A. K. Bhatnagar, M.Sc., Ph.D., Deptt. of Botany,<br>University of Delhi, Delhi  | <i>Member</i>           |
| 8. Sh. P. N. Bhatt, M. Sc. Production Manager, M/s S.B.L. Ltd.,<br>Sahibabad - U.P.  | <i>Member</i>           |
| 9. Sh. Sharad Vaknalli, B.E. (Hons.), MIE (Ind), M.R.S.H. (Eng), Director,<br>M/s Beck & Koll Laboratories Ltd., Mumbai              | <i>Member</i>           |
| 10. Deputy Adviser (Homoeopathy) (Dr. S. P. Singh),<br>Deptt. of ISM & Homoeopathy, Ministry of Health and Family Welfare            | <i>Member-Secretary</i> |

This Committee finalised 101 monographs for inclusion in the Homoeopathic Pharmacopoeia of India, Volume VIII.

This Homoeopathic Pharmacopoeia Committee was assisted by the following technical and administrative staff:-

- |                     |                                   |
|---------------------|-----------------------------------|
| 1. Dr. G. P. Garg   | <i>Chief Chemist<br/>(HPC)</i>    |
| 2. Dr. Alok Kumar   | <i>Asstt. Adviser<br/>(HPC)</i>   |
| 3. Sh. S. K. Kapoor | <i>Asstt. Secretary<br/>(HPC)</i> |

The Committee commends the work done by Sh. Vikramaditya, Director Incharge, Dr. P. Joshi, Principal Scientific Officer (Microbiology), Dr. (Mrs.) Manisha Sarkar, Principal Scientific Officer (Phg.), Dr. (Mrs.) Indu Vaid, Research Officer (Homoeopathy), Dr. Atul Kumar Gupta, Senior Scientific Assistant (Chemistry) and Sh. Kedar Sharma, Research Assistant (Botany) of Homoeopathic Pharmacopoeia Laboratory, Ghaziabad for assistance in general and for providing technical data in particular for the monographs.

The Government of India, Ministry of Health and Family Welfare takes this opportunity to record its appreciation of work done by the Committee and the staff engaged in this work.

## INTRODUCTION

Seven Volumes of Homoeopathic Pharmacopoeia of India (H.P.I.) have already been published:

<b>Volume</b>		<b>No. of Monographs</b>
Volume I	(1971)	180
Volume II	(1974)	100
Volume III	(1978)	105
Volume IV	(1983)	107
Volume V	(1987)	114
Volume VI	(1990)	104
Volume VII	(1999)	105

The present Volume VIII comprises 101 monographs. The general notices and general instructions published in Volume I to Volume VII of HPI with amendments made from time to time are applicable to the contents of all the volumes published so far.

## LIST OF MONOGRAPHS WITH ABBREVIATIONS

S. No.	Name of Monographs	Abbreviation
1.	Acalypha Indica	Acal. ind.
2.	Acidum Aceticum	Acet. ac.
3.	Acidum Nitricum	Nit. ac.
4.	Adlumia Fungosa	Adlu. fun.
5.	Aesculinum	Aescul.
6.	Aethusa Cynapium	Aeth.
7.	Alchemilla Vulgaris	Alch. vul.
8.	Allium Ursinum	All. ursi.
9.	Anthoxanthum Odoratum	Antho.
10.	Apatite	Apat.
11.	Argentite	Argen.
12.	Azadirachta Indica	Azad. ind.
13.	Bacilli of Morgan	Morg.
14.	Bacillus Coli	Bac. coli
15.	Bacillus No. 7	<b>Bacil. 7</b>
16.	Betula Pendula Folia	Bet. p. fol.
17.	Borago Officinalis	Bora. off.
18.	Brassica Oleracea	Bras. ole.
19.	Brucella Melitensis	Brucel.
20.	Bryonia Cretica	Bry. cre.
21.	Caesalpinia Bonducella	Caes. bon.
22.	Calluna Vulgaris	Call. vul.
23.	Caltha Palustris	Calth.
24.	Canchalagua	Canchal.
25.	Cardiospermum Helicacabum	Card. hel.
26.	Carica Papaya	Carica p.
27.	Carum Carvi	Carum c.
28.	Caulophyllum Thalictroides	Caul. th.
29.	Cetraria Islandica	Cet. is.
30.	Cheiranthus Cheiri	Chir. cheir.
31.	Chelidonium Majus	Che. maj.
32.	Chelone Glabra	Chelo.
33.	Chimaphila Umbellata	Chimap. u.
34.	Cicuta Virosa	Cic. vir.
35.	Coccus Cacti	Coc. c.
36.	Collinsonia Canadensis	Collin. c.
37.	Condurango	Cond.
38.	Cotyledon Umbilicus	Coty. umb.
39.	Datisca Cannabina	Dat. can.
40.	Dioscoreinum	Diosnum.
41.	Eichhornia Crassipes	Eich. cra.
42.	Emblica Officinalis	Emb. off.
43.	Erodium Cicutarium	Erod. cic.

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>
44.	Eschscholtzia Californica	Es. cal.
45.	Ethylum Nitricum	Ethy. nit.
46.	Eucalyptol	Eucatul.
47.	Eugenia Caryophyllata	Eug. car.
48.	Euphorbia Cyparissias	Euph. cyp.
49.	Fel Tauri	Fel taur.
50.	Ferrum Pernitricum	Fer. pern.
51.	Ferrum Sidereum	Fer. sid.
52.	Ferrum Tartaricum	Fer. tart.
53.	Filipendula Ulmaria	Filip. ul.
54.	Foeniculum Vulgare	Foen. vul.
55.	Galega Officinalis	Galeg. of.
56.	Glycogenum	Glyco.
57.	Gun Powder	Gunp.
58.	Haplopappus Baylahuen	Haplo. ba.
59.	Harungana Madagascariensis	Harung. m.
60.	Hemidesmus Indicus	Hemid. in.
61.	Herniaria Glabra	Hern. gla.
62.	Hoitzia Coccinea	Hoit. coc.
63.	Hypericum Perforatum	Hyper.
64.	Ilex Aquifolium	Ilx. a.
65.	Larrea Mexicana	Larr. mex.
66.	Laurocerasus	Lauro.
67.	Lavandula Angustifolia	Lav. ang.
68.	Leonuorus Cardiaca	Leo. card.
69.	Leucas Aspera	Leuc. asp.
70.	Levisticum Officinale	Levis. of.
71.	Luffa Operculata	Luf. oper.
72.	Malva	Malva
73.	Menyanthes Trifoliata	Menyan. t.
74.	Momordica Chirantia	Momor. ch.
75.	Myrrhis Odorata	Myr. odo.
76.	Myrtillocactus Geometrizans	Myrt. geo.
77.	Nasturtium Officinale	Nas. off.
78.	Natrum Hypochlorosum	Nat. h. chl.
79.	Ononis Spinosa	Onon. spi.
80.	Oxalis Acetosella	Oxal. ac.
81.	Paraphenylene Diamine	P. phen. di.
82.	Paronichia Illecebrum	Paro. il.
83.	Perilla Frutescens	Per. fru.
84.	Petasites Hybridus	Pet. hy.
85.	Pimpinella Anisum	Pimp. ani.
86.	Potentilla Anserina	Pot. ans.
87.	Potentilla Erecta	Pot. er.
88.	Ranunculus Bulbosus	Ran. bulb.

<b>S. No.</b>	<b>Name of Monographs</b>	<b>Abbreviation</b>
89.	Ranunculus Repens	Ran. rep.
90.	Resina Laricis	Res. lar.
91.	Rumex Acetosa	Rum. acet.
92.	Saccharum Officinale	Sac. off.
93.	Saponaria Officinalis	Sap. off.
94.	Stachys Officinalis	Sta. off.
95.	Strophanthus Gratus	Stroph. g.
96.	Strophanthus Sarmentosus	Stro. sar.
97.	Swertia Chirata	Chirata
98.	Teucrium Scorodonia	Teu. scor.
99.	Thymus Vulgaris	Thym. vul.
100.	Vincetoxicum Hirudinaria	Vinc. hir.
101.	Withania Somnifera	With. som.



**ACALYPHA INDICA**

(Acal. ind.)

- Botanical name** : *Acalypha indica* Linn. **Family**: Euphorbiaceae
- Synonyms** : *Acalypha spicata* Forsk; *Acalypha cilliata* Wall.; *Acalypha canescen* Wall.
- Common names** : *Hindi*: Khokali; *English*: Indian nettle; *French*: Ortic de l'inde.
- Description** : An erect, annual herb, 30 to 90 cm in height. Leaves: ovate or rhombic-ovate, hairy, sometimes yellowish-green in colour, 2.5 to 8 cm in length, with margins dentate; petiole gradually narrowing, usually then the blades. Inflorescence a spike, slender, erect, upto 7.6 cm. Flowers: unisexual; male flowers terminal or axillary, minute, clustered at the top; female flowers with an accrescent, broad, leafy bract. Fruit: a capsule, often one seeded, concealed in the bract; seeds pale-brown, ovoid, acute and smooth. Root: vertical, woody, somewhat tortuous and pale buff coloured.
- Part used** : Whole Plant.
- Microscopical** : Leaf: dorsiventral. In transection shows a single layered epidermis with occasional characteristic calcium oxalate crystal bearing cells; a single layered palisade, continuous over the midrib region; spongy parenchyma 3 to 5 layered; stellate crystals of calcium oxalate present all over the mesophyll and midrib. Midrib much pronounced on lower side with collenchyma 1 or 2 layered on the lower side, 3 or 4 layered on the upper side below the epidermis; vascular bundle arc shaped, conjoint and collateral; a few uniseriate, 2 or 3 celled warty trichomes. Stomata paracytic, present on both the surfaces, but less frequent on upper epidermis. Stomatal index for lower epidermis 18.75 to 22.45 and for upper epidermis up to 6.1.
- Petiole: almost circular in outline, with trichomes and epidermal cells similar to the leaf; epidermis single layered, flowed by 3 or 4 layers of collencymatous hypodermis, some cells of which having brown contents. Ground tissue parenchymatos, containing cluster crystal of calcium oxalate. Stele a ring of 5, conjoint, collateral vascular bundles.

Stem: in transection circular in outline and shows a single layered epidermis with occasional characteristic calcium oxalate crystal bearing cells; uniseriate, 2 or 3 celled, warty, short trichomes. Cortex composed of alternate zones of collenchyma and chlorenchyma. Pericycle of patches of sclerenchyma fibres. Stele, a continuous ring of 2 or 3 layers of phloem and a large woody xylem. Rays absent. Pith large, parenchymatous with crystals and starch grains.

**Identification** : To 1 ml of Mother Tincture add 0.2 ml *phloroglucinol solution* and 0.2 ml of *hydrochloric acid* and heat gently. A cherry red colour is produced that soon changes to brown.

**Distribution** : Throughout India as a common weed.

**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 3; Ghose, S.C., *Drugs of Hindoosthan*; Hering, C., *Guiding Symptoms*, 1879, **1**, 20.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Acalypha Indica, moist magma containing  
                   solids 100 g and plant moisture 300 ml 400 g  
                   Purified Water 100 ml  
                   Strong Alcohol 635 ml  
                   to make on thousand millilitres of the Mother Tincture.

(b) Potencies: 2x with *Dilute Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**ACIDUM ACETICUM**

(Acet. ac.)

CH<sub>3</sub>COOH

Mol. wt.: 60.05

- Common names** : *English*: Glacial acetic acid; *French*: Acide acetique; *German*: Essigsäure.
- Description** : A clear, colourless liquid having a very strong odour of vinegar and a sharp acid taste. It is miscible with *water* and *alcohol* in all proportions. It is prepared from *alcohol* or by synthesis. Sp. gr. 1.0471. B.P. 118°, M.P. 15.6°. Contains not less than 99.5% of C<sub>2</sub>H<sub>4</sub>O<sub>2</sub> and not more than 100.5%
- Identification** : When warmed with dilute sulphuric acid and alcohol, a characteristic odour of *ethyl acetate* is evolved.
- Arsenic** : Not more than 2 parts per million.
- Iron** : Evaporate 2 g on a water bath. The residue complies with the limit test for *iron* (5 parts per million).
- Chloride** : 5 ml complies with the *limit test for chlorides*.
- Sulphate** : 1.5 ml diluted with sufficient water to produce 15 ml. The solution complies with the limit test for *sulphates* (100 parts per million w/v).
- Heavy metals** : Evaporate 5 ml to dryness in a porcelain dish on a water bath, warm the residue with 2 ml of 0.1 N *hydrochloric acid* and add *water* to make 25 ml, the limit of heavy metals is 10 parts per million.
- Oxidisable impurities** : Dilute 5.0 ml with 10 ml of purified water. To 5.0 ml of the resulting dilution, add 6 ml of *sulphuric acid*, cool, add 2.0 ml of 0.1 N *potassium dichromate solution*, allow to stand for 1 minute, add 25 ml of *water* and 1 ml of freshly prepared 10% (w/v) *potassium iodide solution* as indicator. Not less than 1.0 ml of 0.1 N *sodium thiosulphate solution* is required.
- Non-volatile matter** : Leaves not more than 0.1% w/w of residue, when evaporated to dryness and dried to constant weight at 105°.



**ACIDUM NITRICUM**

(Nit. ac.)

HNO<sub>3</sub>

**Mol. wt.:** 63.01

- Common names** : *English:* Nitric Acid; *French:* Acide nitrique; *German:* Salpetersaure.
- Description** : A fuming liquid, very caustic, highly irritating, odour characteristic, choking. Miscible with *water* and *dilute alcohol* in all proportions. Sp. gr. 1.41. B.P. 120°. Prepared by oxidation of *ammonia* with air in the presence of *platinum* as catalyst. Attacks most metals evolving brown fumes. Contains not less than 69 % and not more than 71 % w/w of HNO<sub>3</sub>
- Identification** : (1) It is acidic even when freely diluted with *water*.  
(2) When neutralised, responds to the reactions of *nitrates*.  
(3) Put 1 drop on a woolen fabric or animal tissues; a bright yellow spot develops.
- Arsenic** : Not more than 5 parts per million.
- Copper and Zinc** : Dilute 1 ml with 20 ml of *water* and add slight excess of dilute solution of *ammonia*; No blue colour is produced. Pass *hydrogen sulphide*; no precipitate is produced.
- Chloride** : 5 ml neutralised with *dilute ammonia solution* complies with the *limit test for chlorides*.
- Lead** : Not more than 2 parts per million.
- Iron** : 0.5 ml complies with the *limit test for iron*.
- Sulphate** : To 2.5 ml, add 10 mg of *sodium bicarbonate* and evaporate to dryness on a water-bath; the residue dissolved in *water*, complies with the *limit test for sulphates*.
- Non-volatile matter** : Not more than 0.01 % w/w.
- Assay** : Weigh accurately about 4 g into a stoppered flask, containing 40 ml of *water* and titrate with 1 N *sodium hydroxide* using solution of *methyl orange* as indicator, Each ml of 1 N *sodium hydroxide* is equivalent to 0.06301 g of HNO<sub>3</sub>

**History and authority** : Provings were made under Hahnemann's directions; Allen T.F., *Encyclop. of Pure Mat. Med.*, 1874, 7, 10.

**Preparation** : (a) Mother Solution Drug strength 1/10 (w/v)  
Acidum Nitricum 141 g  
Purified Water in sufficient quantity  
to make one thousand millilitres of the Mother Solution.

(b) Potencies: 2x and 3x with Purified Water to be freshly made for immediate use only. 4x and 5x with *Dilute Alcohol*. 6x and above with *Dispensing Alcohol*.

**Storage** : Potencies below 3x are to be stored in well-closed containers with glass stopper.

**ADLUMIA FUNGOSA**

(Adlu. fun.)

- Botanical name** : *Adlumia fungosa* (Ait.) Greene **Family:** Fumariaceae
- Synonym** : *Adlumia cirrhosa* Raf.
- Common names** : *English:* Climbing fumitory, Mountain fringe, Allegheny vine.
- Description** : A handsome biennial vine, up to 3 m in length. Leaves: pinnately compound, leaflets lobed. Stem: thin, slender. Flowers: white or purplish, in drooping axillary panicle. Sepals 2, scale-like; petals united to form cordate-ovate structure, having appendages at the rim; stamens 6, epipetalous; carpels 2, style filiform. Fruit: a capsule, slender, 2-valved, few seeded.
- Part used** : Shoot.
- Microscopical** : Characteristic feature of this plant is the presence of secretory cells or idioblasts in mesophyll of leaves. Stomata are anomocytic; guard cells not always round in outline, sometimes polygonal having corners extending into filiform tips. Petiole has an arc of 3 or more vascular bundles.
- Identification** : (1) To 2 ml of 60% alcoholic extract, add *Dragendorff's reagent*; an orange red precipitate is produced.
- (2) To 2 ml of 60% alcoholic extract, add 5 ml of water, 1 ml of *dilute ammonia solution* and extract with 10 ml of ether. Evaporate the ether phase in a porcelain dish on a water-bath and add 0.2 ml of *sulphuric acid* to the residue; a brown colour is produced.
- Distribution** : North-East America.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 115–116.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Adlumia Fungosa in <i>coarse powder</i> | 100 g  |
| Purified Water                          | 400 ml |
| Strong Alcohol                          | 635 ml |
- to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage**

: Protected from light and store with care.



**AESCULINUM**

(Aescul.)

 $C_{15}H_{16}O_9 \cdot 1.5H_2O$ **Mol. wt.:** 367.30

- Common name** : *English:* Aesculin hydrate.
- Description** : White or brownish white crystalline powder; odourless. Sparingly soluble in *water, ethanol*, very slightly soluble in *ether* and *chloroform*. Contains not less than 97% w/w and not more than 102% of *coumarin glycosides*, calculated as 6, 7-*dihydroxycoumarin-6-O-glucoside sesquihydrate*.
- Identification** : Test Solution: Dissolve about 1 g accurately weighed substance in 100 ml of *water* by heating on a water-bath. Filter while still warm in a 500 ml flask and make up to mark after cooling.
- (1) Take 1 ml of the Test Solution and dilute with *water* to 100 ml. Again dilute 1 ml of the resulting solution with *water* to 100 ml. This dilution shows blue fluorescence under ultraviolet light.
  - (2) Combine 5 ml of the Test Solution with 2 ml of the *Nitric acid*. Add 8 ml of *dilute ammonia solution* and shake; a red colour is produced.
  - (3) Combine 10 ml of the Test Solution with 4 ml of *Fehling's solution* and heat on a water-bath; a red precipitate is formed gradually within 15 minutes period.
- Sulphated ash** : Not more than 0.1% determined with 1 g of the substance.
- Heavy metals** : Heat the sulphated ash with 0.8 ml *Hydrochloric acid* and 0.1 ml of *sulphuric acid* to dryness. Dissolve the residue in 2 ml of *dilute hydrochloric acid* heating gently and dilute with 3 ml of *water*. Neutralise with *dilute ammonia solution* and dilute with *water* to 20 ml. 12 ml of the resulting solution must comply with the *limit test* for heavy metals. Compare the test solution with *lead standard solution*.
- Assay** : Titrate 50 ml of the test solution with 0.05 *N sodium hydroxide* solution until the colour changes to red. 1 ml of 0.05 *N sodium hydroxide solution* is equivalent to 18.5 ml of *coumarin glycosides*, calculated as 6,7-*dihydroxycoumarin-6-O-glucoside sesquihydrate*.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 123.

- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Aesculinum       | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**AETHUSA CYNAPIUM**

(Aeth.)

- Botanical name** : *Aethusa cynapium* Linn. **Family**: Apiaceae (Umbelliferae)
- Common names** : *English*: Fool’s parsely, Dog parsely, Lesser hemlock; *French*: Cigiiedes jardins; *German*: Garten-Schierling.
- Description** : An annual plant, with stem freely branched, unspotted, 20 to 70 cm high. Leaves: shining, broadly deltoid in general outline, twice or thrice pinnately dissected into narrow acute segments, ultimate divisions of leaves terminating in short brownish points. Inflorescence an umbel, 2 to 5 cm wide; primary rays 10 to 20, white, pedicels numerous, 1 to 5 mm long. When in flower it has no involucre and the partial involucre is composed of 3 to 5 long pendulous bracts which are drawn to one side. Flowers: small, pedicel slender. Sepals absent; petals obcordate, with a deep notch and a short incurved tongue, white; styles short reflexed. Fruit a cremocarp, rather acute, about 3 mm long and 2 mm wide.
- Part Used** : Whole plant.
- Microscopical** : Leaf: Vertical section shows a single layer of epidermis; stomata anomocytic on both the surfaces; one or 2 layers of small, polygonal, chlorenchyma cells below both the upper and lower epidermis; followed by 3 or 4 layered loosely arranged spongy tissue. Vascular region pronounced conically on the lower side, with collenchyma below both the epidermis, 2 layered below the upper while 6 to 8 layered below lower epidermis. Vascular bundles conjoint, collateral, with idioblasts containing oil content in phloem. Stomatal index 15.4 to 22.2 for both the surfaces; palisade ratio 7 to 8.
- Rachis: In transection dorso-convex and shows ridges and grooves, prominent grooves on the lower aspect; epidermis single layered; 4 or 5 layers of collenchyma below the epidermis in ridges; ground tissue parenchymatous; vascular bundles conjoint, collateral, one below each ridge, encapped with an sclerenchyma patch and a secretory duct above each sclerenchyma patch idioblasts containing oil in phloem region. Ground tissue parenchymatous, also containing secretory ducts.

Stem: In transection more or less circular in outline with ridges and grooves, showing a single layered epidermis; many layers of collenchyma in each ridge below the epidermis; cortex parenchymatous; vascular bundles conjoint, collateral, below each ridge but arranged in a ring; secretory canals like petiole present either just outside above the phloem or in phloem; idioblasts scattered in the vascular bundles. Pith large, parenchymatous.

**Identification** : Carryout TLC of alcoholic extract on silica gel ‘G’ plate using *n-butanol : acetic acid : water* (4 : 1 : 1 v/v) as mobile phase. Under UV light five spots appeared at  $R_f$  0.20 (blue), 0.30 (blue), 0.50 (brown), 0.60 (blue) and 0.90 (red). With *aluminium chloride* spray reagent and under UV light spot at  $R_f$  0.50 gives yellow fluorescence.

**Distribution** : Europe, Asia Minor, Caucasia, Siberia, naturalized in North America.

**History and authority** : First introduced into Homoeopathic Practice in 1828 by Nenning, *Prac. Mith.*, 1828; H & T *Annalen*, **4**, 113. Mentioned in Allen, T.F., *Encyclop. of Pure. Mat. Med.*, 1874, **1**, 59; Hering, C., *Guiding Symptoms*, 1879, **1**, 92.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Aethusa Cynapium* in *coarse powder* 100 g  
 Purified Water 400 ml  
 Strong Alcohol 635 ml  
 to make one thousand milliliter of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three part Purified Water and six parts *Strong Alcohol*; 2x and higher with *Dispensing Alcohol*.

**ALCHEMILLA VULGARIS**

(Alch. vul.)

- Botanical name** : *Alchemilla vulgaris* Linn. **Family:** Rosaceae
- Synonym** : *Alchemilla montana* Schmidt.
- Common name** : *English:* Lady's mantle.
- Description** : A perennial herb, having a very thick rhizome. Stem: unbranched, 20 to 60 cm high. Leaves: reniform, 3 to 10 cm wide, shallowly 5 to 9 lobed, lobes sharply serrate. Flowers: 3.5 to 5 mm wide, in large, branched, terminal panicle. Hypanthium campanulate, about 1.5 mm long, its throat nearly closed by a quadrate disc. Sepals 4, triangular, 1.5 mm long, alternating with 4 smaller lanceolate bractlets; petals 0; stamens 4; carpel 1. Fruit: a solitary achene. Odourless and with a faint bitter and astringent taste.
- Part used** : Shoot.
- Microscopical** : Leaf: dorsiventral and shows in the surface view the upper epidermal cells sinuous, while that of lower surface markedly dentate with pitted cell walls; cuticle smooth; stomata anomocytic, occasional on upper but frequent on lower surface. Hairs present on lower surface of the leaf particularly on veins and are unicellular with thick walls having small lumen and pitted base. Transection of leaf shows 1 or 2 layers of palisade and a spongy parenchyma, crystals of calcium oxalate present in cells near and around vascular bundles. Petiole in transection shows several centric rings of vascular bundles, each surrounded by an endodermis and consisting of a ring of xylem and a phloem; a central pith and hairs similar to those in lamina. Calyx shows thin walled, irregular and sinuous epidermal cells having stomata only on the lower surface, crystals of calcium oxalate lodged in its mesophyll.
- Identification** : 1. To 0.5 ml of 50% alcoholic extract, add 2 ml of *methanol*, 0.2 g of *zinc dust* and 2 ml of *hydrochloric acid*; a pink or pale wine-red colour is produced.
2. Dilute 0.5 ml of 50% alcoholic extract with 2 ml of *methanol*, add 0.1 ml of *ferric chloride solution*; an intense dark green colour is produced.
- Distribution** : Widely distributed in Eurasia.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 131.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Alchemilla Vulgaris in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 559 ml |
| Strong Alcohol                              | 478 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ALLIUM URSINUM**

(All. ursi.)

- Botanical name** : *Allium ursinum* Linn. **Family:** Liliaceae
- Common names** : *English:* Ramsons, Broad-leaved garlic.
- Description** : An annual with bulb narrow, solitary, consisting of a single petiole base. Leaves 2 or 3, narrowly elliptical to narrowly ovate, 10 to 25 cm long and 4 to 8 cm broad, acute, bright green; petiole 5 to 20 cm, strongly curved. Inflorescence 6 to 20 flowered, loose pseudo-umbel, flat topped without bulbils; scape trigonous or semicylindrical and 2-angled, 10 to 45 cm long, sheathed by petiole at base. Spathe scarious, with valves ovate, acuminate, shorter than flowers. Flowers white, pedicels longer than flowers. Perianth segments 8 to 10 mm, white, lanceolate, acute; stamens shorter than perianth; stigma obtuse. Taste very acrid and odour garlic like.
- Part used** : Whole plant.
- Identification** : (1) To 1 ml of the 40% alcoholic extract, add 0.1 g of *zinc dust* and 1 ml of *hydrochloric acid*. The vapours that develop blackish brown stain on a moistened *lead acetate* paper.
- (2) To 2 ml of 40% alcoholic extract, add 0.2 ml of *dilute sodium hydroxide solution*. A yellowish white precipitate is produced.
- Distribution** : Europe, Central Russia to Central Spain, Asia Minor.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 141–142.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Allium Ursinum in <i>coarse powder</i> | 100 g  |
| Purified Water                         | 600 ml |
| Strong Alcohol                         | 432 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.
- Storage** : Protected from light.

**ANTHOXANTHUM ODORATUM**

(Antho.)

- Botanical name** : *Anthoxanthum odoratum* Linn.      **Family:** Poaceae (Gramineae)
- Common name** : *English:* Sweet vernal grass.
- Description** : A tufted perennial herb, usually 20 to 50 cm high. Leaves flat, short, sparsely hairy, acuminate with smooth sheaths, glabrous or pubescent, ligule up to 4 mm, Inflorescence a panicle, 2 to 9 cm, compact, oblong, sometimes lobed below, with spikelets 7 to 9 mm long, having 4 to 6 florets. Sterile glumes 2 hyaline, with a green keel, pubescent the lower ovate, acute, 1-veined, half the length of the upper one; the upper ovate-lanceolate, mucronate, exceeding the floret and enfolding it, 3-veined. Sterile glumes, bifid with brown silky hairs in lower half. Awn of upper glume almost equalizes the length of main body of upper glume, while the awn of lower glume falls short. The fertile glume glabrous, almost orbicular, half as long as sterile glumes, unawned, 5 to 7 veined. Palea shorter than lemma, lanceolate. Stamens 2, anthers 4 mm; lodicules absent; ovary glabrous. Smells strongly of *coumarin*, which gives the characteristic odour to new-mown hay.
- Part Used** : Whole plant.
- Microscopical** : Leaf abaxial epidermis shows both short and long cells; occasionally paired short cells over the veins which are otherwise absent in the laminar part; elongated silica bodies with smooth outline on veins; long unicellular hairs with swollen bases all over the surface; small unicellular spicule over the veins and leaf margins; dumbel-shaped guard cells with barrel-shaped subsidiary cells. In transection lamina shows slightly wavy outline on abaxial surface. Epidermis single layered with cuticle; bulliform cells well developed in groups, fan shaped on adaxial epidermis; mesophyll chlorenchymatous, undifferentiated; vascular bundles with both metaxylem and protoxylem, phloem towards adaxial side, vascular bundles surrounded by an outer and an inner bundle sheaths of parenchyma cells, cells of the inner sheath being smaller and thicker than of outer layer, usually with sclerenchymatous extensions on both abaxial and adaxial sides.



Culm: in transection circular in outline with large central cavity. Epidermis single layered with cuticle, immediately followed by groups of thin-walled sclerenchymatous mechanical tissues. Vascular bundles in 2 rings, outer ring of smaller bundles embedded in the lower region of mechanical tissue, alternating assimilatory bundle, while the inner ring of larger vascular bundle. Ground tissue parenchymatous, 4-layered. The center a hollow.

Root: shows an outer piliferous layer with unicellular hairs; cortex parenchymatous, 5 or 6 cells wide; endodermis well developed with marked thickening on inner tangential and radial walls; stele polyarch, consisting of 6 or 8 vessels, phloem much reduced; ground tissue thick walled; center of the stele with fibrous elements.

**Distribution** : Native of British Isles; throughout Europe, North Africa, introduced in North and South America, Australia, Tasmania.

**History and authority** : Mentioned in Clarke, J.H., *A Dict. of Prac. Mat. Med.*, 1900, 1, 118; Boericke, W., *Mat. Med. and Repertory*, 1927, 89.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Anthoxanthum Odoratum in *coarse powder*                   100 g  
                   Purified Water   250 ml  
                   Strong Alcohol   780 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, two parts of Purified Water and seven Parts of *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**APATITE**

(Apat.)



**Mol. wt.:** 504.30

**Description** : It is a naturally occurring mineral containing not less than 90% of  $\text{Ca}_5\text{F}(\text{PO}_4)_3$ . It is colourless, whitish-grey, yellowish-green or green, hexagonal crystals with sub-resinous luster. Powdered mineral is greyish white or pale brown.

**Identification** : Test solution: Transfer about 1.0 g accurately weighed powdered substance to a beaker and add 10 ml of *nitric acid*. Heat on a water-bath for 30 minutes while stirring. Allow to cool, dilute with 10 ml of *water* and filter through a sintered glass funnel into 10 ml graduated flask. Wash the beaker, funnel with *water*, add to the flask and make up the volume to the mark with water.

(1) To 5 ml of test solution add with shaking 2 ml of *ammonia solution*. Precipitate is formed and filtered. Dissolve the precipitate by adding 3 ml of *acetic acid*. The filtrate yields the reaction characteristic of calcium.

(2) 5 ml of test solution yields reaction characteristic of *phosphate*.

(3) To 2 ml of *acetic acid* (12%) add 0.4 ml of mixture of equal parts by volume of 5% solution (w/v) of *zirconium nitrate* in dilute *hydrochloric acid* and 2% solution (w/v) of *alizarin* and heat on water-bath for 1 minute. Add 0.1 g of powdered substance and shake. The colour of the mixture changes from violet to yellow.

**Acid insoluble matter** : Not more than 8.0percent.

**Assay** : To 20 ml of the test solution add 25 ml of 0.1 M *sodium EDTA* solution and 250 ml of *water*. Neutralise the solution with *concentrated ammonia solution*. Add 20 ml of *ammonium chloride* buffer solution, 10 ml of the *triethanolamine*, about 30 mg of *eriochrome* black-T mixed indicator and titrate with 0.1 M *zinc sulphate solution* until the colour changes to red. Each ml of 0.1 M *sodium EDTA* solution is equivalent to 10.9 mg of  $\text{Ca}_5\text{F}(\text{PO}_4)_3$ .

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 165.

**Preparation** : (a) Trituration 1x Drug strength 1/10  
                   *Apatite in coarse powder* 100 g  
                   *Saccharum Lactis* 900 g  
                   to make one thousand grammes of the Trituration.

- (b) Potencies: 2x and higher to be triturated in accordance with the method HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**ARGENTITE**

(Argen)

Ag<sub>2</sub>S

**Mol. wt.:** 247.83

**Common names** : *English:* Argyrite, Silver glance, Argentous sulfide.

**Description** : It is naturally occurring mineral containing not less than 95% of Ag<sub>2</sub>S. The mineral consists of cubic crystals that are dark grey sometimes with black or brown iridescence and show metallic lustre. It is hexahedral, octahedral, dodecahedral or icositetrahedral. Powdered mineral is dark grey.

**Identification** : Test solution: Transfer about 0.5 g accurately weighed powdered substances, to a porcelain crucible and ignite at about 600° for 30 minutes. When cold, heat the residue with 5 ml of *water* and 5 ml of *nitric acid* on a water-bath until nitrous oxide gases have evaporated. Allow the solution to cool, filter through an ashless filter paper into a 100 ml graduated flask. Wash the filter paper with water and add the washings to the graduated flask and make the volume up to mark with *water*.

(1) The test solution gives the reaction characteristic for silver.

(2) Heat 0.1g of the powdered substance with 2 ml of *hydrochloric acid*. The evolving vapour colours the *moistured lead (II) acetate paper* blackish brown.

**Acid insoluble matter** : Not more than 4%.

**Assay** : To 25 ml of the test solution add 50 ml of *water* and 2 ml of *ammonium iron (III) sulphate* solution and titrate with 0.1N *ammonium thiocyanate solution* until a slight orange shaking. 1 ml of 0.1 N *ammonium thiocyanate* solution is equivalent to 12.39 mg of Ag<sub>2</sub>S.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 169.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Argentite in *coarse powder* 100 g

Saccharum Lactis 900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**AZADIRACHTA INDICA**

(Azad. ind.)

- Botanical name** : *Azadirachta indica* A. Juss. **Family**: Meliaceae
- Synonym** : *Melia azadirachta* Linn.
- Common names** : *Hindi*: Nimba, Nim or Neem; *English*: Margosa; *French*: Lilas des Indes.
- Description** : A large evergreen tree, up to 15 m in height, with trunk straight or crooked. Leaves alternate, imparipinnately compound, 20 to 38 cm long, crowded near the ends of branches; leaflets 9 to 12, sub-opposite, 2.5 to 11 cm by 1 to 3.5 cm, obliquely lanceolate, sometime falcate, bluntly serrate, smooth, inequilateral at base, dark green, bitter in taste. Flowers small, numerous, shortly stalked, arranged in long, slender, lax, axillary panicle; bracts minute, deciduous; calyx 5 spreading, rounded blunt, ciliate; corolla 5, white imbricate, spreading, oblong-spathulate, somewhat twisted with a conduplicate claw, smooth outside, finely pubescent within; stamens 10, filaments fused into a long cylindrical erect tube, anthers erect, introse, oblong 2-lobed; ovary 3-locular, with 2 ovules in each locule, stigma 5-lobed. Fruit: a drupe, ovoid, dark yellow. Seed solitary.
- Part used** : Bark.
- Macroscopical** : Dark grey to greyish brown, very rough, irregularly wrinkled, fissured with curved edges, exfoliating, inner surface brown with fine striations; up to 80 mm thick; fractures granular in outer bark and fibrous in inner bark. Odour garlic like and taste bitter.
- Microscopical** : Old bark shows thick rhytidome, characterised by the presence of 2 or more alternate cork layers and dead secondary phloem (this part also constitutes the sloughing off portion of the bark), rectangular cork cells, often with reddish brown contents; a thin layer of phellogen, followed by rectangular phelloderm cells. Cortical cells almost rectangular. Some cells containing gummy contents, some with starchy contents. A network of crushed cells present; abundant rhomboidal, prismatic and rosette crystals. Pericycle not distinguished. Phloem wide with sieve elements plates; patches of bast fibres radially arranged, with moderately thick walls and concentric lamellae; occasional secretory canals present with bast; rays uni- to multiseriate, very broad towards the cortex.

- Identification** : (1) To 2 ml of alcoholic extract, add a few drops of *Schiff's reagent*, shake well, keep for some time; a red colour develops.
- (2) To 1 ml of Mother Tincture add a drop of *Dragondroff's reagent*; a red precipitate develops.
- (3) To 1 ml of Mother Tincture add a drop of *Mayer's reagent*, the solution turns yellow.
- Distribution** : Widespread in India, widely distributed throughout Indo-Malayan region and also in tropical Africa.
- History and authority** : Proved by P.C. Majumdar, Ghose, S.C., *Drugs of Hindoosthan*, 1965, 69; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 235.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Azadirachta Indica, moist magma containing solids 100 g and plant moisture 25 ml | 125 g  |
| Purified Water   | 375 ml |
| Strong Alcohol   | 635 ml |
- to make one thousand millilitres to the Mother Tincture.
- (b) Potencies: 2x with *Dilute Alcohol*; 3x and higher with *Dispensing Alcohol*.

**BACILLI OF MORGAN**

(Morg.)

**Microbiological name** : *Morganelia morganii* Fulton 1943.

**History and authority** : O.A. Julian, *Treatise on Dynamised Micro Immuno Therapy* Part–II, 1985, 400.

**Biological distribution** : Most frequently found in faeces of man.

**Source of preparation** : Collected from faeces of man.

**of homeopathic drug**

**Morphology** : Usually straight rods, 0.4 to 0.6 by 1.0 to 3.0  $\mu\text{m}$ , may occur in pairs or chains not encapsulated, non-pigmented.

**Cultural characteristic**: Does not swarm spontaneously but may be induced to spread on solid surfaces by reducing the concentration of agar, put refractive odour in protein containing media, about one third of the strains are hemolytic on blood agar. It is resistant to ampicillin and chloramphenicol, optimum temperature for growth is 34° to 37°.

**Biochemical** : Usually forms a small amount of gas from glucose, acidify mannose. It does not ferment lactose, sucrose, salicin, mannitol, maltose, xylose adonital or inositol. Decompose urea and convert phenyl aleine to phenyl pyruvic acid. Form indole but not produce  $\text{H}_2\text{S}$  in T.S.I. medium, liquify gelatin from lipase, maltose fermentation negative. Acetone not formed.

**Preparation** : (a) Under nosode group II, suspension consisting of  $20 \times 10^{10}$  germ/ml is obtained, proceed according to “General instructions for preparation of Nosodes” Group N II to obtain 1x.

(b) Trituration 2x	Drug strength 1/10
Medorrhinum 1x	10.0 ml
Saccharum Lactis	90.0 g

to make one hundred grammes of the Trituration.

(c) Potencies: 3x and higher to be triturated in accordance with the method HPI, Vol. I.

**Storage** : Preparation below 6x to be stored at a temperature about 5° and are not to be allowed to freeze.

**Caution**

- : (a) Not to be dispensed below 6x.  
(b) 6x should be free from live germs and should pass the test for sterility as mentioned in Drug Act.

T.S.I.: Tripple Sugar Iron Agar Medium.



**BACILLUS COLI**

(Bac. coli)

**Microbiological name** : *Escherichia coli* Castellani and Chalmers 1919.

**Synonym** : *Bacterium coli* Commune Escherich 1885.

**History and authority** : O.A. Julian, *Treatise on Dynamised, Micro-immunotherapy*, Part-II, 1980, 540, translated by Rajkumar Mukerji (1985).

**Biological distribution and source for preparation of Homoeopathic drug** : Organism is found in the intestinal tract of man and animals. Rich flora is especially found in lower ileum and in the colon. It also causes infection in urinary tract, particularly in married women, girls and in elderly men with prostatic enlargement. *Escherichia coli* is also causal organism in appendicular abscess. Peritonitis, cholecystitis, wound infection, etc. The organism is isolated from faeces.

**Morphology of the organism** : Straight rods, 0.4 to 0.7  $\mu\text{m}$ , long, occurs singly, in pairs or in short chains, both non-motile or motile. About 80% strains possess fimbriae. Fimbriae present on surface of both motile and non-motile strains are of type 1. Many strains have capsules while others form abundant loose slime when grown on sugar containing medium at 15° to 20°, gram negative, non-spore forming bacilli.

**Cultural characteristic**: Grows readily on nutrient agar media. Colonies circular, smooth, low convex, moist, with shiny surface, entire edged, colourless to translucent, grey and easily emulsified in saline; or rough, dry and do not emulsify well in saline. Cultures have a peculiar fetid odour. Colonies are moist circular, about 2 to 3 mm in diameter after 24 hours in incubation at 37°, when the organism is grown on eosin, methylene blue agar (Ap-I). On Mac-Conkey's agar (Ap-I) the colonies are rose-pink in colour. Growth is either impaired or totally inhibited on deoxycholate citrate agar and if any colony that do grow is small, pink and opaque. Bile salts mixture (Ap-I) promotes the growth of organism, while sodium selenite, sodium tetrathionate and brilliant green inhibit (Ap-I). In nutrient broth (Ap-I) growth of the organism is rapid with or without formation of pellicle and a slight, slimy sediment.

**Biochemical reaction** : Carbohydrates are fermented with production of acid and gas. A few strains are anaerogenic i.e. producing acid but no gas. Most of the strains ferment lactose, while in some cases this may be delayed or absent. Forms indole in peptone broth, reduces nitrates to nitrites. Methyl red test is positive while Voges-Proskauer reaction is negative. Acetate can be used as sole carbon source, but no citrate. No hydrogen sulphide is produced. Gelatin and urea are not hydrolysed.

**Preparation** : (a) Under Nosode, Group N1, take suspension consisting of  $20 \times 10^{10}$  bacterium/ml. Proceed according to General instruction for preparation of Nosode (Group N1) to obtain 1x.

(b) Trituration 2x	Drug strength 1/100
Escherichia Coli	1.0 ml
(Bacillus coli) 1x Saccharum Lactis	99.0 g

to make one hundred grammes of the trituration.

(c) Potencies: 3x and higher to be triturated in accordance with method HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : All preparations below 6x should be stored at a temperature between 4° to 6° but should not be allowed to freeze.

**Caution** : (i) Organism should be handled carefully and aseptic conditions should be maintained up to 6x.

(ii) Not to be dispensed below 6x.

**BACILLUS NO. 7**

(Bacil. 7)

**Microbiological name** : *Citrobacter freundii* Verkman and Gillen 1932.

**Synonym** : *Escherichia freundii*.

**History and authority** : O. A. Julian, *Treatise on Dynamised Micro Immunotherapy* part-II, 1985, 388.

**Biological distribution** : It is found in soil and *water* and in the faeces and urine of human.

**Source for preparation of Homoeopathic Drug** : It is isolated from water, rarely from soil and faecal matter of man and animals. Probably non-pathogens.

**Morphology** : Form-short, plump rods, sometimes coccus like, cell grouping occurs singly in pairs or in short chains. It is 0.5  $\mu\text{m}$  in size. It stains well with aniline dyes, gram negative, motile with peritrichous flagella. Non sporing and non encapsulated.

**Cultural characteristic**: Eosin methylene blue agar-moist circular colonies about 2 to 3 mm in diameter after 24 hours incubation at 37°C. These colonies have dark centres when examined by transmitted light.

**Mac conkeys agar** : They appear as mucoid red colonies 3 mm in diameter.

**Wilson and Blair medium** : No growth because of presence of brilliant green broth. It is able to grow on mullers tetrathionate broth, sodium desoxy cholate citrate agar, Wilson and Blairs bismuth sulphite medium, kristensens brilliant green phenol red agar, all of which inhibit or retard the growth of *E. coli*.

**Resistance and metabolism** : It is aerobic and facultative anaerobe. Optimum temperature for growth is 37°. It is killed at 60° in about 15 to 30 minutes. Growth is not inhibited by KCN.

**Biochemical** : It can use citrate as sole carbon source. Trimethylene glycol formed glycerol. Ferments mannitol usually with gas production. May or may not ferment lactose but nearly always form  $\beta$ -galactosidase. H<sub>2</sub>S produced, indole methyl red test positive and Proskauer test negative.

**Preparation** : (a) Under Nosode groups No II suspension consisting of  $20 \times 10^{10}$  bacteria/ml is obtained. Proceed according to general instruction for preparation of nosode group II to obtain 1x.

(b) Trituration 2x Drug strength 1/10  
Bacillus No. 7 10 ml  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(c) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : Preparation below 6x should be stored at  $0^{\circ}$  to about  $5^{\circ}$  and not to be allowed to freeze.

**Caution** : (a) Not to be dispensed below 6x.  
(b) 6x should be free from live bacteria and should pass the test for sterility as mentioned in Drugs Act.

**BETULA PENDULA FOLIA**

(Bet. p. fol.)

- Botanical name** : *Betula alba* Linn. **Family**: Betulaceae
- Synonyms** : *Betula pendula* Roth.; *Betula verrucosa* Ehrh.
- Common names** : *English*: European Birch; *French*: Bouleau; *German*: Birke.
- Description** : A small tree with white exfoliating bark. Branchlets pendulous and glabrous. Leaves: petiolate, alternate, simple, double serrate, deltoid-ovoid and acuminate, with base truncate to cuneate, 4 to 7 cm long and 2.5 to 4 cm wide; petiole slender. Inflorescence a catkin. Staminate catkins in clusters of 1 to 3, drooping, 4 to 9 cm long. Pistillate catkins 2 to 4 cm long, with scales closely imbricate, 3-lobed; bracts puberulent to glabrous with divergent or arched-recurving lateral lobes, terminal lobe small. Fruit: a one seeded samara with 2 membranous lateral wings.
- Part used** : Leaves.
- Macroscopical** : Petiole slender, 2 to 3 cm long and glabrous. The lamina deltoid-avoid and acuminate, 4 to 7 cm long and 2.5 to 4 cm wide, 5 to 7 veinlets present on each side; margin biserrate but entire at the cuneiform base; dark green and slightly glossy on the upper surface and greyish green on the underside; young leaves thin and sticky.
- Microscopical** : Leaf: shows presence of peltate glands, each of which is made of a central zone of relatively bigger, 5 to 8 cells, encircled by a ring of radially elongated palisade like cells. Epidermis frequently mucilaginous. Stomata anomocytic.
- Identification** : (1) Dilute 0.1 ml of 43% alcoholic extract with 10 ml of ethanol. Add 0.1 ml of 10% *solution of Ferric chloride* in *ethanol* and shake. A green colour is produced.
- (2) To 2 ml of alcoholic extract, add 2 ml of *methanol* and 1 ml of *aluminium chloride* solution. A yellow colour is produced in day light and bluish green fluorescence under ultra violet light.
- Distribution** : Native of Europe, cultivated in North America.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 4<sup>th</sup> Supplement, 1990, 241.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Betula Pendula leaves in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 350 ml |
| Strong Alcohol                                | 687 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two part Purified Water and seven parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**BORAGO OFFICINALIS**

(Bora. off.)

**Botanical name** : *Borago officinalis* Linn. **Family:** Boraginaceae

**Common names** : *English:* Borage; *French:* Bourrache; *German:* Borretsch.

**Description** : An annual herb, up to 60 cm in height, having hirsute stem, with branches spreading or ascending. Leaves: alternate, elliptic to oblong or ovate, acute or obtuse at apex, 3 to 10 cm long, hairy, lower leaves with long, winged petiole, upper leaves sessile or nearly so. Flowers: showy, numerous in large terminal cymes, bright blue, 15 to 25 mm wide on stout, spreading or recurving pedicels, 3.5 to 5 cm long. Calyx-lobes linear, about 1 cm long; corolla 5, bright blue; stamens 5, anthers 6 to 9 mm long; ovary 4 lobed. Fruit: a nutlet, brown, 6 to 10 mm long, rough and wrinkled.

**Part used** : Leaf.

**Macroscopical** : Leaves elliptic to oblong or ovate; acute or obtuse at apex, hairy; sometimes with winged petiole.

**Microscopical** : Leaf: shows single layer of epidermis; stomata anomocytic, present on both surfaces; trichomes both non-glandular and glandular. Non-glandular trichomes of two types: (a) simple unicellular, conical without any warts and (b) calcified or silicified, unicellular, with swollen base containing cystoliths. Glandular hairs also of two types: (a) with unicellular long stalk and unicellular head; (b) occasionally with 2-celled stalk and unicellular head present on midrib. Mesophyll differentiated in up to 3 layers of palisade and a spongy parenchyma. Midrib with 3 layers of collenchyma below the lower epidermis; ground tissue parenchymatous; stele conjoint, collateral, with phloem cells containing brown contents. Stomatal Index for upper epidermis 22.7 to 28.6 and for lower epidermis 18.18 to 23.7; Palisade ratio 1.43 to 2.6.

Petiole: Transection through the distal end winged and shows a single layer of epidermis followed by 2 or 3 layered collenchymatous hypodermis, ground tissue parenchymatous containing an arc of up to 10 separate vascular bundles with the median one larger than the remainder; each vascular bundle conjoint, collateral, with phloem towards the lower side; trichomes similar as on leaf.

- Identification** : (1) To 5 ml of 60% alcoholic extract, add 5 drops of *Mayer's reagent*. A white precipitate appears.
- (2) To 2 ml of 60% alcoholic extract, add a pinch of Mg powder and 4 drops of *conc. Hydrochloric acid*. A deep pink colour appears.
- (3) Carryout TLC of chloroform extract, using mobile phase, Toluene : Ethyl formate : Formic acid (5 : 4 : 1 v/v). Under UV light five spots appeared at  $R_f$  0.83, 0.68, 0.61, 0.53, 0.47 (all red). On exposure to iodine vapour it shows five spots at  $R_f$  0.83, 0.63, 0.61, 0.53, 0.47 (all brown).

**Distribution** : Native of North Africa and Europe, occurring in India.

**History and authority** : *Homoeopathic Pharmacopoeia of United States*, 1990, 1060.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Borago Officinalis in <i>Coarse powder</i> | 100 g  |
| Purified Water                             | 330 ml |
| Strong Alcohol                             | 685 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.



**BRASSICA OLERACEA**

(Bras. ole.)

**Botanical name** : *Brassica oleracea* Linn. var. *capitata* Linn.

**Family**: Brassicaceae (Cruciferae)

**Common names** : *English*: True cabbage; *French*: Chou cabus; *German*: Kraut.

**Description** : A herbaceous plant with non-tuberous root, main stem axis short and thick. Leaves: broadly obovate, deeply concave without blisters, borne on short internodes, greenish white, smooth, more or less fleshy, densely packed, overlapping each other, spirally arranged into a gigantic leafy-bud, 15 to 25 cm in diameter. Inflorescence: long and open raceme. Flowers: large, often up to 1.3 cm long, light creamy in colour; sepals erect, petals long clawed; pedicel slender. Fruit: a siliqua, large, long-beaked.

**Part used** : Leafy bud.

**Macroscopical** : Leafy bud 15 to 25 cm in diameter, terminal at the apex of the stem, with spirally arranged leaves borne on short internodes so that leaves close together and overlap each other. Phyllotaxy spiral. Lamina size increases from inside to outside; fleshy, greenish or reddish white, with veins very prominent.

**Microscopical** : Leaf: epidermis of the leaf midrib made up of single layer of barrel shaped cells. Midrib containing two vascular bundles, encapped and partially separated by sclerenchymatous cells and a bundle sheath of thick walled cells encircling vascular bundles. Ground tissue parenchymatous. Mesophyll not differentiated, but with vascular supply containing sclerotic caps on phloem and encircled by bundle sheath. Stomata anomocytic.

Stem: Epidermis single layered; cortex broad parenchymatous, endodermis absent, pericycle represented by patches of sclerotic fibres; vascular bundles thin, radially elongated and separated by broad rays; pith broad, parenchymatous.

**Distribution** : Cultivated in India.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 249.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Brassica Oleracea, moist magma containing solids 100 g and plant moisture 233 ml | 333 g  |
| Purified Water   | 267 ml |
| Strong Alcohol   | 537 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**BRUCELLA MELITENSIS**

(Brucel.)

- Microbiological name** : *Brucella melitensis* Bruce 1887.
- Synonyms** : *Bacillus melitensis*; *Alcaligenes melitensis*.
- History and authority** : O.A. Julian, *Treatise of a Dynamised Micro Immunotherapy*, Vol. II, 23, translated from original France by Rajkumar Mukerji (1985).
- Biological distribution** : Strict parasite living on goat, sheep and man.
- Source for the preparation of homoeopathic drug** : It is isolated from the infected cow's milk.
- Morphology** : Forms short rods. Cell grouping-occurs singly, in pairs or in short chains. Size: 0.5 to 0.7 µm in width by 0.6 to 1.2 µm in length. It stains well with ordinary aniline dyes. Gram negative and non acid fast. Non-motile, non-sporing, non-encapsulated.
- Cultural characteristics** : Agar plate : In 48 hours at 37°, develops all, round, convex, amorphous colonies about 0.5 mm in diameter. Smooth, with glistening surface, entire edged, translucent, greyish-white by reflected light, almost colourless by transmitted light; consistency butyrous; with emulsification easy. 6 days colonies slightly larger and greyish-yellow. No differentiation.
- Agar stroke: In 48 hours at 37°, develops poor to moderate, partly confluent, colonies slightly raised, with surface and edge formed of single colonies. After a week the agar is turned brownish and crystals may appear.
- Gelatin slab: In 10 days at 22°, develops poor to moderate filiform, greyish-white growth, consisting of very small colonies closely packed; extending to bottom of tubes. No surface growth and no liquefaction.
- Broth** : In 24 hours at 37° shows poor growth with slight turbidity, no surface growth and no deposit. After 10 days, there occurs an abundant growth with moderate turbidity and moderate powdery deposits; disintegrates completely on shaking, later the deposits become very viscous and almost impossible to disintegrate.
- Loeffer's serum** : In 48 hours at 37°; forms moderate, slightly raised, chiefly confluent growth of yellowish colour. No liquefaction.

- Potato** : In 6 days at 37°; forms thin mostly confluent growth of yellowish brown colour. After 14 days the growth has a café au lait or chocolate colour.
- Mac Conkeys Agar plates** : In 7 days at 37°; forms small, circular, convex, amorphous, yellowish colonies, 0.1 to 1.0 mm diameter, with smooth surface and entire edge. May appear slightly mucoid.
- Litmus milk** : Medium becomes alkaline.
- Resistance and metabolism** : It is not specially resistant. Killed by moist heat at 60° in 10 minutes and by 1.0 percent moist phenol in about 15 minutes. In the dried, powdered condition they may survive for 3 months sealed. On agar slope cultures at room temperature, may remain alive for 1 to 6 months. One third of the strains inhibited by mitomycin C in a concentration of 1 mg/ml. Aerobic. Shows no growth under strictly anaerobic condition. Growth is often improved by 10 percent CO<sub>2</sub>. Optimum temperature 37°; limits 20 to 40. Optimum H-ion concentration pH 6.6 to 7.4. Growth slightly improved by glucose, glycerine, liver extract, blood and serum. Brown pigment formed on potato and sometimes in old agar cultures. Broth turned alkaline to pH 8.0 or even higher. Growth in all media is relatively slow. Some growth on Mac Conkeys medium, does not haemolyse blood.
- Biochemical** : It does not ferment carbohydrates. Indole (-); MR (-); VP (-); Nitrates and nitrites reduced. NH<sub>3</sub> sometime (+); H<sub>2</sub>S (-); MB reduced; Catalase (+); Oxidase (-); Urease activity moderate but variable.
- Preparation** : (a) Under Nosode, Group NI, take suspension consisting of 20×10<sup>10</sup> bacteria/ml. Proceed according to General Instruction, for preparation of Nosode, Group NI to obtain 1x.
- |                      |                     |
|----------------------|---------------------|
| (b) Trituration 1x   | Drug strength 1/100 |
| Brucella Mellitensis | 1.0 ml              |
| Saccharum Lactis     | 99.0 g              |
- to make one hundred grammes of the Trituration.
- (c) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.
- Storage** : Preparation below 6x to be stored at a temperature about 5° and are not be allowed to freeze.

**Caution**

: (a) Not to be dispensed below 6x.

(b) 6x should be free from live germs and should pass the test for sterility as mentioned in Drug Act.

**BRYONIA CRETICA**

(Bry. cre.)

**Botanical name** : *Bryonia cretica* L. sub sp. *dioica* (Jacq.) Tutin.

**Family:** Cucurbitaceae

**Synonym** : *Bryonia dioica* Jacq.

**Common name** : *English:* White bryony.

**Description** : A perennial, dioecious, tendril climbing or trailing herb with thick, fleshy tap root, penetrating deep in the soil. Leaves: ovate or roundish in outline, palmately 5-lobed, margin wavy, toothed, rough, paler beneath. Flowers unisexual. Staminate flowers in racemes, stalked, pale-greenish, 12 to 18 mm in diameter, with sepals 5, triangular, spreading; petals 5, oblong, hairy, distinctly net-veined, 2 to 3 times longer than sepals; androecium of 2 pairs of stamens united by their filaments. Pistillate flowers in corymb, greenish white, more or less sessile, 10 to 12 mm in diameter, with sepals and petals as in male flowers but smaller; stigma rough, bifid; ovary smooth, broadly ellipsoid, separated from the perianth by a short constriction. Fruit: a berry, red, about the size of a pea grain seed, grey and compressed.

**Part used** : Root.

**Macroscopical** : A fleshy, thick tap root, often branched, about 5 cm in diameter; greyish-yellow externally and marked at close intervals with prominent, transverse, corky ridges, often extending half round the root. Internally whitish and fleshy, exudes a small quantity of latex which is usually turbid. Odour unpleasant and nauseating; taste acrid and bitter.

**Microscopical** : Transection of root shows thin, yellowish-grey cork; a wide parenchymatous cortex, vessels thin walled, in small groups, radially arranged; rays with parenchymatous space containing cells; pith absent.

**Identification** : Extract 5 ml of 45% alcoholic extract with 5 ml of *ether*. Evaporate the *ether* phase to dryness and add 1 ml of *dimethylaminobenzaldehyde* solution to the residue. A red colour is produced within 5-10 minutes.

**Distribution** : Common in England, Central and Southern Europe; rare in West Asia and North Africa.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 253.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Bryonia Cretica in *coarse powder* 100 g  
Purified Water 567 ml  
Strong Alcohol 468 ml  
to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x contain one part Mother Tincture, Four parts Purified Water and Five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CAESALPINIA BONDUCELLA**

(Caes.bon.)

**Botanical names** : *Caesalpinia bonducella* (Linn.) Flem.**Family:** Fabaceae (Leguminosae)**Synonyms** : *Caesalpinia crista* Linn.; *Guilandina bonducella* Linn.**Common names** : *Hindi:* Karanju; *English:* Bonduc nut.**Description** : A climbing prickly shrub, extending up to 5 m in height, with branchlets glossy, black, armed with hooked and straight, hard yellow prickles at the base of pinnae and elsewhere. Leaves: pinnate, 30 to 60 cm long; petioles prickly; stipules in the form of a pair of reduced pinnae at the base of the leaf, each furnished with a long mucronate point; pinnae 6 to 11 pairs 5 to 7.5 cm long, stalked, coriaceous, elliptic-oblong, base rounded to acute, apex mucronate, with upper surface glabrous, shining, lower surface puberulous, dull. Inflorescence: 30 to 60 cm long, axillary and terminal raceme. Flowers: yellow, fragrant, dense at the top of raceme, lax downwards, pedicels 5 to 8 mm, brown downy; bracts squarrose, linear, acute, 1 cm long, fulvous-hairy, calyx 5, corolla 5, stamens 10. Fruit: a pod, dark brown to black, shortly stalked, oblong, 7 to 7.5 cm long and 4.5 cm wide, densely armed on the faces with wiry prickles. Seed: 1 or 2, black, orbicular or ovoid to reniform, braked and hard.**Part used** : Seed.**Microscopical** : Seed globular to reniform in shape, 1.2 to 2 cm in diameter, grey to black, hard, with a smooth shiny surface, the shell is thick and brittle, enclosing a yellowish white, bitter, fatty kernel.**Microscopical** : Testa in transection consists of a single outer layer of conspicuous, straight, rod-shaped, thick walled suberised cells having narrow lumen; a wide zone of 40 to 50 layers of thick walled, oval, isodiametric, parenchymatous cells with brown contents; upper 2 or 3 layer of which compactly arranged; a small strip of vascular strands; a small zone of thin walled polygonal parenchyma cell. Embryo is made up of polygonal parenchyma cell containing oil globules.



**Identification** : Evaporate 20 ml of Mother Tincture on a water bath to remove alcohol. Extract with  $3 \times 20$  ml of *petroleum ether* and concentrate to 2 ml. Carry out TLC of petroleum ether layer using *petroleum ether : diethyl ether* (9:1 v/v) as solvent system. In UV light one spot appeared at 0.13 (Blue). After spraying with *antimony trichloride reagent*, two spots appeared at  $R_f$  0.09 (violet) and 0.15 (violet).

**Distribution** : Throughout India up to 2000 m. Most common along the sea-coast of West Bengal, southern India and up to 850 m on the hills.

**History and authority** : Ghose, S.C., *Drugs of Hindoosthan*, 1965, 114.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
     *Caesalpinia Bonducella* in *coarse powder* 100 g  
     Purified Water 400 ml  
     Strong Alcohol 635 ml  
     to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CALLUNA VULGARIS**

(Call. vul.)

- Botanical name** : *Calluna vulgaris* (Linn.) Hull **Family:** Ericaceae
- Common name** : *English:* Ling.
- Description** : A branched shrub, up to 1 m high. Leaves: small, opposite, lanceolate to oblong, 2 to 4 mm long, sessile, auriculate at base, leaf margins rolled up. Flowers 40 merous, subtended by membranous, brownish bracts. Calyx 3 to 4 mm long, petaloid, pink, red or mauve in colour; much extending corolla. Corolla campanulate, tubular deeply 4-lobed, of same colour as calyx; stamens 8, anthers with a dark round gland and horn-like appendages at its base; ovary 4-celled, stigma 4-lobed. Fruit: a capsule, enclosed by persistent calyx.
- Part used** : Shoot.
- Microscopical** : Leaf: in transection more or less triangular in outline, with a deep groove on the lower side. Epidermis single layered, covered by gelatine and then by cuticle. Mesophyll differentiated into a 1-layered palisade and spongy parenchyma, palisade being present only on lower surface, spongy parenchyma having large air spaces. Stomata are distributed inside the specialized groove, covered by hairs present inside the groove itself. Stele a conjoint, collateral vascular bundle with exarch xylem.
- Stem: in transection lacks in well defined sclerenchyma in pericycle and shows uniseriate rays. Vessels have simple circular or elliptical pits.
- Identification** : (1) To 1 ml of 60% alcoholic extract add 10 ml of water and 0.1 ml of *ferric chloride*; a dirty green colour is produced.
- (2) Heat 1 ml of 60 % alcoholic extract with 1 ml of *hydrochloric acid* and 50 mg of *resorcinol* for 5 minutes on a water bath; a dark red colour is produced.
- Distribution** : Widely distributed in Europe.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 269.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Calluna Vulgaris in <i>coarse powder</i> | 100 g  |
| Purified Water                           | 350 ml |
| Strong Alcohol                           | 683 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.
- Storage** : Protected from light.

**CALTHA PALUSTRIS**

(Calth.)

- Botanical name** : *Caltha palustris* Linn. **Family**: Ranunculaceae
- Common names** : *English*: Marsh marigold; *French*: Populage; *German*: Kuhblume.
- Description** : A perennial herb. Stem hollow, 20 to 60 cm high, branched above. Leaves: basal leaves broad petioled, the upper ones progressively shorter petioled and uppermost nearly or quite sessile. Flowers: bright yellow, on short or enlarged peduncle. Sepals 5 or 6 rarely 7, elliptic to obovate; petals none; stamens numerous, anthers linear-oblong or lanceolate-oblong, about 2 mm long. Fruit: follicles, in bunches of 1 to 12, 10 to 15 mm long, abruptly or gradually narrowed into divergent style.
- Part used** : Whole plant.
- Microscopical** : Leaf: transection shows single layer of epidermis; stomata anomocytic, present only on lower surface; two types of trichomes: (a) small and unicellular with pointed tip and (b) small, unicellular, club-shaped round heads, occurring in grooves of vein on upper surface. Mesophyll with arm-shaped palisade and spongy parenchyma. Stomatal index 18.2 to 25 and palisade ratio 4.6 to 8.2.
- Petiole: in transection circular in outline with shallow ridges and furrows and shows epidermis single layered, ground tissue parenchymatous, vascular bundles conjoint, collateral, arranged in a ring and encapped on upper side by a patch of sclerenchyma. Central part hollow.
- Identification** : Take 10 g extract with 100 ml of 50% *alcohol* and evaporate the extract on a water bath. Extract the residue with *chloroform*. Carryout TLC of the extract on Silica gel 'G' using *chloroform* : *methanol* (9:1 v/v) as mobile phase. Under UV light four spots are appeared at  $R_f$  0.11 (green), 0.36 (blue), 0.50 (yellow) and 0.88 (blue) with fluorescence.
- Distribution** : At high altitude in the Himalayas in India, North America and temperate Asia.
- History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 2, 421.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Caltha Palustris, moist magma containing solids 100 g and plant moisture 400 ml | 500 g  |
| Strong Alcohol  | 635 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part of Mother Tincture, three parts of Purified Water, six parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CANCHALAGUA**

(Canchal.)

- Botanical name** : *Centaurium chilense* (Pers.) Druce. **Family:** Gentianaceae
- Synonym** : *Erythraea chilensis* Pers.
- Common name** : *English:* Canchalagua.
- Description** : A small, herbaceous, annual plant. Stems: erect, up to 26 cm in height, usually branched above. Leaves: elliptic-lanceolate, 1-nerved, opposite, simple, entire. Inflorescence cyme. Flowers: red, on small pedicel. Fruit: a capsule.
- Part used** : Whole plant when in flower.
- Macroscopical** : Plant small, herbaceous. Leaves elliptic-lanceolate. 1-nerved. Inflorescence cyme. Flowers red on small pedicel.
- Microscopical** : Leaf: transection shows thick walled upper and lower epidermis with anomocytic stomata present on both surfaces, stomata sunken type with sub-stomatal chamber; mesophyll not differentiated, only spongy type chlorophyll containing parenchyma cells present; midrib pronounced on lower surface; a conjoint, collateral vascular bundle surrounded by parenchyma present in midrib. Stomatal index of upper epidermis 21.5 to 25.0 and of lower is 33.3 to 38.4.
- Stem: transection shows thick walled epidermis followed by parenchymatous cortex; phloem and cambium indistinct; xylem present as a wide and thick ring, wood fibres also present; pith represented by a narrow ring of parenchyma with a hollow center.
- Root: Transection shows a prominent epidermis, followed by parenchymatous cortex; vascular tissue a wide circular zone of wood elements including fibres. Pith absent.
- Distribution** : Chile, Uruguay and desert edge of southern California.
- History and authority** : Introduced and proved by Dr. Richter, Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **2**, 447; *American Homoeopathic Pharmacopoeia*, 1890, 147.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                     |        |
|-------------------------------------|--------|
| Canchalagua in <i>coarse powder</i> | 100 g  |
| Purified Water                      | 200 ml |
| Strong Alcohol                      | 824 ml |
- to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**CARDIOSPERMUM HELICACABUM**

(Card. hel.)

- Botanical name** : *Cardiospermum helicacabum* Linn. **Family:** Sapindaceae
- Common name** : *English:* Balloon-vine
- Description** : Much branched, tendril climbing herb. Leaves: compound, leaflets ovate, incised, cuneate at the base. Flowers: white, about 5 mm wide, long peduncled, bearing tendrils near the flower. Sepals 4, 2 large and 2 small; petals 4, somewhat unequal, each bearing at base an erect petaloid appendage; stamens 8. Fruit: a capsule, globose to ovoid, inflated, 3-celled and 3-lobed.
- Part used** : Aerial part of plants.
- Microscopical** : Stem in transection shows ridges and furrows; ridges with collenchymatous patches; pith composed of thin walled cells, characteristically devoid of stone cells (related species contain stone cells in pith). Phloem fibres sometimes with transverse partitions. Leaf wholly or partly centric, with unicellular or uniseriate multicellular hairs, often with swollen, sometimes striate bases, sunk below the epidermis; crystals present accompanying vascular bundles of leaf; leaf peduncle and petiole show 4 isolated vascular bundles.
- Identification** : (1) To 1 ml of 60% alcoholic extract, add 10 ml of purified water and 0.5 ml of *ferric chloride solution*. A dark olive green colour is produced.
- (2) To 2 ml of the 60% alcoholic extract, add 50 mg of *magnesium powder* and 1 ml of *hydrochloric acid*. A strong dark red colour is produced.
- Distribution** : Native of tropical America and India.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 285–286.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Cardiospermum Helicacabum in <i>coarse powder</i> | 100 g  |
| Purified Water                                    | 400 ml |
| Strong Alcohol                                    | 635 ml |
- to make one thousand milliliters of the Mother Tincture.



(b) Potencies: 2x to contain one part of Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**CARICA PAPAYA**

(Carica p.)

- Botanical name** : *Carica papaya* Linn. **Family:** Caricaceae
- Synonym** : *Papaya vulgaris* (DC.).
- Common names** : *Hindi:* Papeeta; *English:* papaya; *French:* Figuier des eles, Figuier de negres.
- Description** : Small tree, 2 to 6 m high, topped by long hollow-petioled leaves. Stem: erect, soft and spongy-wooded, hollow, bearing numerous leaf-scars, tapering above, 12 to 13 cm in diameter. Leaves: large, palmately 7-lobed, lobes divided into secondary lateral lobes, 60 cm across; long, hollow-petioled, arising horizontally from the stem. Inflorescence: trees generally dioecious. Flowers: yellow, occasionally with a few pistillate flowers on male plants; staminate flowers with 5 fused petals funnel-shaped, in long drooping panicles; pistillate flowers sub-solitary or in short-clusters with 5 distinct petals; ovary 1-celled, stigma sessile, 5-lobed, lacerated. Fruit: large, melon-like, generally up to 25 cm long, 7 to 12 cm broad, green or dingy greenish yellow, long stalked and arising below the crown of leaves, Seeds: numerous, black, enclosed in sweet mucous pulp and covered with a loose hyaline skin or arillus; testa thick, brittle.
- Part used** : Green unripe fruit excluding seeds.
- Macroscopical** : Transection of young unripe fruit appears pentagonal in shape with a hollow cavity in the center, with flesh of the fruit yellowish white in colour with peculiar flavour; epicarp adhering to fleshy sarcocarp which surrounds the central cavity containing a mass of nearly black seeds.
- Microscopical** : Transverse section shows a large vascular bundle in the middle of the parenchymatous mesocarp region of each outer projected region of inner projecting mesocarp. Pericarp consisting mainly of parenchyma, more or less differentiated into three regions; an epicarp with a single layer of epidermis, a 4- to 5-layered small chlorenchymatous sub-epidermal region containing rosette crystals of calcium oxalate, more frequently found in the layer just below the epidermis; a mesocarp composed of large thin-walled parenchymatous cells, air spaces and branched septate laticifers; an endocarp consisting of layers of smaller tangentially elongated spongy parenchyma cells just above the inner epidermis.
- Distribution** : Throughout India.

**History and authority** : Proved by D.N. Ray; Ghose S.C., *Drugs of Hindoosthan*, 1965, 120

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Carica papaya, moist magma containing  
solids 100 g and plant moisture 400 ml 500 g

Strong Alcohol 635 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five Parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CARUM CARVI**

(Carum c.)

- Botanical name** : *Carum carvi* Linn. **Family**: Apiaceae (Umbelliferae)
- Common names** : *Hindi: Shia Zira; English: Caraway; French: Cumin des bres; German: Feldkuemmel.*
- Description** : Glabrous biennial herb, up to 1 m in height. Leaves: ovate, pinnately dissected into linear segments of 5 to 15 mm length. Inflorescence: umbel; peduncles 5 to 13 cm long, 8 to 10 rayed, either without involucre or with 1 or 2 small linear bracts. Flowers: small, white, pedicels ascending, 1 to 12 mm long. Fruit: a cremocarp, elliptic to oblong, 3 to 4 mm long, about half as wide, prominently ribbed.
- Part used** : Fruit.
- Macroscopical** : Cremocarp brown in colour, with yellowish primary ridges, 4 to 7 mm long and 1 mm broad. Mericarps 2, each five ridged, bow-shaped, tapering towards the base and apex. Entire cremocarp laterally compressed.
- Microscopical** : Mericarp in transverse section pentagonal in outline, with commissural side slightly longer. Each mericarp has six vittae and five primary ribs. Exocarp consists of thick walled polygonal cells. Cuticle thick with longitudinal striations. Ribs contain vascular bundles with a few tracheary elements having spiral thickenings and thick walled, pitted lignified fibres. Mesocarp contains finely pitted sclereids. Endocarp consists of elongated sub-rectangular cells. Endosperm consists of thick walled parenchyma cells containing fixed oil and aleurone grains. Aleurone grains contain 1 or 2 small rosette crystals of calcium oxalate.
- Identification** : Extract 10 ml of 62% alcoholic extract with 3 × 10 ml of *pentane*. Filter the combined organic phases and evaporate under reduced pressure. Dissolve the residue in 2 ml of *chloroform*. To 0.5 ml of the *chloroform solution* add 1 ml of *acetic anhydride* and then 0.1 ml of *sulphuric acid*. The colour of the mixture changes from pale yellow to red and finally dirty brown.
- Distribution** : Native of Eurasia. Cultivated in India.
- History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **10**, 452; Mentioned in *German Homoeopathic Pharmacopoeia*, 1991, 283.

- Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
Carum Carvi in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millimeters of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- Storage** : Protected from light.

**CAULOPHYLLUM THALICTROIDES**

(Caul.th.)

- Botanical name** : *Caulophyllum thalictroides* Michx. **Family:** Berberidaceae
- Synonym** : *Leontice thalictroides* Linn.
- Common names** : *English:* Blue cohosh, Papoose root; *French:* Cohosh blue; *German:* Frauenwurz.
- Description** : A perennial herb with thickened rootstock, stem up to 1 m in height. Leaves: large, triternate, almost sessile near the summit and smaller, usually biternate near the base of the panicle: leaflets oval to obovate, 3 to 5 lobed, 2.5 to 10 cm long. Roots dark black or brown, wiry, matted. Flowers: in terminal panicles, yellow-green or greenish purple, 1.25 cm across; sepals 6; petals 6, smaller than sepals, reduced to small gland-like bodies opposite the sepals; stamens 6; pistil 1 with short style and unilateral stigma; seeds 8 mm thick, blue-black.
- Part used** : Rhizome, including roots.
- Macroscopical** : Rhizome branched, crooked, horizontal, 7 to 25 cm long and 5 to 15 mm thick, showing on its upper surface broad cup-shaped stem scars and short bases of stems all over the surface, tough and with wiry rootlets matted together, dusty brown to light yellowish brown fracture tough and woody, internally light brown to yellowish brown with a waxy luster; bark thin, wood with numerous small wood wedges separated by narrow rays and enclosing a broad pith.
- Microscopical** : Rhizome in cross section shows 4 to 5 layers of yellowish cork cells, followed by a wide cortex of oval, isodiametric parenchyma cell. Stele consisting of elongated fibrovascular bundles, xylem consisting of vessels and wood fibres. Phloem small, rich on phloem parenchyma, radiating towards the lower end. Ground tissue wide, completely of parenchyma cells.
- Root in transection consists of 4 or 5 layered, yellowish brown cork cells, followed by a narrow cortex containing fibres and secretory ducts. Stele a ring phloem of bast cells traversed by uniseriate rays. Xylem a wide ring containing vessels and wood fibres, having at places parenchymatous uniseriate rays. Powder: pale brown to yellowish orange; shows fragments of light yellowish brown cork, tracheids with bordered pits, up to 50 µm in diameter, fragments of wood fibres and tracheids with bordered pits; fragments of starchy parenchyma and numerous more or less spheroidal starch grains, up to 18 µm in diameter.

**Distribution** : U.S.A., from Canada to Carolina and Kentucky.

**History and authority** : Allen, T.F., *Encyclop. of pure Mat. Med.*, 1874, **3**, 34; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 430.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
 Caulophyllum Thalictroides in *coarse powder* 100 g  
 Purified Water 500 ml  
 Strong Alcohol 537 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CETRARIA ISLANDICA**

(Cet. is.)

- Botanical name** : *Cetraria islandica* (L.) Ach. **Family:** Parmeliaceae
- Synonym** : *Lichen islandicus* L.
- Common names** : *English:* Iceland moss, Iceland lichen; *French:* Lichen d’islande, Mousse d’islande; *German:* Almgraupen, Ausländisches moos.
- Description** : An Ascolichen. Thallus small to middle sized, subfruticose to fruticose, tufted, rigid, shining, pale to dusky chestnut-brown or olive green, sometimes reddish brown towards the base, many-lobed, lobes strap shaped, narrow and elongated to shorter and wide, sub-dichotomously or irregularly branched, smooth to lacunose, flattened to expanded with rolled margins, often rolled into a closed tube. The margin thickly spinulose, paler below and often more or less covered with impressed white soredia (pycnesia). Apothesis (flap shaped fruiting body) small to middle sized, 1.5 to 14 mm across, sessile at tips of lobes, the disk concave to convex or irregular, chestnut-brown to darker, the exciple thin, entire to crenulate.
- Part used** : Whole lichen.
- Microscopical** : Cortex mostly consists of small celled plectenchyma. Ascus oblong, contains 8 spores; spores simple, colourless, oblong-ellipsoid, 6 to 10 × 3.5 to 5 µm in diameter, paraphyses branched and septate.
- Distribution** : Exists on soil and as a conifer lichen in temperate and subtropic zones. Found in England, Scandinavia, Germany, Switzerland and Australia. Common in U.S.A. from New England to Carolinas and West ward to the Pacific coast, more common in Alpine areas. Most common conifer lichen in Appalachian mountains and Great Lakes region in Eastern North America.
- History and authority** : Introduced by Dr. Theodore Ruckert; Hering, C., *The Guiding Symptoms*, 1879, **3**, 496; Clarke, J.H., *A Dict. of Pract. Mat. Med.* 1990, **1**, 453.
- Preparation** : (a) Mother Tincture φ Drugstrength 1/10
- |  |        |
|--|--------|
| Cetraria Islandica in <i>coarse powder</i> | 100 g  |
| Purified Water                             | 350 ml |
| Strong Alcohol                             | 685 ml |
- to make one thousand milliliters of the Mother Tincture.



- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CHEIRANTHUS CHEIRI**

(Chir. cheir.)

**Botanical name** : *Cheiranthus cheiri* Linn. **Family**: Brassicaceae (Cruciferae)

**Synonyms** : *Cheiranthus fruticosus* Linn.; *C. keiri* Neck; *C. luteus* Dulac.; *C. muralis* Salisb.; *Cheiri vulgare* (Clariv) I.C.; *Cheiri montanum* (Clariv) I.C.; *Erysimum cheiri* Crantz; *Erysimum murale* Lam.

**Common names** : *Hindi*: Todrisurph; *English*: Common Wall flower; *French*: Giroflee, Baton d’or; *German*: Gelveigelein.

**Description** : A hardy, erect perennial herb, 30 to 75 cm high; stem stout, smooth or thinly appressed-pubescent, with a greyish cast; branches numerous, ascending, forked from the base. Leaves: entire, lanceolate to narrow lanceolate, acute, 4 to 7.5 cm long, with appressed calcified forked hairs, usually grouped at the base to form a rosette, lower leaves tapering to short, broad petioles. Inflorescence: racemose. Flowers: large, 2 to 2.5 cm long, generally rich orange-yellow, varying from pale yellow to a deep red, fragrant, with pedicels 8 to 12 mm long. Calyx 4; corolla 4, orange-yellow, rounded, much exceeding the calyx; stigma bilobed, lobes reflexed. Flowers appear in the early spring. Fruit a siliqua, 5 to 6.5 cm long, rather thick, bearing 2 rows of seeds.

**Part used** : Whole plant.

**Microscopical** : Flowers: Petals in surface view show undulated epidermal cells; 2-armed unicellular trichomes having incrustation of carbonate. Leaves: dorsiventral and are covered on both sides with (a) characteristic calcified warty unicellular biarmed (forked) trichomes, each trichome having a unicellular oval/circular stalk and (b) anisocytic stomata, with stomatal index 5.60 to 7.75 for upper epidermis and 2.02 to 2.08 for lower epidermis. Transection shows a single layered epidermis; 5 or 6 layers of palisade cells, containing at places myrosin cells and a wide spongy parenchyma. Midrib shows a large central vascular bundle covered with a single layer of bundle sheath of parenchyma cells devoid of myrosin cells; a patch of thick walled cells below the phloem towards the lower epidermis.

Stem: in transection shows a single layer of epidermis; 8 to 12 layers of oval, isodiametric cortical parenchyma cells intermingled through it also containing slightly thick walled “Myrosin-cells”; a single layered, endodermis, followed by 2 to 4 layers of pericycle. Stele a ring, containing 8 to 10 cells wide phloem with patches of bast fibres at places; xylem present in a ring. Rays few, thin walled parenchymatous; path wide, parenchymatous.

**Distribution** : Indigenous in Europe. Cultivated in Indian gardens.

**History and authority** : Clinically used by Dr. Cooper; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 462.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Cheiranthus Cheiri in *coarse powder* 100 g  
                   Purified Water 300 ml  
                   Strong Alcohol 735 ml  
                   to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CHELIDONIUM MAJUS**

(Che.maj.)

- Botanical name** : *Chelidonium majus* Linn. **Family**: Papaveraceae
- Common names** : *English*: Calandine, Celandine; *French*: Chelidoine; *German*: Schollkraut.
- Description** : An erect, perennial herb, 30 to 120 cm in height, loosey-branched, with acrid saffron-coloured juice. Leaves: pinnatifid, segments ovate or obovate, crenate or lobed, sometimes 2-pinnatifid; glaucous beneath. Flowers in small peduncled umbels, 6 to 8 mm across. Sepals 2; petals 4, yellow; stamens many; ovary of 2 carpels, the style very short with 2-lobed stigma. Fruit: a capsule, lined, 2.5 to 5 mm long, dehiscent from base upwards.
- Part used** : Whole plant.
- Microscopical** : Leaf: Transection shows single layered epidermis with thin cuticle; trichomes non-glandular, uniseriate, multicellular, 5 to 20 celled; stomata anomocytic, more frequent on lower surface. Mesophyll not differentiated into palisade and spongy parenchyma, made up of thin walled chlorenchyma; midrib having 1 or 2 layered collenchyma below the upper epidermis and thin walled parenchymatous ground tissue; meristele contains xylem and phloem, phloem towards the lower epidermis but with a few phloem cells present also in upper side, large number of latex cells, idioblasts present in phloem and ground tissue around the stele; stomatal index 13.3-20-27.3 and palisade ratio is 7.6 : 13.22.
- Stem: Circular in outline with two layers of epidermis; 1 or 2 layers of thin walled chlorenchymatous hypodermis; cortex consists of polygonal thin-walled cells; vascular bundles collateral, encapped by sclerenchymatous cell and arranged in a ring; rays multicellular, parenchymatous, containing starch grains. Latex cell present specially in vascular region. Pith of aerenchyma.
- Distribution** : Europe, Particularly in Germany and France.
- History and authority** : Introduced and proved by Hahnemann in 1819; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **3**, 127; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 462.

- Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10
- |   |        |
|---|--------|
| Chelidonium Majus in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 500 ml |
| Strong Alcohol                            | 537 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five Parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. IV

**CHELONE GLABRA**

(Chelo.)

- Botanical name** : *Chelone glabra* Linn. **Family:** Scrophulariaceae
- Synonym** : *Chelone alba* Moench.
- Common names** : *English:* Balmony, Snake head; *French:* Chelone; *German:* Glatte Chelone.
- Description** : A perennial herb, about 1 m high, erect, simple and branched above. Leaves: up to 15 cm long, lanceolate, acuminate, appressed, serrate, sessile or nearly so. Inflorescence: a spike, 3 to 8 cm long, subtended by scarcely reduced sharply serrate foliage leaves; bracts not ciliated. Flowers: white throughout or rose tinged. Calyx deeply 5-parted, regular; corolla-5, bilabiate, lower lip bordered at the throat; fertile stamens 4, didynamous, anthers heart shaped, both anthers and filaments woolly; sterile stamens much shorter, narrower and glabrous. Fruit: a capsule, ovoid. Taste bitter.
- Part used** : Whole plant.
- Microscopical** : Stem: in transection almost circular in outline, with epidermis single layered, made up of thick walled cell; outer cortex consists of 2 or 3 layers of collenchyma and inner cortex of thin-walled parenchyma cells; pericycle represented by fibre patches; a narrow phloem and xylem in a ring; pith parenchymatous, occasionally cells having simple pits.
- Leaf: dorsiventral, midrib much pronounced on lower side, with epidermis single layered, of very thick walled cells; 2 or 3 layers of collenchyma present below upper epidermis and 1 or 2 layers of collenchyma below the lower epidermis; ground tissue parenchymatous; meristele deeply arc shaped. Lamina shows mesophyll differentiated into a single layer of palisade and a few layer of spongy parenchyma; unicellular or uniseriate, multicellular warty hairs only on upper epidermis; lower epidermis with cells having typical wavy striations and anomocytic stomata. Stomata absent on upper epidermis.
- Identification** : 1. To 2 ml of 50% alcoholic extract, add 1 ml of 10% *sodium hydroxide solution* a red precipitate is produced.
2. To 2 ml of the similar extract, add 1 drop of *alcoholic ferric chloride solution*; a dark green colour is produced.

3. To 2 ml of the similar extract, add 1 drop of *ammonium ferric sulphate* solution; a dark red colour is produced.
4. Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml *chloroform*; concentrate chloroform extract to 2 ml and carryout TLC of the concentrate using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light five spots are appeared at  $R_f$  0.21 (red), 0.66 (blue), 0.74 (bluish green), 0.88 (green) and 0.93 (reddish green). When sprayed with *antimony trichloride* seven spots are appeared at  $R_f$  0.27 (pink), 0.51 (green), 0.67 (green), 0.71 (pinkish blue), 0.79 (pink), 0.87 (pinkish blue) and 0.94 (green).

**Distribution** : Eastern United States and Canada.

**History and authority** : Introduced and proved by Hale; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 467.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Chelone Glabra* in *coarse powder* 100 g  
Purified Water 500 ml  
Strong Alcohol 537 ml  
to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five Parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CHIMAPHILA UMBELLATA**

(Chimap. u.)

- Botanical name** : *Chimaphila umbellata* (Linn.) Barton. **Family**: Ericaceae
- Synonyms** : *Chimaphila corymbosa* Pursh.; *C. cymosa* J. & C.
- Common names** : *English*: Spotted American Wintergreen, Pipsissewa, Rheumatism weed; *French*: Herde de pyrele ombellww; *German*: Doldendluthiges Harnkraut, Doldenformiges Wintergrun.
- Description** : Small evergreen, perennial shrub with creeping yellow rhizome. Aerial stem creeping erect or semi-procumbent, angular; possessing scars of former leaves, woody at base, 10 to 30 cm high. Leaves: oblanceolate or cuneate-lanceolate, sharply dentate or entire, 3 to 6 cm long, short-petioled and whorled; upper surface dark-green, shining and coriaceous, under surface paler. Inflorescence: corymbose or sub-umbellate. Flowers: 2 to 8, white or pinkish, 5 to 10 mm wide, bracts erect. Calyx obovate, dentate and almost as long as petals; corolla bell-shaped, white or pinkish, 5 to 6 mm long and concave; stamens 10, shorter than the petals; anthers violet, filament swollen and ciliolate at swollen part; ovary 5-celled, depressed-globose. Fruit: a capsule, 5-celled, linear and chaffy.
- Part used** : Whole plant.
- Macroscopical** : Drug moderately yellowish brown to light olive green containing entire and broken coriaceous leaves, dark brown in colour, nearly entire in the basal half, but coarsely and sharply serrate near the distal portion; few angular stem pieces present. Odour slight; taste astringently sweetish and bitter.
- Microscopical** : Leaf: dorsiventral and shows no stomata on upper epidermis, but anomocytic stomata on lower epidermis; cuticle heavily thickened with striations on both surfaces; epidermal cells highly sinuous; upper epidermal cells characteristically papillose; palisade single layered, of dumbel-shaped cells. Midrib with heavily thickened cuticle with short papillae on both surfaces, followed by a single layer of epidermal cells, 2 to 4 layers of collenchyma cells lodged with brownish contents; an arc of stele of conjoint, collateral vascular bundle, phloem cells lodged with brownish contents.



Stem: with a fairly thickened cuticle with short papillae, followed by a single layer of epidermal cells; cortex made up of an outer zone of 5 or 6 layers of parenchyma cells lodged with brownish contents and an inner half of simple parenchyma cells; an endodermis and a circular stele; phloem cells lodged with brownish contents; xylem made up of lignified cells only. Pith parenchymatous. Rhizomes also show structure similar to stem.

- Identification** : (1) To 1 ml of 70% alcoholic extract, add 4 ml of 70% *ethanol* and *ferric chloride solution*. A dirty green colour is produced.
- (2) To 0.5 ml of 70% alcoholic extract, add 1 ml *ethanol*, 1 ml *vanillin solution* and 1 ml of *hydrochloric acid* and heat on a water bath at about 80°C. A strong wine-red colour is produced.
- (3) Dilute 0.1 ml of *ferric chloride solution* and 0.2 ml of *potassium hexacyanoferrate solution* to 25 ml with *water*. To 3 ml of the resulting solution add about 0.05 ml 70% alcoholic extract of drug. The colour changes from a light olive green to a strong blue and a voluminous flocculent blue precipitate is produced.
- (4) Carryout TLC of Mother Tincture on silica gel G plate using *butanol : acetic acid : water* (4:1:1 v/v) as mobile phase. In iodine vapour six spots appear at  $R_f$  0.24, 0.48, 0.63, 0.74, 0.85 and 0.92.

**Distribution** : Temperate Asia, North America. From Canada to Mexico, Japan, Siberia and Europe.

**History and authority** : Proved by Jeans in 1840, by Bute, G. in 1856 and later introduced in Homoeopathic Literature by Hale; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **3**, 181; Hering C., *Guiding symptoms*, 1879, **4**, 54.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Chimaphila Umbellate in moderately <i>coarse powder</i>	100 g
Purified Water	300 g
Strong Alcohol	730 ml

to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *dispensing alcohol*.

**Storage** : Protected from light.

**CICUTA VIROSA**

(Cic.vir.)

**Botanical name** : *Cicuta virosa* Linn. **Family**: Apiaceae (Umbelliferae)

**Common names** : *English*: Water hemlock; *Franch*: Cigue vireuse, Wasserschierling.

**Description** : A perennial, deciduous herb, having thick, fibrous, hollow root, transversely partitioned inside. Stem: 30 to 120 cm high, hollow, branched, furrowed, smooth and often reddish. Leaves: with long sheathing petioles, bi-ternate, sharply serrate, leaflets from 2.5 to 5 cm long often double serrate. Inflorescence: an upright, large umbel. Bracts none. Bracteoles long, numerous, strap-shaped. Flowers: white, numerous, small, with pedicel long, slender, with equal petals. Plant is highly poisonous. Stem not spotted.

**Part used** : Root.

**Microscopical** : Root: in transection, circular in outline and shows 4 or 5 layers of phellem, 1 to 2 layers of phellogen and up to 3 layers of phelloderm; a ground tissue of parenchymatous cell, containing abundant starch grains and a large number of scattered resin ducts. Numerous vascular bundles present in 2 or 3 concentric rings; each vascular bundle contains a central xylem (containing vessels and parenchyma), surrounded by cambium-like tissue with anomalous structure.

**Distribution** : India, in temperate regions in swamps and wet places. In J&K at 1600 m; Arctic regions.

**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **3**, 281.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Cicuta Virosa in *coarse powder* 100 g

Purified Water 500 ml

Strong Alcohol 537 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five Parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## COCCUS CACTI

(Coc.c.)

- Zoological name** : *Dactylopius coccus* Costa **Family:** Coccidae
- Common names** : *Hindi:* Kerm dara; *English:* Grana fina, Cochineal insect; *French:* Cochenille; *German:* Cochenille-Laur.
- Description** : Oval or sub-globular, 3.5 to 6 mm long, purplish black, purplish grey to dusky red purple, wingless, the dorso-convex surface 9 to 11 segmented but without constrictions between head, thorax and abdomen. Ventral surface concave containing straight 7-jointed antennae and two eyes at anterior end; in the median line a mouth containing long filliform proboscis composed of 1-pair mandibles anteriorly and a pair of maxillae posteriorly; 2-pairs spiracles, anterior pair between the middle and forelegs, the posterior pair between middle and hind legs at margins of joints between thoracic sterna. Thorax bears 3-pairs of legs, short and simple, 3-jointed, terminating in a claw. Entire surface chitinous with thin clustered, tubular or spinneret. Wax-glands containing thick-rims around glandular openings. Each insect bears numerous larvae possessing coiled proboscides and tubular wax glands arranged in conspicuous longitudinal lines on abdominal surface. Gives tests for carminic acid.
- Part used** : Dried female insect.
- Microscopical** : Powder: dusky to dark red; contains numerous fragments or muscle fibres, chitinous exoskeleton containing wax-glands, larvae with coiled proboscides, occasional claws and leg fragments, fragments of antennae and chitinous styles. Odour characteristic; taste slightly bitter imparting red colour to saliva
- Identification** : Evaporate 20 ml of 50% alcoholic extract of drug on a water bath to remove *alcohol*. Extract the residue with 3 × 20 ml *chloroform*. Concentrate to 2 ml and carryout TLC on silica gel G plate using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light six spots appear at  $R_f$  0.11, 0.21, 0.28, 0.82 and 0.91 (all blue) and 0.44 (red). On spraying with *antimony trichloride* five spots appear at  $R_f$  0.11 (grey), 0.21 (grey), 0.28 (grey), 0.44 (yellow) and 0.82 (grey).

**Distribution** : Mexico, Spain and West Indies. Indigenous to Central America. Commercially reared in Peru, Canary Islands, Algiers and Honduras.

**History and authority** : Proved by Austrian provers (28); The complete symptomology was first published in *Metcalf's New Homoeopathic Provings*, 1863; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **3**, 402; Hering, C., *Guiding Symptoms*, 1879, **4**, 291; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 550.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Coccus Cacti in moderately *coarse powder* 100 g  
 Purified Water 500 ml  
 Strong Alcohol 537 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five Parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

(c) Trituration 1x Drugstrength 1/10  
 Coccus Cacti in moderately *Coarse powder* 100 g  
 Saccharum Lactis 900 g  
 to make one thousand grammes of the Trituration

(d) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x HPI, Vol. I, 9x and higher with *Dispensing Alcohol*.

**COLLINSONIA CANADENSIS**

(Collin.c.)

- Botanical name** : *Collinsonia canadensis* Linn.      **Family**: Lamiaceae (Labiatae)
- Common names** : *English*: Canada Snake-root, Knob-root, Knot-root, Stone-root, Horse-weed; *French*: Baume de cheval; *German*: Collinsonie.
- Description** : A perennial, deciduous herb, up to 1.5 m in height with a hard, nearly horizontal, knotty, irregularly curved rhizome, having irregular branches. Stem: erect, smooth, somewhat quadrangular, branched above. Leaves: several pairs, opposite, 10 to 24 cm long, petiolate, upper most sessile or nearly so, ovate or ovate-oblong, acuminate, coarsely serrate, acute to cordate at base. Inflorescence: compound raceme, 10 to 30 cm long. Flowers: numerous, greenish yellow; calyx-5 weakly bilabiate, about 8 mm long at maturity; corolla-5, tubular, 12 to 15 mm long. Bilabiate, lower lobe oblong; stamens 2; ovary gynobasic. Fruit: a nutlet, globose, smooth.
- Part used** : Rhizome and roots.
- Macroscopical** : The rhizome occurs in irregularly curved very hard, blackish brown or almost black pieces, 5 to 10 cm in length and 1 to 2 cm in diameter. Upper surface covered with remains of short, conical buds and conspicuous scars of aerial stems and the lower surface has short wiry roots or its depressed scars. Fracture short. The transverse section shows a wide brown cork, a narrow cortex containing starch and a large whitish pith surrounded by a ring of thin, dark wedges of wood. The drug is odourless and tasteless.
- Microscopical** : Rhizome in transection shows rows of cork cells and cork cambium, followed by cortex of 6 to 9 layers of oval, isodiametric, thin-walled parenchyma cells with scattered groups of sclereids; phloem 5 or 6 layered followed by a cylinder of polygonal lignified elements of xylem with few patches of wood fibres; starch grains of varying shape, scattered throughout the pith parenchyma.
- Root in transection shows a cortex of large tangentially elongated sinuous parenchyma cells in which are found scattered yellowish brown, elliptic, idioblasts; compressed phloem; a cylinder of stele consisting of vessels and wood fibres. Pith and ray cells absent.

**Identification** : Evaporate 20 ml of Mother Tincture to remove *alcohol*. Extract the residue with 20 ml *chloroform*. Concentrate to 2 ml and carryout TLC on silica gel 'G' plate using *chloroform : methanol* (9:1 v/v) as mobile phase. In iodine vapours six spots appear at  $R_f$  0.27, 0.42, 0.54, 0.67, 0.77 (all yellow) and 0.92 (light green). With *antimony trichloride reagent*, one spot appears at  $R_f$  0.80 (dark grey).

**Distribution** : Indigenous to North America, where it is found in rich moist woods.

**History and authority** : Proved by Burt; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 568; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **3**, 507; (**10**), 476; Hering, C., *Guiding Symptoms*, 1879, **4**, 357.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Collinsonia Canadensis*, in *coarse powder* 100 g  
 Purified Water 500 ml  
 Strong Alcohol 537 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. II

**CONDURANGO**

(Cond.)

- Botanical name** : *Marsdenia condurango* Nichols. **Family**: Asclepiadaceae
- Synonym** : *Gonolobus condurango* (Nichols) Triana.
- Common names** : *English*: Condurango, Eagle vine Bark; *French*: Cundurango; *German*: Condurangobaum, Geierpflanze.
- Description** : A vine about 3 to 10 m long, with smooth ash-grey bark, more or less marked with green or black lichens. Leaves: opposite, round-oblong, acute, hairy beneath. Flowers: with corolla whitish; somewhat campanulate, with a green ring at base; calyx red, hairy.
- Part used** : Bark.
- Macroscopical** : Bark in quills or transverse pieces, up to 13.5 cm in length, 1 to 7 mm in thickness with outer surface pale brown to dark-brown, nearly smooth or more or less scaly and rough with numerous lenticels or warts; inner surface finely longitudinally striated, pale brown to weak yellowish orange, fracture short, fibrous in outer portion and granular in inner portion, odour indistinct to slightly aromatic; taste bitter.
- Microscopical** : Cork of 10 to 13 layers of suberized cells, occasionally lignified and having yellowish brown contents. Secondary cortex (phelloderm) about 10 layers of parenchymatous cells, some containing simple or 2- to 4- compound starch grains, others having rosette aggregates of calcium oxalate and scattered groups of stone cell. Pericycle of tangentially-elongated parenchyma having latex cells, group of thick-walled, non-lignified to slightly lignified sclerenchyma fibres. Phloem of numerous phloem masses, separated by 1 or 2 cells wide rays. Phloem patches contain groups of sieve tubes, companion cells, phloem parenchyma with starch and rosettes of calcium oxalate, latex cells few or no bast fibres and large groups of stone cells.
- Identification** : (1) To 0.5 ml of the 50% ethanolic extract, add 15 ml of water and 0.1 ml of dilute sodium hydroxide solution. An intensive yellow colour is produced and fluoresces green under UV light.
- (2) Evaporate 5 ml of 50% ethanolic extract. Dissolve the residue in 5 ml of *water*. The solution produces foams if shaken. Heat to about 80°. Turbidity develops and disappears again as the solution cools.

- (3) To 1 ml of the 50% ethanolic extraction, add 0.2 ml of *ferric chloride* solution; a dark brown colour is produced.
- (4) Evaporate 2 ml of 50% ethanolic extract on a water bath. Grind the residue with 3 ml of acetone and filter. Evaporate the filtrate on the water bath until almost dry and absorb with a filter paper. When dry, the spot fluoresces whitish or pale blue under UV light. Dip the filter paper into *ethanolic potassium hydroxide* solution. The spot is coloured brilliant yellow and when dry fluoresces pale green under UV light.

Evaporate 20 ml of Mother Tincture on a water bath to remove alcohol. Extract the remaining part with 3x20 ml *chloroform* and carryout TLC of chloroform extract using *chloroform : methanol* (9:1 v/v) as mobile phase, in iodine vapour seven spots appear at  $R_f$  0.30, 0.454, . 0.55, 0.65, 0.70, 0.89 and 0.96.

**Distribution** : South America and Equador.

**History and authority** : Proved by J.C. Burnett & K.K. Dinsmore; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, 4, 1; Hering, C., *Guiding Symptoms*, 1879, 5, 1.

- Preparation** :
- |   |                    |
|---|--------------------|
| (a) Mother Tincture $\phi$  | Drug strength 1/10 |
| Condurango in moderately <i>coarse powder</i>   | 100 g              |
| Purified Water  | 500 ml             |
| Strong Alcohol  | 537 ml             |
| to make one thousand milliliters of the Mother Tincture.  |                    |
| (b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five Parts <i>Strong Alcohol</i> ; 3x and higher with <i>Dispensing Alcohol</i> .               |                    |
| (c) Trituration 1x  | Drug strength 1/10 |
| Condurango in <i>coarse powder</i>  | 100 g              |
| Saccharam Lactis  | 900 g              |
| to make one thousand grammes of the Trituration.  |                    |
| (d) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I; 9x and higher with <i>Dispensing Alcohol</i> . |                    |



**COTYLEDON UMBILICUS**

(Coty. umb.)

- Botanical name** : *Cotyledon umbilicus* Linn. **Family**: Crassulaceae
- Synonyms** : *Umbilicus pendulinus* DC.; *Umbilicus rupestris* (Salisb.) Dandy.
- Common names** : *English*: Navelwort, Pennywort; *French*: Cotylet; *German*: Nobelkraut.
- Description** : Perennial evergreen herb, 10 to 30 cm high, simple or slightly branched, leafy at base; root fleshy and tuberous. Stem simple or slightly branched. Leaves (radical leaves): fleshy, orbicular, crenate, more or less peltate. Flowers: yellowish green, pendulous, in a raceme. Calyx very small; corolla cylindrical, 0.5 to 0.7 cm long, with 5 short teeth.
- Part used** : Leaf.
- Macroscopical** : Leaf fleshy, more or less orbicular, crenate, more or less peltate.
- Microscopical** : Leaf: isobilateral and shows stomata on both sides; stomata often in groups, of two types: (a) simple and (b) anisocytic sometimes marked by raised walls of surrounding subsidiary cells; stomatal index for lower epidermis 10 to 26.6, while for upper epidermis 15.7 to 27.7. In transverse section, epidermal cells tangentially elongated; mesophyll entirely of spongy parenchyma; each vein consists of a conjoint, collateral, oval vascular bundle having ill-defined bundle sheath.
- Petiole: in transverse section flat or more or less circular in outline, with sinuous or rectangular epidermal cells, followed by a ground tissue of spongy parenchyma, embedded in which are found 3 to 5 collateral bundles.
- Identification** : Evaporate 20 ml of 40% alcoholic extract to remove alcohol. Extract the aqueous part three times with *chloroform* by using 20 ml *chloroform* each time; combine and concentrate the *chloroform* layers to 2 ml.
- (1) Carryout TLC of chloroform layer on silica gel 'G' plate using *chloroform* : *methanol* (9:1 v/v) as mobile phase. Under UV light, five spots appear at  $R_f$  0.24, 0.36, 0.49, 0.69 and 0.85 (all blue). On spraying with *antimony trichloride* reagent, four spots appear at  $R_f$  0.49, 0.69, 0.78 and 0.87 (all yellow).

(2) Carryout TLC of 40% alcoholic extract on silica gel ‘G’ using *toluene : ether* (1:1 v/v) as mobile phase and alcoholic *potassium hydroxide* as spray reagent. Two spots appear at  $R_f$  0.70 (reddish) and 0.83 (yellowish green).

**Distribution** : Western England, parts of Wales, southern and western Europe.

**History and authority** : Proved by Dr. Win. Craig.; Allen, T.F., *Encyclop. of Pure, Mat. Med.* 1876, **3**, 571.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Cotyledon Umbilicus in <i>coarse powder</i>	100 g
Purified Water	600 ml
Strong Alcohol	432 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, six parts Purified Water, three parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**DATISCA CANNABINA**

(Dat. can.)

- Botanical name** : *Datisca cannabina* Linn. **Family:** Datisceae
- Description** : Tall, perennial shrub, dioecious, glabrous, branching, 1 to 2 m high. Leaves: alternate, compound, imparipinnate; leaflets 3 pairs, up to 5 cm long, deeply serrate, acuminate, lower pinnae short petioled, almost opposite, deeply incised at the base, while upper pinnae united at the base. Flowers: small, unisexual, yellow. Staminate flowers fascicled in axils and short pedicelled with 4, irregular, narrow, lanceolate calyx and no petals; stamens 8 or more. Pistillate inflorescence racemose on axillary branchlets, calyx tubular, elongated ovate, having 3 to 5 inconspicuous ridges and no petals; ovary inferior, unilocular, 3-angled at top, styles 3, 2 parted. Fruit: a capsule, narrow, ribbed, many seeded.
- Parts used** : Aerial parts while flowering.
- Microscopical** : Leaf: dorsiventral with shaggy hairs, each hair with a multicellular stalk and a spherical or ellipsoidal, multicellular, glandular head; anomocytic stomata on lower surface only. Stem with isolated bundles of pericyclic fibres with wide lumen.
- Identification** : (1) To 1 ml of 60% alcoholic extract, add 10 ml of water and 0.1 ml of lead (II) acetate solution. A yellow turbidity is produced.  
(2) To 1 ml of the 60% alcoholic extract, add 1 ml of conc. hydrochloric acid and 50 mg of resorcinol and heat on a water bath for 5 minutes. A red colour is produced.
- Distribution** : Europe.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 377–378.
- Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
*Datisca Cannabina* in *coarse powde* 100 g  
Purified Water 400 ml  
Strong Alcohol 635 ml  
to make one thousand milliliters of the Mother Tincture.  
(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.
- Storage** : Protected from light.

**DIOSCOREINUM**

(Diosnum.)

 $C_{13}H_{19}NO_2$ **Mol. wt.:** 221.29

- Common name** : *English:* Dioscorine.
- Description** : It is an alkaloid isolated from the tubers of *Dioscorea hirsutadeh*, *D. cyclindrica* Buron and *D. villosa* Linn. It forms greenish yellow plates. Soluble in *water*, *alcohol* and *chloroform* and sparingly soluble in *ether* and *benzene*. It is bitter and poisonous. m.p. 54° to 59°.  $[\alpha]_D^{18} -35.0^\circ$  (c= 3.4 in chloroform).  $\lambda$  max: 215 nm (methanol).
- Identification** : (1) To 0.1 g, add a few drops of *Sulphuric acid* and a few drops of *potassium iodate solution*. Blue violet colour appears.
- (2) To 10 mg, add 0.5 ml of *sodium nitropruside solution* and a few drops of *sodium hydroxide solution*. Reddish violet colour appears.
- History and authority** : Proved by Cushing; Mentioned in Bradford, *Index to Homoeopathic Provings*, 1901, 126.
- Preparation** : (a) Trituration 1x Drugstrength 1/10
- |                  |       |
|------------------|-------|
| Dioscoreinum     | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.
- Storage** : Preparation below 6x are to be stored in well-closed container in a cool dark place and protected from light and heat.
- Caution** : Highly poisonous, not to be dispensed below 6x.

**EICHHORNIA CRASSIPES**

(Eich. cra.)

- Botanical name** : *Eichhornia crassipes* (Mart.) Solms. **Family:** Pontederiaceae
- Synonym** : *Eichhornia speciosa* Kunth.
- Common names** : *Hindi:* Jalkumbhi or Khumbi; *English:* Water hyacinth.
- Description** : Perennial, free-floating plant. Stem: modified sub-aerial offset type. Leaves: dark green orbicular or reniform having spongy petiole, which is either swollen, bulbous or cylindrical and up to 6 cm long; lamina 10 to 15 cm broad. Roots: fibrous, arising in mass from submerged runner-like stem. Inflorescence: a panicle, 15 to 30 cm high. Flowers: funnel-shaped, mauve to lilac with yellow patches at the center. Perianth 5 to 7 cm wide; stamens 6; ovary 3-celled with many ovules. Fruit: a capsule with numerous seeds; seeds oval at the base, tapering at the apex, ridged.
- Part used** : Whole plant.
- Microscopical** : Root: in transection shows single layered epidermis without cuticle, followed by 1- or 2-layered hypodermis, an outer cortex or polygonal parenchymatous cells and a wide inner parenchymatous cortex with large air spaces, a typical central monocotyledonous stele, consisting of vascular bundles and parenchyma, pith hollow.
- Petiole in transection shows an outermost single layer of epidermis of thin walled cells without cuticle, followed by 2 or 3 layers of hypodermis, large aerenchyma with big air cavities, size of cavities increases towards center, vascular bundles numerous, distributed in the parenchymatous tissues lying between air cavities. Solitary raphides and bundles of raphides present in parenchyma tissues of petiole.
- Identification** : (1) To 1 ml of the 60% alcoholic extract, add 1 ml of *hydrochloric acid*, 50 mg of *resorcinol* and heat on a water bath for 10 minutes. A red colour is produced.
- (2) To 1 ml of 60% of alcoholic extract, add 1 ml of 0.5% solution (w/v) of *ninhydrin* in alcohol and heat on a water bath for 5 minutes. A violet colour is produced.
- Distribution** : Tropical America; in ponds in India and now a troublesome weed.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 393–394.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Eichhornia Crassipes, moist magma containing  
solids 100 g and plant moisture 400 ml 500 g

Strong Alcohol 635 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**EMBLICA OFFICINALIS**

(Emb. off.)

- Botanical name** : *Embllica officinalis* Gaertn. **Family:** Euphorbiaceae
- Synonym** : *Phyllanthus emblica* Linn.
- Common names** : *Hindi:* Amla; *English:* Myrobalan tree.
- Description** : A small or medium sized, deciduous, monoecious tree with smooth, greenish-grey, exfoliating bark. Leaves: compound, with small, narrowly oblong, pinnately arranged leaflets, distichous, light green; stipules ovate, finely acute. Flowers: male flowers numerous, with short slender pedicels, sepals 6, anthers 3; female flowers few, sub-sessile, with sepals 6, ovary 3-celled, style united at base, stigma twice bifid. Fruit a fleshy drupe.
- Part used** : Fruit.
- Macroscopical** : A drupe, fleshy, globose, with 6 obscure vertical depression, pale green when young, reddish when mature, 1.3 to 1.6 cm in diameter, contain 3 trigonous seeds.
- Microscopical** : Epicarp and mesocarp not separable. Epidermis single layered, made up of small, rectangular cells followed by a single layer of small sub-epidermal cells. A cortex of large parenchymatous, thick walled cells some of which contain beaded walls. Vascular bundles both scattered and in a ring, xylem containing spiral thickenings. Isolated or groups of stone cells with prominent pits present towards inner part of the mesocarp. Fixed oil, tannin and needle-shaped crystals in rosettes present in mesocarp. Endocarp stony with outer 3 to 5 layers, made up of almost round sclereids; the middle 2 or 3 layers of palisade sclereids and innermost with 4 or 5 layers of irregular shaped and haphazardly oriented sclereids.
- Identification** : (1) Take 2 ml of 68% alcoholic extract and add 0.5 ml *ferric chloride solution* in it. Bluish black colour appears.
- (2) Take 2 ml of 68% alcoholic extract and add few drops of 2, 6-*dichlorophenol indophenol*. The colour of the extract changes to white.
- (3) Make *petroleum ether* extract or *hexane* extract of dried drug and leave it overnight. Evaporate and test on filter paper. It gives persistent oily look on filter paper.

(4) Carryout TLC of alcoholic extract using *chloroform* : *ethylacetate* : *formic acid* (5:4:1 v/v) as mobile phase. In UV light three spots appeared at  $R_f$  0.20 (Blue), 0.59 (Blue), 0.95 (Blue). After spraying with *antimony trichloride* two spots appeared at  $R_f$  0.36 (Blue) and 0.59 (Blue).

**Distribution** : India, in deciduous forests.

**History and authority** : Mentioned in Bhattacharya, M., *Homoeopathic Pharmacopoeia*, 1927, 54.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Emblica Officinalis, fresh fruit containing solids 100 g and fruit moisture 300 ml	400 g
Strong Alcohol	724 ml

to make one thousand milliliters of Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.



**ERODIUM CICUTARIUM**

(Erod. cic.)

**Botanical name** : *Erodium cicutarium* (L.) L'Her. **Family:** Geraniaceae

**Synonym** : *Geranium cicutarium* Linn.

**Common names** : *English:* Al Filaria; *French:* Erodium a feuilles de cigue.

**Description** : A winter annual or biennial herb. Stem: at first anthesis (flowering) very short, with the leaves mostly basal, later on becoming diffusely branched, soft hairy, red and up to 45 cm high. Leaves: elongate-oblongate in general outline, pinnately compound, often having several sessile, ovate or oblong, deeply lobed or irregularly cleft pinnae, each 1 to 2.5 cm long. Inflorescence: cyme, 2 to 8 flowered, with pedicels 1 to 2 cm long, arising from leaf axils. Flowers: about 1 cm wide pink or purple; sepals 5, equal or exceeding the size of petals and are tipped by 1 or 2 bristle-like hairs; petals 5; ovary 5-celled. Fruit: a silique, 2 to 4 cm long, consisting of 5 sharp pointed carpels which at maturity get separated at the base, remaining joined by spirally twisted styles; each carpel containing a single seed.

**Part used** : Whole plant.

**Microscopical** : Leaf: transection shows a single layered epidermis, covered with thin cuticle having striations; stomata anomocytic, more frequent on lower surface; glandular trichomes of two types: (a) with short unicellular stalk and unicellular head and (b) with bi-celled stalk and unicellular head; non-glandular trichomes, simple unicellular, warty of varying length (sometimes in tufts). Midrib, containing 1 or 2 layers of collenchyma just below the epidermis, followed by parenchymatous ground tissue and a meristele containing xylem and phloem surrounded by a parenchymatous sheath. Secretory cells (idioblasts) are scattered in the mesophyll.

Stem: In transection almost circular in outline and shows single-layered epidermis with glandular and nonglandular hairs similar to those on the leaf; outer cortex consisting of 4 or 5 layers of collenchyma and inner cortex consisting of 5 or 6 layers of parenchyma; pericycle a continuous ring of sclerenchyma; vascular bundles conjoint, collateral, arranged in a ring but separated widely, pith parenchymatous. A few cells of cortex and pith contain crystals of calcium oxalate. Secretory cells are also present in phloem, pith and cortex.

**Distribution** : Native of Mediterranean region; introduced into western U.S.A. Also cultivated in India.

**History and authority** : Introduced by Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, 1, 713; Boericke, W., *Materia Medica and Repertory*, 1927, 303.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Erodium Cicutarium in *coarse powder* 100 g

Purified Water 567 ml

Strong Alcohol 470 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**ESCHSCHOLTZIA CALIFORNICA**

(Es. cal.)

**Botanical name** : *Eschscholtzia californica* Cham. **Family**: Papaveraceae

**Common name** : *English*: Californian poppy.

**Description** : Annual herb, 25 to 60 cm high. Leaves: long petioled, ternately dissected into linear segments. Flowers: yellow to orange, 3 to 6 cm wide and saucer-shaped. The united sepals crown the corolla into collar-like rim. Fruit: a capsule, linear, 7.5 to 10 cm long, strongly ribbed and 2-valved.

**Part used** : Whole plant.

**Microscopical** : Leaf: Transection shows single layer of epidermis with cuticle; stomata anomocytic and present only on the lower surface; trichomes absent; mesophyll differentiated into 2 or 3 layers of oval to isodiametric palisade cells and spongy parenchyma. Midrib and other veins contain conjoint, collateral vascular bundles.

Stem: Transection shows circular outline with ridges and furrows; epidermis single-layered with thin cuticle; collenchyma 3 or 4-layered, in ridges; chlorenchyma 3 or 4-layered, in ridges; chlorenchyma cells; vascular bundles conjoint, collateral, encapped outside by sclerenchyma and arranged in a ring. Pith parenchymatous and hollow in center.

Root: Transection shows an epidermis of single layered disorganized cells; cortex of 12 to 14 layers of thin walled parenchyma cells; secondary phloem containing phloem parenchyma sieve tubes, companion cells and phloem rays; xylem large, with vessels radially arranged and abundance of xylem parenchyma of thin walled cells. Pith absent.

**Distribution** : Native of California and Oregon, widely cultivated in gardens elsewhere.

**History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 293.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Eschscholtzia Californica in <i>coarse powder</i>	100 g
Purified Water	454 ml
Strong Alcohol	475 ml

to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, five parts Purified Water and four parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ETHYLUM NITRICUM**

(Ethy. nit.)



**Mol. wt.:** 91.07

**Common names** : *English:* Nitric ether, Nitric acid ethyl ester; *French:* Nitrate d'ethyle.

**Description** : A colourless, inflammable liquid. It freezes at  $-112^{\circ}$  and boils at  $87^{\circ}$ . It is soluble in water, miscible with ethanol and ether, inflammable and toxic in nature. Explosive when heated or shocked.

**Wt. per ml.** : 1.004 g.

**History and authority** : Introduced and proved by J.V. Simpson; Allen, T.F., *Encyclop of Pure Mat. Med.*, 1876, **4**, 228.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/100  
 Ethylum Nitricum 10 ml  
 Strong Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 3x and higher with *Dispensing Alcohol*.

**EUCALYPTOL**

(Eucatul)

 $C_{10}H_{18}O$ **Mol. wt:** 154.30

- Common names** : *English:* Cajeputul, Cineole.
- Description** : A colourless liquid, odour, like camphor, taste spicy and cooling. Solidifies at 1.5 and boils at 176° to 177° Insoluble in *water* but soluble in *ethanol, chloroform, ether, glacial acetic acid* and oils. It is a chief constituent of oil of Eucalyptus, a volatile oil obtained from the fresh leaves of Eucalyptus globules Labill.
- Identification** : Dissolve 0.1 g of the substance to be examined in 10 ml of *toluene* and 0.1 g of standard cineole in 10 ml of *toluene*. Apply separately 2 ml of each solution on silica gel 'G' plate. Develop the plate using a mixture of *toluene : ethyl acetate* (9 : 1 v/v) over a path of 15 cm. Develop the plate by spraying with anisaldehyde solution and heat at 105° for 10 minutes. Dark brown spot at  $R_f$  0.5 appears. Under UV light the spot shows a brown fluorescence.
- Wt. per ml.** : Between 0.922 and 0.9278 g
- Refractive index** : 1.456 to 1.460 at 20°
- Phenol** : Shake 1 ml with 20 ml of *water* and allow to separate and to 10 ml of the aqueous layer add 0.1 ml of *ferric chloride solution*. No violet colour develops.
- Terpentine oil** : Dissolve 1 ml in 5 ml of *alcohol*. Add dropwise freshly prepared *bromine water*. Not more than 0.5 ml is required to give a yellow colour lasting thirty minutes.
- Phellandrene** : Mix 1 ml with 2 ml of *glacial acetic acid* and 5 ml of light petroleum, add 2 ml of saturated solution of *sodium nitrite* and shake gently. No crystalline precipitate is formed in the upper layer within one hour.
- Assay** : Determination of Cineole: Place 2.1 g accurately weighed melted *o-cresol* into a thick-walled test tube, about 15 mm diameter and 80 mm in length. Add 3 g of accurately weighed, previously dried, anhydrous *calcium chloride* by shaking. Insert a thermometer graduated in fifths of a degree and stir the mixture well with a loop of glass or wire to induce crystallisation; note the highest reading of

the thermometer. Warm the tube gently until the contents are completely melted, insert the tube through a bored cork into a wide-mouthed bottle which is to act as an air jacket and allow to cool slowly until crystallisation commences, or until the temperature falls to the point previously noted. Stir the contents of the tube vigorously with the loop, rubbing the latter on the side of the tube with an up and down motion to induce rapid crystallisation; continue the stirring and rubbing as long as the temperature rises. Take the highest point as the freezing point. Remelt the mixture and repeat the determination of the freezing point until two consecutive concordant results are obtained, because the first temperature noted is always lower than the true freezing point. Find the percentage w/w of cineole corresponding to the freezing point from the following Table, obtaining intermediate values by interpolation.

Table

Freezing point in degree	Percent w/w of cineole	Freezing point in degree	Percent w/w of cineole
24	45.6	41	68.6
25	46.9	42	70.5
26	48.2	43	72.3
27	49.5	44	74.2
28	50.5	45	76.1
29	52.1	46	78.0
30	53.4	47	80.0
31	54.7	48	82.1
32	56.0	49	84.2
33	57.3	50	86.3
34	58.6	51	88.8
35	59.6	52	91.3
36	61.2	53	93.8
37	62.5	54	96.3
38	63.8	55	99.3
39	65.2	55.2	100
40	66.8		

The *o-cresol* used must be pure and dry with a freezing point not below 30°. It is hygroscopic and should be stored in a small well stoppered bottle because the presence of moisture may lower the results to the extent of 5%

**History and authority** : Proved by Seigen; Allen, T.F, *Encyclop. of Pure Mat. Med.*, 1877, 4, 228; Boericke, W., *Mat. Med. with Repertory*, 1927, 272.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Eucalyptol 90.6 – 92.5 g  
(depending upon the specific gravity)  
Strong Alcohol in sufficient quantity  
to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- Caution** : Protected from light.



**EUGENIA CARYOPHYLLATA**

(Eug. car.)

- Botanical name** : *Eugenia caryophyllata* Thunb. **Family:** Myrtaceae
- Synonyms** : *Syzygium aromaticum* Merr. & L.M. Perry; *Caryophyllus aromaticus* Linn.; *Eugenia aromatica* Baill.
- Common names** : *Hindi:* Long; *English:* Clove; *French:* Clous de girofle; *German:* Gewurzelken, Nagelein.
- Description** : A tree up to 9 m high. Leaves; thick, coriaceous, ovate-oblong, acute, strongly tapered at the base, conspicuous petiole, 5 to 12 cm long, dotted, lateral veins numerous, parallel, the cross veinlets obscure. Inflorescence: trichotomous cyme. Petals spreading and not united. Fruit: a drupe-like berry.
- Part used** : Flower buds.
- Macroscopical** : Flower buds are bright reddish-brown, plumb and heavy, 16 to 21 mm long. Lower stalk-like portion is 10 to 13 mm long and about 4 mm wide; flattened-cylindrical or four-sided. Stalk is surmounted by 4 thick, spreading, acute calyx of about 3 mm length. Corolla is dome-shaped of 5 to 5.5 mm diameter, consisting of 4 bowl-shaped petals; stamens indefinite, tetradelphous, filaments of each group being slightly adherent at the base and the bundles are opposite the corolla, anthers introrse; style erect, cylindrical; about 3 mm long, a nectar-disc present at its base; ovary inferior, bilocular, situated at the upper part of the stalk-like hypanthium, lower 4/5<sup>th</sup> of it is solid but rather spongy; each locule of ovary is about 3 mm long, having about 20 ovules and axile placentation. Sometimes a small bract adnate to the base of hypanthium is present. Large oil glands present in all parts but specially numerous in the outer part of hypanthium and calyx, oil exudes out on pressing with finger nails. After removing the corolla, the flower buds sink when thrown into water. Odour strong, spicy and aromatic; taste agreeable, warm and aromatic.
- Microscopical** : Hypanthium possesses a central cylinder of parenchyma (columella) of 0.5 to 1.0 mm diameter, having about 15 vascular strands embedded in it; this is surrounded by a lacunous region of aerenchyma, beyond which a circle of about 20 to 25 vascular strands and then by a wide zone of collenchyma containing, specially in the outer part, numerous ovoid oil glands, each gland up to 200 µm long. Epidermis is formed of small tabular cells, 8 to 25 µm wide in surface view, with straight walls and a thick cuticle

containing numerous anomocytic stomata which are 30 to 35  $\mu\text{m}$  in diameter. A few thick-walled pericyclic fibres associated with the vascular bundles, cluster crystals of *calcium oxalate* occurring throughout the tissues. Sepals have an epidermis like hypanthium with numerous stomata on outer surface, mesophyll parenchymatous and traversed by a few slender vascular strands, containing numerous ovoid oil glands and cluster crystals of *calcium oxalate*. Petals have tabular epidermal cells with straight walls and an undifferentiated mesophyll, containing oil glands and cells with cluster crystals of *calcium oxalate* and traversed by small vascular strands; stomata absent. Filament of each stamen has a central vascular strand and oil glands at intervals beneath the epidermis; the connective has a large oil gland at the apex and anther walls shows a typical fibrous layer; very small cluster crystals of *calcium oxalate* present in the filament and along dehiscence-lines of the anther lobes. Pollen grains bi-convex with a round edge, 15 to 20  $\mu\text{m}$  in diameter. Sclereids, prisms of *calcium oxalate*, starch grains and trichomes are absent in clove which distinguish it from other parts of clove plant.

**Identification**

: To 0.1 g of the coarsely powdered drug, add 10 ml of *ethanol* (90%) and leave it to stand for one hour, shaking frequently, filter and carryout the following tests:

- (1) To 1 ml of the above solution, add 1 ml of dilute *alcohol* and 0.5 ml of dilute *sodium hydroxide* solution. A brown precipitate is produced.
- (2) To 1 ml of solution, add 1 ml of dilute *alcohol* and 0.5 ml dilute *ammonia* solution and 0.5 ml of *silver nitrate* solution. A black precipitate is produced.
- (3) To 1 ml of solution add 5 ml of water and 0.5 ml of *ferric chloride* solution. A bluish black precipitate is produced.
- (4) 5 ml of solution is extracted with 10 ml *petroleum ether*. Remove the upper layer, evaporate on a water bath and dissolve the residue in 2.0 ml of *chloroform*. Add 1 ml of *acetic anhydride* and 0.1 ml of *sulphuric acid*. A dirty or bluish-green colour is produced.

**Distribution**

: Native of (spice Island) Moluccas of Indonesia, cultivated in tropics.

**History and authority** : *Homoeopathic Pharmacopoeia of United States*, 1991, 3264.

<b>Preparation</b>	: (a) Mother Tincture $\phi$	Drugstrength 1/10
	Eugenia Caryophyllata in <i>coarse powder</i>	100 g
	Purified Water	333 ml
	Strong Alcohol	700 ml

to make one thousand millilitres of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**EUPHORBIA CYPARISSIAS**

(Euph. cyp.)

**Botanical name** : *Euphorbia cyparissias* Linn. **Family**: Euphorbiaceae

**Synonyms** : *Tithymalus cyparissias* Hill; *Galarhoeus cyparissias* Small.

**Common names** : *English*: Cypress spurge; *French*: Euphorbe petit cypres.

**Description** : A glabrous, perennial herb with acrid, milky juice and densely crowded branches, arising from extensively creeping and forking, rope-like rootstocks. Upright stems, both sterile and fertile, 10 to 70 cm high and densely leafy. Leaves linear, pale green, 1 to 2 cm long, 0.5 to 3 mm wide. Inflorescence an umbel. Flowers: highly modified, reduced, occurring in clusters within a cup-like structure, the cyathium. Floral bracts yellowish when young but often becoming purplish or reddish with age. Fruit a globose capsule, about 3 mm long. Flowers in April-August.

**Part used** : Whole plant.

**Microscopical** : Cortical vascular bundles are present in stem.

**Distribution** : Native of Europe, naturalised in North America.

**History and authority** : Introduced by Dr. E.H. Spooner; Allen, T.F., *Encyclop of Pure Mat. Med.*, 1874, **4**, 245; Clarke, J.H., *A Dict. of Pract. Mat. Med.* 1900, **1**, 735.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
                   Euphorbia Cyparissias in *coarse powder*                   100 g  
                   Purified Water   350 ml  
                   Strong Alcohol   683 ml  
                   to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

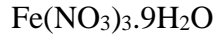
**FEL TAURI**

(Fel taur.)

- Common names** : *English*: Oxgal; *French*: Bile de boeuf; *Latin*: Bilis Bovina, Bilinum.
- Description** : Fresh bile obtained from the bovine gallbladder. Brownish green or dark green, viscid liquid, odour characteristic and taste a bitter, disagreeable. Soluble in *water* and *ethanol*.
- Identification** : (1) Combine 1.0 ml of the substance with 4 ml of *water* and shake vigorously. The resulting froth persists for not less than 2 hours.  
(2) Dissolve 1 g in 9 ml of *ethanol*. Take 1 ml and add 1 ml of *sulphuric acid* and 0.2 ml of a solution of 1 mg of *furfural* in 1 ml of *ethanol*. A cherry red colour is produced.
- Wt. per ml.** : 1.018 to 1.028 g.
- Loss of drying** : Not more than 95.0 percent.
- History and authority** : Introduced and proved by Dr. Buchner; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, 4, 302; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, 1, 752.
- Preparation** : (a) Trituration 1x Drugstrength 1/10  
     Fel Tauri 100 g  
     Saccharum Lactis 900 g  
     to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.
- Storage for raw material** : In well-sealed containers, at 4° for not more than one day.

**FERRUM PERNITRICUM**

(Fer. pern.)

**Mol. wt.:** 404.02

- Common name** : *English:* Ferric nitrate.
- Description** : Pale violet or greyish crystals, deliquescent. Soluble in *water*, *alcohol* and *acetone*. Slightly soluble in *Nitric acid*.
- Identification** : Yields the reactions characteristic of *Iron (III)* and *nitrate*.
- Melting point** : 47° (decomposes at 125°)
- Chloride** : Dissolve 4 g in 25 ml of *water*, add 2 ml of *nitric acid* and divide into two equal portions. To 1 part add 1 ml of *silver nitrate solution* and allow it to stand for 10 minutes, filter until clear and use for the control. To the other portion add 1 ml of *silver nitrate solution*. Any resulting turbidity is not greater than that produced when 0.02 mg of *chloride* is added to the control.
- Phosphate** : To a solution of 5 mg in 20 ml of *water* add 15 ml of *nitric acid* and 10 ml of *ammonium hydroxide* and then 40 ml of *ammonium molybdate-nitric acid solution*. Shake at 40° for 5 minute and allow to stand for 1 hour. If a yellow precipitate is present, filter and wash with 5 % solution of *potassium nitrate* until the filtrate is neutral to litmus. Add 0.5 ml of *water*, 10 ml of 0.02N *sodium hydroxide* and agitate until the yellow precipitate dissolves. Add 3 drops of *phenolphthalein* and titrate the excess of *sodium hydroxide* with 0.02 N *hydrochloric acid*. 1 ml of 0.02N *sodium hydroxide* is equivalent to 0.08 mg of *phosphate*. Not more than 3.0 ml *sodium hydroxide* solution is consumed.
- Sulphate** : Dissolve 5 g of *water* and pour the solution into a mixture of 10 ml of *ammonium hydroxide*, 100 ml of *water*. Filter and wash with hot *water* to 150 ml. Take 30 ml of above solution, evaporate to about 10 ml, add 1 ml of 0.1 N *hydrochloric acid* and 2 ml of *barium chloride*. Any turbidity produced is not greater than that in a control made as follows. Boil 3 ml of *ammonium hydroxide* with 15 ml of *water* until the *ammonia* is expelled, add 0.1 mg of  $\text{SO}_4^{2-}$ , dilute to 10 ml, then add 1 ml of 0.1N *hydrochloric acid* and 2 ml of *barium chloride*.



## FERRUM SIDEREUM

(Fer. sid.)

**Description** : It is an iron meteorite containing not less than 75% of iron. Meteorites are heavy and like pieces of shrapnel with a faint metallic lustre and lead grey or rusty red surface. Fresh cut surfaces appear silvery with blackish grey inclusions. It shows *ferromagnetism* and contains nickel. Freshly ground and polished surfaces show characteristic criss-cross figures if treated with *nitric acid* which disappears on heating to 900°.

**Identification** : Test Solution: Dissolve 50 mg of fine filings in 2 ml of *dilute nitric acid* and heat gently. Boil off the *nitrous oxide* gases and dilute to 5 ml with *water*. Filter to remove any residue.

(1) 1 ml of the Test Solution yields the reactions characteristic of *iron*.

(2) Heat 2 ml of the Test Solution to boiling and alkaline slightly with *ammonia solution*. A brownish precipitate is produced. Filter and add a few drops of 1% solution (w/v) of *dimethylglyoxime* in *methanol* to the faintly bluish filtrate; a voluminous raspberry red precipitate is produced.

**Assay** : Transfer about 0.25 g of accurately weighed fine filings, to a beaker and add 10 ml of *dilute sulphuric acid*. Cover with watch-glass and heat gently over a small flame until no more gas evolves. When cold, filter through a sintered glass funnel (No. 40) and wash the residue with *water*. Collect the filtrate and washings into a 50 ml graduated flask and make up to the mark with *water*. Transfer 10 ml of the resulting solution to a conical flask with ground glass stopper and add 0.5% solution (w/v) of *potassium permanganate* drop by drop until there is a faint tinge of red colour. Discharge the colour with a 20% solution (w/v) of *tartaric acid*, add 5 ml of *dilute sulphuric acid*, 1.5 g of *potassium iodide*, cover the flask and keep it in the dark for 1 hour. Titrate with 0.1 N *sodium thiosulphate solution* adding *starch solution* as an indicator. 1 ml of 0.1 N *sodium thiosulphate solution* is equivalent to 5.585 mg of Fe.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 427.

**Preparation** : (a) Trituration 1x Drugstrength 1/10  
                   Ferrum Sidereum in *coarse powder* 100 g  
                   Saccharum Lactis 900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.



**FERRUM TARTARICUM**

(Fer. tart.)

FeC<sub>4</sub>H<sub>4</sub>O<sub>6</sub>

**Mol. wt.:** 203.92

**Common names** : *English:* Ferrous tartrate; *French:* Tartrate ferreux.

**Description** : White to yellow crystalline solid. Odourless, very slightly soluble in hot water, soluble in ammonia solution and in mineral acids.

**Identification** : (1) Dissolve 0.1 g in 10 ml of purified water and add 0.5 ml solution of potassium ferricyanide; a dark blue precipitate which is insoluble in hydrochloric acid appears.

(2) Dissolve 10 to 20 mg in about 5 ml of water. Add 1 drop of ferrous sulphate solution and 1 drop of hydrogen peroxide solution. A yellow colour is produced. After the colour has disappeared add dilute sodium hydroxide solution drop wise. An intense blue colour is produced.

(3) Heat two drops of solution for 5 to 10 minutes on a water bath with two drops solution of potassium bromide, two drops solution of resorcinol and 3 ml of sulphuric acid. A dark blue colour is produced which changes to red when the solution is cooled and poured into water.

**History and authority** : Introduced by E.W. Berridge; Allen, T.F., *Encyclop of Pure Mat. Med.*, 1874, **10**, 528.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Ferrum Tertaricum	100 g
Saccharum Lactis	900 g

to make one thousand grammes of the trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**FILIPENDULA ULMARIA**

(Filip. ul.)

- Botanical name** : *Filipendula ulmaria* (L.) Maxim. **Family:** Rosaceae
- Common name** : *English:* Queen of the meadow.
- Description** : Perennial rhizomatous herb. Stem stiffy erect, simple or branched near the tip, angular, up to 2 m in height, usually glabrous, occasionally tomentose. Leaves: stipulate, alternate, lower leaves with long petiole and upper leaves almost sessile, compound, imparipinnate with 1 to 5 pairs of large opposite leaflets; terminal leaflets round in general outline, 6 to 15 cm wide, deeply divided into 3 to 5 ovate or ovate-oblong, serrate lobes; lateral leaflets oblong to ovate, coarsely and sharply double serrate or occasionally shallowly lobed; upper surface of leaflets usually glabrous, while lower surface is densely hairy. Sometimes hairs confined to projecting veins; stipule large, reniform or almost cordate and dentate, frequently clasping the stem. Inflorescence: loose, terminal, compound corymb, with erect and markedly unequal branches. Flowers: white, sessile or small pedicelled, pedicels and inflorescence branches downy. Sepals 5 or 6, free, ovate-triangular, obtuse; petals 5 or 6, free, obovate, tapering to a short claw, white, 2 to 5 mm long; stamens 20 or 40, up to 10 mm long, anthers round; carpels usually 5 to 12, free, sessile, half cordate, glabrous or downy, style less than 1 mm long which suddenly broadens into a flat spherical stigma. Odour like bitter almond and methyl salicylate if rubbed; taste sweetish.
- Part used** : Shoot with flowers.
- Microscopical** : Petiole in transverse section shows kidney shaped outline, having an arc of vascular bundles, small vascular bundles present in between the large vascular bundles, xylem present towards the notch of kidney shape.
- Identification** : 1. To 1 ml of the 60% alcoholic extract, add 1 ml of *Bromine water*, a white flocculent turbidity is produced.
2. To 1 ml of the 60% alcoholic extract, add 1 ml of purified water and 0.1 ml of *ferric chloride solution*; a blackish violet colour is produced.
- Distribution** : Asia, Europe, U.S.A. and Canada.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 429.

- Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10
- |   |        |
|---|--------|
| Filipendula Ulmaria in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 400 ml |
| Strong Alcohol                              | 635 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**FOENICULUM VULGARE**

(Foen. vul.)

- Botanical name** : *Foeniculum vulgare* Linn.      **Family**: Apiaceae (Umbelliferae)
- Synonyms** : *Foeniculum azoricum* Mill.; *F. capillaccum* Gilip.; *F. dulce* Mill.;  
*F. officinale* All.; *F. panmoriuna* DC.; *F. rigidum* Brot. Ex. Steud.;  
*Aethum foeniculum* Linn.
- Common names** : *Hindi*: Saunf; *English*: Fennel; *French*: Fenouil; *German*: Fenchel.
- Description** : A tall, glabrous herb. Stem stout, erect, branched, up to 2 m high. Leaves: 3 or 4 pinnately compound with ultimate segments linear, very narrow almost thread-like, up to 4 cm long; petiole broad, clasping the stem. Inflorescence umbel, with 15 to 30 primary rays, 8 to 12 cm wide. Flowers: very small, yellow. Fruit: a cremocarp, linear-oblong, cylindrical, up to 5 mm long and prominently ribbed.
- Part used** : Fruit.
- Macroscopical** : Shows a short conical stylopodium at the summit of cremocarp. Mericarps frequently separate from each other; each mericarp broadly elliptical, more or less curved having dorsal surface convex, light brown to light olive with 5 prominent, longitudinal primary ribs; commissural surface flat, with 3 narrow, light coloured areas separated by 2 dark coloured areas, containing vittae (oil canals). Taste sweet and odour aromatic.
- Microscopical** : Mericarp: in transection pentagonal in outline with commissural side considerably longer, somewhat undulated; ribs large and wing like. Epicarp consisting of a layer of tangentially elongated epidermal cells, about 15 to 30 µm in length and width. Mesocarp in vascular regions in ribs contain much thickened, lignified cells, having large, oval and rounded pits, giving reticulate appearance, while rest part of the mesocarp contain several layers of thin walled parenchyma cells, 2 large elliptical vittae in the commissural region, while in the dorsal region between two ribs are found a single similar vittae. Vittae, septate, up to 250 µm in width, vittae walls brown in colour and lined by epithelial layer of polygonal tabular cells. In the middle portion of each rib of mesocarp a nearly circular fibrovascular bundle is present. Endocarp consists of narrow elongated cells, arranged in parquetry (cross or different direction) manner and appearing in transection of fruit as long narrow rectangular cells with groups of very short cells here and there, owing to different directions in which the groups of cells in the parquetry have been cut.

Seed coat: consists of a layer of somewhat broadened epidermal cells attached to the endocarp, beneath which are found several layers of more or less collapsed cells, which are better defined in the raphe region. Raphe appears as somewhat crescent-shaped band of thick walled cells just outside the center of the commissural region of the seed coat.

Endosperm: a large, somewhat reniform zone of thick-walled polygonal cells containing aleurone grains, oil globules and rosette aggregates of calcium oxalate crystals.

Embryo: remains embedded in the endosperm at the micropylar part of the seed.

**Distribution** : Native of Mediterranean and Europe, cultivated and naturalized in United States, Subtropical and warm temperate regions including India.

**History and authority** : Proved by Dr. Demeures; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **4**, 354, **10**, 528.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Foeniculum Vulgare in <i>coarse powder</i>	100 g
Purified Water	325 ml
Strong Alcohol	700 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 2x and higher with *Dispensing Alcohol*.

**GALEGA OFFICINALIS**

(Galeg. of.)

**Botanical name** : *Galega officinalis* Linn. **Family**: Fabaceae (Leguminosae)

**Common names** : *English*: Goat's rue, European goat's rue; *French*: Rue de Cheure; *German*: Pestilenzkrant.

**Description** : A hardy perennial herb, up to 1 m in height. Stem: smooth and branched. Leaves: imparipinnate, with leaflets 6 to 8 pairs, bright green, smooth or slightly hairy, short petioled, lanceolate or ovate-lanceolate, obtuse, slightly mucronate, 2 to 5 cm long and 2 to 6 cm broad. Stipules lanceolate. Flower: small, white to purplish blue, papillionaceous, in axillary racemes. Fruit a slender pod containing 4 to 6 brownish-black seeds. Odour distinct; taste mucilaginous, slightly bitter and astringent, the saliva becomes coloured yellowish-green.

**Part used** : Whole plant.

**Microscopical** : Leaflet: Dorsiventral, transection shows single layered epidermis with thin cuticle; stomata anomocytic. Mesophyll differentiated into 2 or 3 layered palisade, which is continuous in midrib region and 3 or 4 layers of spongy parenchyma. Meristele containing a conjoint, collateral vascular bundle encapped on both sides by sclerenchyma patches; ground tissue parenchymatous.

Rachis: in transection arc-shaped in outline and shows single layered epidermis, ground tissue parenchymatous. A number of vascular bundles present in an arc; individual bundle conjoint, collateral, encapped by sclerenchyma patch outside; a few smaller bundles present in between big bundles. Pith hollow.

Stem: transection shows single-layer of epidermis; cortex parenchymatous, occasionally containing starch grains, 8 to 10 layers of cork arising from the innermost layer of cortex. Pericyclic fibre patches. Vascular bundles conjoint, collateral, arranged in a ring. Pith parenchymatous, containing profuse starch grains.

**Identification** : (1) Alcoholic concentrated extract on TLC with solvent system *butanol : acetone : water* (60 : 15 : 15 v/v) shows the presence of one spot with  $R_f$  0.91 when sprayed with 0.5 % 8-hydroxyquinoline in 60% ethanol.

(2) The alcoholic extract with 1 drop of aqueous *ferric chloride solution*, gave a bluish black colour which disappears on addition of *dilute sulphuric acid* forming a yellowish brown precipitate.

**Distribution** : Southern Europe, naturalised in U.S.A.

**History and authority** : Dorretta and corron de la Carriere clinically used it, mentioned in Clarke, J.H., *A Dict. of Pract. Mat. Med.* 1990, **1**, 794.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
 Galega Officinalis in *coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**GLYCOGENUM**

(Glyco.)

 $C_6H_{10}O_5$ **Mol. wt.:** from about  $2.7 \times 10$  to  $3.5 \times 10$ **Common names** : *English:* Animal starch, Liver starch; *French:* Glycogene.**Description** : It is white, amorphous, tasteless, odourless, hygroscopic powder. Soluble in *water*, producing an opalescent colloidal solution. Insoluble in *ether*, *alcohol* and *acetone*. It is reserve carbohydrate, distributed in the protoplasm of all animal cells and in the blood serum. It is found especially in the liver and in the rested muscle. It also occurs in lower plants, including fungi and yeasts. It is a high molecular weight polymer having a branched-chain structure composed of *D-glucopyranose* residue.**Identification** : (1) It does not reduce *Fehling's solution*.  
(2) With *iodine* it gives violet red to violet brown colour.**Melting point** :  $240^\circ$ .**History and authority** : Mentioned in *HPUS revision series*, 1991, 4041.**Preparation** : (a) Trituration 1x Drugstrength 1/10Glycogenum 100 gSaccharum Lactis 900 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to triturated in accordance with the method HPI, Vol. I, 6x may be converted to liquid 8x. HPI, Vol. I.



## GUNPOWDER

(Gunp.)

**Common names** : *English*: Black powder, Brown powder, Blasting Powder; *French*: Poudre a canon.

**Description** : It is a black or brown explosive substance consisting of an intimate mechanical mixture of *potassium nitrate*, *charcoal* and *sulfur* in the proportions of 70 to 80, 10 to 15 and 10 to 15% respectively. Sometimes *sodium nitrate* is also used in place of *potassium nitrate*. It is sensitive to heat and deflagrate rapidly and is a dangerous fire and explosion hazard.

**Identification** :

- (1) Dissolve about 0.5 g of the substance being examined in 10 ml of *water*. To 1 ml of the above solution, add 1 ml of *dilute acetic acid* and 1 ml of a freshly prepared 10 percent w/v solution of *sodium cobalt-nitrate*, a yellow or orange-yellow precipitate forms immediately.
- (2) Dissolve 1 g in 10 ml *distilled water*, filter and add a few drops of *ferrous sulphate solution* to the filtrate followed by 2 ml conc. *sulphuric acid* through the side of the test tube to form a lower layer. A brown ring is formed.
- (3) To 1 ml of the filtrate add conc. *sulphuric acid*; brown fumes of NO<sub>2</sub> gases evolved.
- (4) Dissolve the residue left on filter paper in test no. 1 in 5 ml *carbon disulphide*, filter and evaporate to dryness. Burn the residue left after evaporation with *sodium nitroprusside* reagent. Intense pink to purple colour appears.

**History and authority** : Mentioned in Boericke, W., *Mat. Med. and Repertory*, 1927, 561.

**Preparation** :

(a) Trituration 2x	Drug strength 1/100
Gunpowder	10 g
Saccharum Lactis	990 g

to make one thousand grammes of the Trituration.

(b) Potencies: 3x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Caution** : It is an explosive. Triturate very small quantity, at a time. Avoid generation of heat during the process, which may result in explosion.

**HAPLOPAPPUS BAYLAHUEN**

(Haplo. ba.)

**Botanical name** : *Haplopappus baylahuen* Remy. **Family**: Asteraceae (Compositae)

**Synonym** : *Aplopappus baylahuen* Remy.

**Description** : Perennial or biennial herb or small shrub. Leaves alternate, sessile, tough and leathery, elongate-lanceolate, hairy, dentate, sometimes bidentate. Inflorescence: many flowered heads. Flowers: yellow to creamy white; ray florets ligulate and pistillate; disc florets tubular, perfect and fertile; involucre scales present in several whorls. Fruit: an achene, somewhat terete, silky; pappus of numerous unequal, more or less rigid, scabrous bristles.

**Part used** : Dried leaves.

**Macroscopical** : Tough, leathery, elongate-lanceolate, sessile, up to 5 cm long and up to 3 cm wide, covered with glossy hairs on both the surfaces; base coniform and drawn out into a point that tends to be reflexed; margin dentate or bidentate only in the upper third in younger leaves and further down in older leaves. Venation closely reticulate with small intercostals areas. Lamina greyish green or almost brown, sometimes lemon yellow, midrib lighter in colour and slightly brownish yellow. Mildly pungent and odourless.

**Microscopical** : Abaxial surface of leaf shows epidermal cells almost quadrangular or rectangular with outer walls thickened. Anomocytic stomata present on both surfaces with usually 4 but occasionally 3 or 5 neighbouring cells. Multicellular glandular trichomes with basal cells having longitudinally striated cuticle. Mesophyll consists of single layer of palisade cells and spongy parenchyma. Each vein consists of a large conjoint, collateral vascular bundle, capped on both sides by sclerenchyma patches, surrounded by a bundle sheath of thick-walled cells. Extensions of thick walled cells of bundle sheath occur towards both upper and lower epidermis above the sclerenchyma patches. Occasionally secretory duct is found in phloem region. Raphides of calcium-oxalate are found in both bundle sheath and mesophyll cells.

**Identification** : Test solution: To 1 g of coarsely powdered drug, add 10 ml of 70% *ethanol*, stir at room temperature for 2 hours and filter.

(1) To 1 ml of the test solution, add 10 ml of *water*. Slight turbidity is produced and disappears on addition of 0.2 ml of *sodium hydroxide solution*. The colour deepens to golden yellow.

- (2) To 1 ml of test solution, add 0.2 ml of *ferric chloride solution*. An olive green colour is produced.
- (3) To 1 ml of the test solution, add 0.1 g of *magnesium filings* and 1 ml of *hydrochloric acid*. A red colour is produced.
- (4) 2 ml of the test solution fluoresces pale blue under ultra-violet light. Add dilute *sodium hydroxide solution* until reaction is just alkaline. Under UV light this changes to green.

**Distribution** : Chile.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
                   Haplopappus Baylahuen in *coarse powder* 100 g  
                   Purified Water 283 ml  
                   Strong Alcohol 754 ml  
                   to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**HARUNGANA MADAGASCARIENSIS**

(Harung. m.)

**Botanical name** : *Haronga madagascariensis* Choisy **Family**: Hypericaceae

**Synonyms** : *Harungana madagascariensis* Poir; *Harunga paniculata* (Pers.) Steud; *Arungana paniculata* Pers.

**Description** : A shrub or a tree, usually up to 12 m, exceptionally up to 27 m in height, much branched, evergreen, with scaly bark and orange or blood-red sap. Young stems densely covered with rusty, stellate or dendroid hairs. Leaves: opposite, petiolate, lamina lanceolate to ovate-oblong, shortly acuminate, rounded or sometimes broadly cuneate, truncate or cordate at the base, usually more or less rusty-tomentose when young. Inflorescence a large, many flowered corymbose-cymose panicle. Flowers: sweet scented, with rusty pedicels. Sepals ovate-elliptic, about 2 mm long, rusty and with a few longitudinal-linear glands and gland dots; petals white, ovate-elliptic, up to 3 mm long with 2 to 4 gland dots near the apex; stamen in 5 bundles, 3 or 4 per bundle, filaments glabrous and upper part of filaments free; staminode fleshy, glabrous, alternating with staminal bundle; ovary 5-locular. Fruit: a drupe, with 5 pyrenes adhering to form a spherical mass, about 4 mm in diameter, pericarp crustaceous, yellow or orange, pyrenes each 2-seeded; seeds about 2 mm long.

**Parts used** : Leaves and stem bark.

**Macroscopical** : Leaf: petiolate, petioles up to 27 mm long. Lamina lanceolate to ovate-oblong, ranging from 6.5 to 20 cm by 4.5 to 10 cm, shortly acuminate, rounded or sometimes broadly cuneate, truncate or cordate at the base, margin entire, relatively thin but quite hard and brittle, with about 14 parallel veins on each side of midrib, usually more or less rusty-tomentose when young; young leaves glabrescent, dark glossy-green on upper surface, which tomentose and usually much paler with rather prominent midrib and secondary veins on lower surface which also contains pale short uniseriate glandular or rusty stellate indumentum (covering of hairs).

Bark: hard, horny, consists of shallow or tubular quills of yellow or cinnamon brown colour and covered with a thin, fissured, regularly stratified cork and inner side usually dark yellowish-brown or reddish brown with faint longitudinal wrinkles. Bark taken from thicker branches consists of ribbon-like pieces, 1 to 3 mm thick, flat or curving up and down, frequently separating the outer corky region from inner ribbon-like tissue residue of excreted material is observed on the outer surface of the inner ribbon-like stripes. Fracture smooth. Aromatic; bitter and astringent.

**Microscopical**

: Leaf: exhibits polygonal upper epidermal cells with regular straight walls, outer walls moderately thickened, slightly convex, covered with fine warty cuticle, followed by a hypodermis of 3 layers of rounded or oval cells of 70 to 85  $\mu\text{m}$  in diameter. Palisade single-layered, palisade cells 4 to 6 times as long as they are wide; spongy parenchyma several layered; lower epidermal cells irregularly sinuous, thickened on the outer wall to give a papillose appearance. Rounded, colourless cells each containing a cluster of calcium oxalate crystals present in the mesophyll, particularly on the inner border of palisade region. Spongy parenchyma, containing rounded secretory cells of 30 to 100  $\mu\text{m}$  diameter with blackish red contents. Vascular bundles of the larger veins surrounded with an almost complete ring of 2 to 4 rows of lignified fibres. Below upper and lower epidermis collenchyma extensions present. Trichomes on both surfaces thin-walled, stellate, with short, stout, multicellular stalks (170 to 380  $\mu\text{m}$  in diameter); trichomes on upper surface frequently broken off. Stomata 15 to 20  $\mu\text{m}$  long and 10 to 15  $\mu\text{m}$  wide and have 2 to 4 subsidiary cells.

Bark: consists almost entirely of secondary tissue; parenchyma cells often tangentially compressed with irregular wall thickenings; rays 2 to 6 seriate, usually 30 to 40 layers high with nodular thickenings; numerous secretory ducts up to 100  $\mu\text{m}$  wide frequently containing residual dark reddish brown contents, larger ducts forming tangential rows, the smaller ones run singly or in groups. Clusters of calcium oxalate crystals and simple starch grains are also present.

**Identification**

- : (1) To 5 ml of 60% alcoholic extract of the drug, add 5 ml of *water* and extract with 10 ml of *solvent ether*. To the other phase add 5 ml *ammonia solution* and shake. The aqueous phase turns orange or reddish brown.
- (2) To 1 ml of 60% alcoholic extract, add 10 ml of *water* and 1 ml of *lead acetate solution*. A pale brown precipitate is produced.
- (3) Evaporate 0.05 ml of the test solution on a water bath; to the residue add 0.2 ml of *phosphomolybdic acid reagent*. A green colour is produced within 5 minutes.
- (4) TLC: Evaporate 25 ml above mentioned alcoholic extract on a water bath to remove alcohol. Add 10 ml of *water* and extract three times with *solvent ether* by using 25 ml solvent ether each time. Combine the ether layers and evaporate to dryness. Dissolve the residue in 2 ml methanol. Carryout Co-TLC of methanol solution with standard caffeic acid and emodin on silica gel 'G' plate using *ethyl acetate : chloroform : formic acid* (4 : 5 : 1 v/v) as mobile phase and *methanolic potassium hydroxide* as spray reagent. Two spots corresponding to standard caffeic acid (orange brown) and emodin (red) appear.

**Distribution** : Tropical Africa, Madagascar and Mauritius.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 503.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Harungana Madagascariensis in *coarse powder* 100 g

Purified Water 400 ml

Strong Alcohol 635 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HEMIDESMUS INDICUS**

(Hemid. in.)

- Botanical name** : *Hemidesmus indicus* R.Br. **Family:** Asclepiadaceae
- Common names** : *Hindi:* Anantamul; *English:* Indian Sarsaparilla.
- Description** : A perennial prostrate or twining shrub, with root stock woody. Stem: slender, terete, glabrous or pubescent, striate, thickened at nodes. Leaves: elliptic-oblong to linear lanceolate, apiculate, apex acute to obtuse, glabrous, often variegated above with pale white or with whitish zone along the midrib, sometimes pubescent beneath. Inflorescence: a sub sessile cyme in opposite axils. Flowers: clothed with numerous ovate acute bracts, pedicels short; calyx 5-partite, glabrous with membranous ciliolate margin; corolla greenish outside, purple inside, corolla tube short, lobes deeply 5-fid, valvate, fleshy, ovate-oblong, acuminate stamens inserted at the base of corolla tube, anthers small, cohering at the apex. Fruit: a follicle, cylindrical, straight or sometimes curved, striate, glabrous; seed 6 to 8 mm long, ovate, oblong, flattened, black.
- Part used** : Root.
- Macroscopical** : Roots about 30 cm long and 3 to 6 mm thick, cylindrical, hard, somewhat tortuous and little branched with a few thin rootlets and secondary roots, externally dark brown with a grey tinge, centre woody, yellow, surrounded by a mealy white cortical layer. Bark brown, corky, marked with transverse cracks and longitudinal fissures, easily detachable from the hard central core. Sweet and aromatic.
- Microscopical** : Transverse section shows a phellum (cork) 4 or 5 layered, of thin walled rectangular cells, filled with brown contents; a phellogen, 2- or 3-layered, of compressed cells; a phelloderm, 3- or 4-layered, of almost rectangular thin walled cells; secondary phloem rich in parenchymatous cells most of which are filled with starch grains, some cells containing rhomboidal or rectangular crystals of calcium oxalate; laticiferous ducts scattered throughout the phloem and cortex. Cambium 2- or 3-layered, of flattened, thin walled meristematic cells; wood large consisting of vessels, tracheids, wood parenchyma and parenchymatous rays having starch grains. The walls of vessels and tracheids pitted. Pith absent.
- Distribution** : India and Sri Lanka.

**History and authority** : Mentioned by K.N. Basu in *Bhartiya Aushdhawali*, 7<sup>th</sup> Edition, 183.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Hemidesmus Indicus in *coarse powder* 100 g  
 Purified Water 500 ml  
 Strong Alcohol 537 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts of *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**HERNIARIA GLABRA**

(Hern. gla.)

**Botanical name** : *Herniaria glabra* Linn. **Family:** Caryophyllaceae

**Common names** : *English:* Rupthertwort, Breast wort.

**Description** : A spreading, hardy, annual or perennial herb, forming a dense mat of foliage which turns bronze-red in winter. Leaves: small, stipulate, opposite, glabrous except a few hairs at the margin, broadly elliptic or obovate, fascicled at the upper nodes. Stipule inconspicuous, connate, ciliate. Inflorescence: axillary cyme. Flowers: minute, greenish. Sepal 5-parted, glabrous or shortly ciliated; petals nil; stamens 5, anther spherical, staminodia 5; ovary unilocular, completely embedded in the receptacle, stigma 2, blunt, divergent.

**Part used** : Whole plant.

**Microscopical** : Stem shows presence of subepidermal cork, epidermal cells conspicuously small (which distinguishes it from other related species), wood fibres unligified.

**Identification** :

1. To 5 ml of 60 % alcoholic extract, add 25 ml of water. The mixture fluoresces violet under ultraviolet light. To 3 ml of the mixture add 0.5 ml of *dilute sodium hydroxide solution*. After 5 minutes the mixture fluoresces yellow under UV light.
2. To 0.1 ml of 60 % alcoholic extract, add 5 ml of *water* and shake vigorously. Froth is produced that persists for two hours.
3. To 1 ml of 60 % alcoholic extract, add 1 ml of 3% solution (w/v) of *phloroglucinol* in water and heat for 2 minutes on a water bath at 85°. Remove from the water bath. The greeny-brown mixture becomes thickened or gelatinous.

**Distribution** : Native of Europe, sparingly established in Maine to New York.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 509–510.

**Preparation** :

(a) Mother Tincture $\phi$	Drugstrength 1/10
<i>Herniaria Glabra</i> in <i>coarse powder</i>	100 g
Purified Water	400 ml
Strong Alcohol	635 ml
to make one thousand milliliters of the Mother Tincture.	

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**HOITZIA COCCINEA**

(Hoit. coc.)

**Botanical name** : *Loeselia coccinea* G. Don **Family**: Polemoniaceae

**Synonyms** : *Hoitzia coccinea* Cav.; *Hoitzia mexicana* Lam.

**Common names** : *English*: Espinosilla, Humming bird flower.

**Description** : A perennial shrub, winter blooming, up to 1.5 m high, glandular pubescent. Leaves stiff, ovate or cuneate-ovate or lanceo-ovate, often sharply spinulosedentate, greyish-green, subsessile, cuneate at base. Inflorescence terminal fascicles or compound bracteate raceme. Flowers brilliant rose-red, tubular, trumpet-shaped; calyx 5, alternating corolla; corolla 5, oval, fused in lower half; stamens 5, introrse, dorsiventral, alternating corolla; pollen grains more or less circular, rough outside, with thick exine and numerous oval germ pores; bracts in a single row of 5.

**Part used** : Whole plant.

**Macroscopical** : Plant glandular pubescent, leaves stiff, ovate or cuneate-ovate or lanceo-ovate, often sharply spinulose-dentate. Flowers brilliant rose-red, bracteate, calyx and stamens 5, alternating 5 petals. Corolla, calyx and bracts glandular-pubescent.

**Microscopical** : Stem: in transection consists of a single layer of epidermis of tangentially elongated cells, covered with multicellular, glandular trichomes bearing uniseriate stalk and 8-celled disc-shaped heads. Cortex 8 to 12 cells wide, containing mostly fibres, some of which contain simple pits. Endodermis distinct, single-layered, cells dumbel-shaped. Stele in a ring; phloem 10 to 12 cells wide; cambium indistinct; xylem wide, made up of vessels, tracheids and wood fibres. Pith wide, having lignified cells, few cells contain simple pits.

Leaf: dorsiventral, covered with nonglandular and glandular trichomes. Nonglandular trichomes uniseriate and multicellular; glandular trichomes of 2 types: (a) peltate, with globular head having 2 vertically oriented thick-walled cells, (b) with 4 to 8 celled, disc-shaped head and 2 to 8 celled uniseriate stalk, stalk cells having longitudinal striations. Walls of lower epidermal cells beaded, without stomata. Anomocytic stomata present only on upper epidermis; Stomatal index 16.66 to 24.13, Vein islet no. 9.75 to 11.25 per sq mm and palisade ratio 12.5 to 18.5 per epidermal cell.

Flower: contains non-glandular and glandular trichomes like leaf.

**Identification** : Evaporate 25 ml of 60 % alcoholic extract on a water bath to remove *alcohol*. Extract the aqueous part three times with *Chloroform* using 25 ml *chloroform* each time after making it alkaline with *ammonia*. Combine and concentrate the *chloroform* layers to 2 ml and carryout TLC using *chloroform* : *methanol* (9 : 1 v/v) as mobile phase and *Dragendorff's reagent* for spray. Four spots appear under UV light at  $R_f$  0.39, 0.75, 0.85 and 0.95 (all blue). With *Dragendorff's reagent* one spot appears at  $R_f$  0.95 (Orange).

**Distribution** : Mexico.

**History and authority** : Proved by Dr. Manuel M. de Legarreta; Mentioned in *Homoeopathic Pharmacopoeia of United States*, 1968, 700.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10

Hoitzia Coccinea, moist magma containing solids 100 g and plant moisture 233 ml	333 g
Purified Water	200 ml
Strong Alcohol	600 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HYPERICUM PERFORATUM**

(Hyper.)

- Botanical name** : *Hypericum perforatum* Linn. **Family**: Hypericaceae
- Synonyms** : *Hypericum officinale* Gater ex Steud; *H. pseudoperforatum* Bertol; *H. vulgare* Lam.
- Common names** : *Hindi*: Bassant, Balsana, Dendhu; *English*: St. John's wort; *Franch*: Millepertuis; *Garman*: Johanniskraut.
- Description** : A perennial, much branched herb with thin rigid branches. Stem 30 cm or more in height, producing runners from the base, somewhat 2 edged and smooth. Leaves: sessile, opposite, linear-oblong, commonly 2 to 4 cm long, with numerous scattered pellucid dots, connate-perforate; Inflorescence: terminal cymes. Flowers: numerous, bright yellow, 1.25 to 2.50 cm across; sepals 5, narrowly lanceolate, acuminate, 4 to 6 mm long, with few or no black glands; petals 5 oblong, 8 to 10 mm long, black-dotted near the margin; stamens in 3 foscicles; ovary 3-locular, styles 3. Fruit: a capsule, ovoid, glandular; seeds 1 to 1.3 mm long.
- Part used** : Whole plant.
- Microscopical** : Leaf: transection shows single layered, upper epidermis consisting of papillose cell, lower epidermis single layered, stomata anomocytic, confined to the lower surface; mesophyll differentiated into a single layer of palisade and spongy parenchyma, secretory cavities present in mesophyll; midrib much pronounced on lower side being almost triangular in shape. Midrib shows a single layer of collenchyma cell below both the epidermis, ground tissue parenchymatous, meristele arc-shaped having phloem on the lower side. Stomatal index 11.63 to 28.24 and palisade ratio 5.0 to 7.9
- Young stem: in transection shows a quadrangular outline due to 4-prominent rides, each containing a mass of collenchyma. Epidermis single layered followed by 1 or 2 layers of collenchymatous hypodermis, 3 or 4 layered parenchymatous cortex containing secretory cavities; endodermis single layered of barrel shaped cells; pericycle single layered of thin walled; xylem and phloem arranged in a continuous ring, phloem region containing secretory cell; rays uniseriate; pith large, parenchymatous.

Mature stem: in transection shows a roundish outline few layers of thin-walled, brown cork cell; cortex parenchymatous containing a few secretory cavities. Xylem and phloem in a close ring, phloem region containing secretory cavities specially just above xylem rays; in phloem not distinct. Pith with very thin walled cell or hollow.

**Identification** : To 1 ml of 75% alcoholic extract, add few drops of ferric chloride solution. A blackish green colour is produced.

(1) To 2 ml of 75% alcoholic extract, add 2 ml distilled water and 2 ml ether, shake and observe under UV light, a bright red fluorescence (hypericine) is observed in ether layer; add 1 ml sulphuric acid to the ether fraction, a yellow-green fluorescence is produced.

(2) On putting a freshly cut sodium piece in the Mother Tincture, an intense effervescence occurs with exothermic reaction and the solution turns red.

(3) Carryout TLC of Mother Tincture using *butanol : acetic acid : water* (4:1:1 v/v) as solvent system and observe the plate under UV light, five spots appeared at  $R_f$  0.60 (brown), 0.80 (brown), 0.85 (bright red), 0.90 (brownish yellow) and 0.95 (red). When sprayed with aluminium chloride and observed under UV light four spots, all are yellow, appeared at  $R_f$  0.45, 0.60, 0.80 and 0.90.

(4) Carryout TLC of Mother Tincture as above and spray with vanillin in concentrated sulphuric acid and heat the chromatograms at 100° to 105° for 5 minutes, six spots appeared at  $R_f$  0.30 (dull grey), 0.50 (brown), 0.60 (brown), 0.80 (pink), 0.85 (violet-black).

**Distribution** : Native to Europe, also distributed in regions of temperate Asia including India.

**History and authority** : Proved by Dr. Mueller; Allen T.F., *Encyclop. of Pure Mat. Med.*, 1877, 5, 53.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Hypericum Perforatum in moderately *coarse powder* 100 g  
 Purified Water 250 ml  
 Strong Alcohol 780 ml  
 to make one thousand millilitres of the Mother Tincture

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ILEX AQUIFOLIUM**

(Ilx. a.)

**Botanical name** : *Ilex aquifolium* Linn. **Family:** Aquifoliaceae**Common names** : *English:* English Holly; *French:* Houx, Houx commun; *German:* Stechpalme.**Description** : An evergreen tree, monoecious or polygamous, up to 12.5 m high; often shrubby in cultivation, with branches short, spreading forming an oblong or pyramidal crown; Leaves: short stalked, thick and coriaceous, glabrous, ovate, elliptical or oblong, with margins undulate having triangular spinepointed teeth. Inflorescence: cymose; cymes cluster-like, axillary on the old branches. Flowers: unisexual or sometimes perfect, the pistillate flowers small, white, usually bear stamens with small anthers, the staminate flowers often with rudimentary pistil; 6 mm in diameter, white, 4-merous; petals 4, slightly connate at base; stamens 4, alternating with petals, barely adnate to corolla tube; ovules solitary in each locule of ovary. Fruit: a drupe.**Part used** : Leaf and Fruit.**Macroscopical** : Leaf: 3 to 8 cm long, short petioled, glabrous, coriaceous, usually ovate or oblong ovate, with margins undulate, sinuate-dentate with large triangular spine-pointed teeth, dark green and glossy above, paler beneath.**Microscopical** : Leaf in transection shows dorsiventral structure. Upper epidermis 3-layered, covered with thick cuticle; central vascular bundle arc shaped, flanked on each side by 1 or 2 vascular traces; phloem on both sides of the xylem, more on the lower aspect; fibre patches outside the phloem, 5 to 7 layers of collenchyma below the epidermis, followed by irregular, tangentially flattened thick walled oval or isodiametric parenchyma cells; lower epidermis 2-layered, mesophyll differentiated into 2-layered palisade and a spongy parenchyma; rosette crystals of calcium oxalate present in lamina and midrib. Transection through spine shows elliptic outline containing elongated, lignified cells, a spindle shaped vascular bundle having spirally thickened tracheary elements and polygonal, thick walled cells at the tip. Anomocytic stomata present only on the lower surface.

Petiole in transection shows an arc shaped vascular bundle, flanked on each side by two vascular traces, epidermis single-layered covered with thick cuticle, followed by 5 to 7 layers of collenchyma and round, loosely arranged thick walled parenchyma cells; phloem on both sides of the xylem; a few pointed scattered unicellular hairs.



**Distribution** : Central and Southern Europe, Western Asia, China and U.S.A.

**History and authority** : Introduction by Dr. Hendrichs; Clarke, J.H., *A Dict. of Pract. Mat. Med.* 1901, **2**, 15.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
 Ilex Aquifolium in *coarse powder* 100 g  
 Purified Water 400 ml  
 Strong Alcohol 635 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x higher with *Dispensing Alcohol*.

**LARREA MEXICANA**

(Larr. mex.)

- Botanical name** : *Larrea mexicana* Moric. **Family:** Zygophyllaceae
- Synonyms** : *Larrea tridentate* Coville; *Neoschroetera tridentate* (DC.) Briq.; *Zygophyllum tridentatum* DC.; *Covillea tridentate* (DC.) Vail.
- Common names** : *English:* Paloondo, Creosote bush, Chaparral.
- Description** : A strongly scented shrub, 1 to 3.5 m high. Leaves: stipulate, opposite persistent, compound, 2-foliolate; leaflets oblong to obovate, oblique, united at base, 5 to 10 mm long. Stipules exude a resinous substance which spreads all over leaves and branches. Flowers: solitary, regular, perfect, hypogynous, 5-merous. Petals yellow, 8 to 10 mm long; stamens hypogynous, carpels 5, placentation axile. Fruit: densely pillose with long hairs.
- Part used** : Leaves and young branches.
- Microscopical** : Leaf in transection dorsiventral with epidermis covered with resinous exudates; vascular bundles containing rhomboidal crystals. Petiole in transection exhibits epidermis covered with resinous exudates, a central ring of vascular bundles, containing big rhomboidal crystals “styloids” in phloem.
- Identification** : (1) Evaporate 10 ml of 90% alcoholic extract and extract the remaining part with 3×25 ml *chloroform*. Concentrate the chloroform extracts to 2 ml and carryout TLC using *chloroform* : *methanol* (9:1 v/v) as mobile phase and *antimony trichloride* reagent for spray. Three spots appear at  $R_f$  0.56 (yellow), 0.81 (yellow) and 0.95 (brown).
- (2) TLC of 90% alcoholic extract using *n-butanol* : *acetic acid* : *water* (4:1:1 v/v) as mobile phase and under UV light, spot appears at  $R_f$  0.95.
- Distribution** : Dry lands and deserts of Mexico, California and Texas.
- History and authority** : Introduced and proved by Schatlin, 1960; O. A. Jullian, *Materia Medica of New Homoeopathic Remedies*, 1972, 382.
- Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
*Larrea Mexicana* in *coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. IV

**LAUROCERASUS**

(Lauro.)

- Botanical name** : *Prunus laurocerasus* Linn. **Family:** Rosaceae
- Synonyms** : *Cerasus laurocerasus* Loisel.; *Padus laurocerasus* Mill.
- Common names** : *English:* Cherry laurel; English laurel; *French:* Laurier-cerise; *German:* Kirschlorbeer.
- Description** : An evergreen shrub or a small tree, up to 3 m in height with evergreen foliage. Leaves coriaceous and glossy, short stalked oval, lanceolate, oblong-elliptic or oblanceolate, narrowed into a short point, distantly serrate, with 2 to 4 glands at the base of the lamina. Flowers small, white axillary or terminal short racemes, in spring. Calyx 5, each 3-toothed; corolla 5, white; stamens numerous; carpel 1. Fruit: a drupe, ovoid-acute, small, blackish
- Part used** : Leaf.
- Macroscopical** : Leaf: about 15 cm in length and 5 cm breadth, with upper surface dark green and glossy, lower surface paler; lamina thick, glabrous and coriaceous; petiole thick and grooved above; margin slightly recurved and distantly serrate; 2 to 4 glands present near the base on the under surface of the lamina. Fresh leaves inodorous; when crushed yield odour of bitter almond.
- Microscopical** : Leaf: dorsiventral with stalked capitate glands; oil drops in the palisade; nectarines present on leaf base, near the petiole, secreting sugary substance. Petiole contains a principal crescent shaped vascular bundle, accompanied by smaller or very small subsidiary ones and show characteristic absence of large rosette crystals which is characteristic feature of other species of the genus *Prunus*.
- Identification** : (1) To 1 ml of the 60% alcoholic extract, add 0.1 ml of *dilute sodium hydroxide*; a reddish-brown gelatinous precipitate is produced.
- (2) Soak a strip of paper in a mixture of 10 parts by volume of a 0.3% *solution of cupric acetate*, 50 parts by volume of ethanol and 5 parts by volume of guaiacum tincture.

Transfer 10 ml of the 60% alcohol extract to a small beaker and cover with a watch-glass, put the above in the beaker. The colour of the paper changes to blue in 30 seconds.

**Distribution** : Indigenous to Persia and Asia minor, southeast Europe, cultivated in temperate regions.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 755; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1879, **2**, 255.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Laurocerasus in <i>coarse powder</i>	100 g
Purified Water	400 ml
Strong Alcohol	637 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LAVANDULA ANGUSTIFOLIA**

(Lav. ang.)

- Botanical name** : *Lavandula vera* DC. **Family:** Lamiaceae (Labiatae)
- Synonyms** : *Lavandula angustifolia* Miller; *L. officinalis* Chaix; *L. vulgaris* Lam.
- Common name** : *English:* Lavender.
- Description** : A perennial, hardy, bushy shrub, up to 1 m high. Leaves: oblong-linear or lanceolate, entire, opposite, younger ones often clustered in the axil, white-tomentose, revolute at the margin, while older ones greener, 2.5 to 4 cm long. Inflorescence : a loose spike, having whorls of 1 to 10 flowers. Flowers: bluish-violet. Calyx tubular, 5-toothed; corolla bilabiate, bluish-violet; stamens 4, didynamous, included in the tube; style shortly 2-fid at the apex.
- Part used** : Flowers.
- Macroscopical** : Calyx 5 to 6 mm long, tubular, 5-toothed of which 4 are very short, while the fifth tooth forms a cordate or oval projecting lobe. The lower part of the calyx has 10 to 13 very hairy longitudinal ribs. Corolla about 1 cm long, bluish-violet, tubular, upper lip about 2.5 mm long, erect, deeply 2-lobed, while lower lip 3-lobed, about 1.5 mm long and less deeply incised. Stamens 4, enclosed by corolla, 2 stamens inserted about half way up the lower lip. Ovary superior, consisting of 4 carpels, stigma bi-fid. Odour strongly aromatic and taste bitter.
- Microscopical** : Calyx: Inner epidermal cells small, lignified, containing crystals of calcium oxalate and beset with both unicellular and branched multicellular hairs. Outer epidermal cells tangentially elongated, having thick cuticle and large, branched, multicellular hairs, while the area away from the ribs is covered with glandular hairs with unicellular stalk and unicellular heads. Mesophyll usually parenchymatous, while each rib bears a small vascular bundle with anterior sclerenchyma fibre patch.
- Corolla: Outer epidermis consisting of thick walled, anticlinally elongated cells covered with antler type of hairs, while the inner epidermal cells are tangentially elongated having papillary projections and covered with small glandular and numerous characteristically long gnarled hairs, the latter frequently found at

the insertion of anthers. Mesophyll parenchymatous, loosely arranged, containing crystals of calcium oxalate and vascular elements having spiral thickenings. Pollen grains spherical, about 45 µm in diameter, exine with 6 raised bands and 6 emergence slits.

**Identification** : Extract 5.0 ml of the 62% alcoholic extract with 3×10 ml of *hexane*. Combine all three layers and evaporate at reduced pressure on a water bath at about 40°. Dissolve the residue in 3 ml of *ethanol*. Following tests are to be proceeded with this solution.

(1) Add 20 ml of *sulphuric acid* to 1 ml of the above solution, cool and then heat on a water bath for 20 minutes. After cooling, add 5 ml of vanillin solution. A dark red colour is produced.

(2) To 1 ml of the above solution add 1 ml of a 3.5 percent solution (w/v) of *hydroxylamine hydrochloride* in ethanol and 0.6 ml of *dilute sodium hydroxide solution*. Heat on a water bath and maintain boiling for 10 seconds. When cold, acidify with about 1 ml of 1 N *hydrochloric acid* so that the pH is approximately 4.5 and add 0.2 ml of *ferric chloride solution*. A dark reddish brown or reddish violet colour is produced which deepens on staying for 5 minutes.

**Distribution** : Growing wild in Mediterranean area between the coast and the lower mountain slopes and extensively cultivated throughout Europe.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 595–596.

**Preparation** : (a) Mother Tincture φ Drug strength 1/10

Lavandula Angustifolia in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	687 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LEONUORUS CARDIACA**

(Leo. card.)

- Botanical name** : *Leonuorus cardiaca* Linn. **Family:** Lamiaceae (Labiatae)
- Common name** : *English:* Mother woet.
- Description** : A perennial herb. Stem stout, erect, up to 1.5 m high, with ridges and furrows, finely pubescent on angles and nodes. Leaves: long-petioled, lower ones large, broadly ovate to suborbicular, palmately lobed and sharply toothed; the upper ones progressively smaller and proportionately narrower, but those subtending verticils commonly oblong and 3-toothed. Inflorescence: verticillaster. Flower: bracts subulate, nearly half as long as the calyx. Calyx tube 5-angled, 5-ribbed nearly glabrous, 3 to 4 mm long, the lower two calyces strongly deflexed; corolla bilabiate, pale pink, upper lip white-villose, stamens 4, about equal, coarsely hairy; stigma glabrous. Fruit: a nutlet.
- Part used** : Fresh whole plant.
- Microscopical** : Stem in transection shows ridges and grooves. Epidermis is followed by subepidermal cork and then by collenchyma. Vascular bundles capped by patches of lignified pericyclic fibres. Vascular bundles conjoint, collateral.
- Identification** : Take 5 ml of 60% alcoholic extract and add 1 ml of *dilute sodium hydroxide* solution. Place a piece of moistened red litmus paper over the mouth of the tube. Heat the liquid to boiling. The colour of paper changes to blue and an amine type odour develops.
- Distribution** : Native of Central Asia, now established in U.S.A.
- History and authority** : Mentioned in German *Homoeopathic Pharmacopoeia*, 1990, 605–606; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, 2, 269.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Leonuorus Cardiaca in <i>coarse powder</i> | 100 g  |
| Purified Water                             | 400 ml |
| Strong Alcohol                             | 635 ml |
- to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*. 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.



Original Monograph Appeared in HPI Vol. VI

Revised Monograph Appeared in HPI Vol. X

**LEUCAS ASPERA**

(Leuc. asp.)

**Botanical name** : *Leucas aspera* Sprang. **Family**: Lamiaceae (Labiatae)**Common names** : *Hindi*: Chota halkusa, Dand kalash.**Description** : A herbaceous, much-branched, erect or diffuse annual, 30 to 60 cm in height. Leaves: subsessile, linear or narrowly oblong-lanceolate, entire or crenate. Flowers small, white, in dense terminal or axillary whorls; bracts long, linear, acute, bristle-tipped, ciliate with long slender hairs; calyx variable, tubular, tube curved, mouth small, oblique, teeth small, triangular, bristletipped; corolla white, tube enlarged and pubescent above, annulate about the middle, upper lip densely white-woolly. Fruit: a nutlet, small, oblong, smooth, brown.**Part used** : Whole plant.**Macroscopical** : Stem erect, usually much diffusely branched below the branches leafy, sometimes taller with erect branches. Longer leaves up to 5 cm broad. Flowering whorls up to 3 cm in diameter, hispid. Calyx variable, but always the upper lip protected and with short triangular teeth. Corolla small. Whole plant fragrant.**Microscopical** : Stem: in transection quadrangular in outline. Mature stem shows ridges and furrows. Epidermis single-layered, covered with thick cuticle; 5 or 6 layers of collenchyma below each main ridge; 2 or 3 layers of collenchyma below each subsidiary ridge, followed by 4 or 5 layers of chlorenchymatous cortex and endodermis; pericycle represented by a few patches of fibres. Four large vascular bundles present opposite each angular ridge. Pith large parenchymatous. On the epidermal surface two types of trichomes present: (a) uniseriate, 1 to 4 celled, thick walled, with pointed apical cell and (b) glandular with unicellular stalk and 8-celled head.

Leaf: Dorsiventral. Transection shows a single layer of epidermis covered with thin cuticle; midrib pronounced on the lower side, 4 or 5 layers of collenchyma below both upper and lower epidermis; a single conjoint, collateral vascular bundle containing xylem on the upper side and phloem on the lower side. Laminae mesophyll differentiated into a single layered, occasionally 2-layered palisade and about 5-layered loosely arranged spongy parenchyma. Trichomes like that of stem. Stomata present on both the surfaces but more frequent on lower surface. Stomatal index for upper surface 14.29 and for lower surface 16.67; palisade ratio 6.75.

**Distribution** : Found more or less throughout India as a weed in cultivated fields, wastelands and road sides.

**History and authority** : Ghose, S.C., *Drugs of Hindusthan*, 1965, 126.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Leucas Aspera, moist magma containing solids 100 g and plant moisture 310 ml	410 g
Purified Water	100 ml
Strong Alcohol	635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**LEVISTICUM OFFICINALE**

(Levis. of.)

- Botanical name** : *Levisticum officinale* Koch.      **Family:** Apiaceae (Umbelliferae)
- Synonym** : *Hipposelinum levisticum* Linn.
- Common name** : *English:* Lovage.
- Description** : A herbaceous, perennial plant with a long tap root; stem 1 to 2 m high, branched at the top. Leaves pinnately compound, upper leaves progressively reduced and simple with lobes; leaflets narrowly to broadly cuneate and entire in the basal half, the distal half triangular, acute, sharply serrate or incised. Inflorescence: compound umbel, 3 to 10 cm wide. Flowers: yellow with involucre of a few conspicuous, lanceolate, reflexed bracts. Sepals obscure or none; petals yellow. Fruit a cremocarp, 3-ribbed, ribs prominently elevated above the surface but not winged, elliptic, 5 to 7 mm long, about half as wide.
- Part used** : Rhizome.
- Macroscopical** : Rhizome greyish brown, usually short, up to 5 cm thick; frequently splitting, occasionally having stem scars. Roots appearing underside the rhizome are up to 3 cm thick, slightly branched, with longitudinal grooves and irregularly arranged transverse protuberances. The drug is soft and pliable, fracture smooth. Odour aromatic; taste sweet and then faintly bitter.
- Microscopical** : Rhizome in transection shows a wide cortex of whitish or brownish spongy parenchyma cells and concentric rings of reddish brown secretory cells. Endodermis interrupted and made up of secretory cells. Phloem in patches. Xylem lacks in secretory cells. Rays bi-seriate. Pith large containing secretory cells. Stone cells and starch grains are also found amongst parenchyma cells. Root in transection shows an extremely narrow bark having a few layers of cork cells. Tangentially elongated secretory cells present in the cortex. Phloem containing secretory cells; xylem contains vessels and no secretory elements. Parenchyma cells contain starch grains of 3 to 18 µm in diameter.
- Identification** : Heat 1 g of the coarsely powdered drug with 10 ml of *ethanol* for 30 minutes under reflux on a water bath and filter. Heat 1 ml of this solution with 1 ml each of *Fehling's solution A & B* to boiling. A red precipitate is produced.

**Distribution** : Native of Europe.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 609–610.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
 Levisticum Officinale in *coarse powder* 100 g  
 Purified Water 350 ml  
 Strong Alcohol 683 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LUFFA OPERCULATA**

(Luf. oper.)

- Botanical name** : *Luffa purgans* Mart. **Family:** Cucurbitaceae
- Synonyms** : *Luffa operculata* (Linn.) Cogn.; *Momordica operculata* Linn.; *Poppia operculata* M. Roem.
- Common names** : *English:* Lufo, Purging luffa; *German:* Luffa schwammgurke.
- Description** : An annual, tendril climbing, monoecious herb. Leaves kidney to heart shaped, 3 to 5 lobed, multicostate. Flowers unisexual, large, light yellow. Male flowers racemose; calyx bell shaped, shortly 5-lobed; corolla 5, yellow; stamens 3, inserted on the calyx-tube. Female flowers solitary and short peduncled; calyx tube produced beyond the ovary, shortly 5-lobed; corolla as in male; ovary elongated, 3-placentiferous, ovules numerous. Fruit a pepo, oval elongated, having numerous longitudinal spiny ribs; inside fruit besides pulpy tissue, a fine fibrous tissue is also present which contains flat, light brown seeds.
- Part used** : Fruit.
- Macroscopical** : The fruit greyish, elongated, oval, 7 to 10 cm long and 3 to 5 cm wide, with pericarp showing numerous longitudinal spiny ribs, beneath which lies a large mesh of spongy tissue containing seeds in locules. Locules are lined with a thin parchment-type endocarp. Seeds about 10 mm long, 5 mm wide and 2 mm thick, flat, narrowly elliptical, rounded at the upper end and slightly pointed at the lower end towards the hilum where the edges are slightly winged. Above the hilum are two semilunar eminences on either side of the seed. The seed coat is dull greyish-black spotted with light shade at places.
- Microscopical** : Pericarp shows polygonal epidermal cells, with straight walls in surface view, covered with cuticle which shows slight striations near the stomata; stomata anomocytic, generally in small groups, with neighbouring cells 4 to 6 in number with thin partly punctate walls; thick walled bristles on ribs rounded at the tip, usually 4-celled, up to 200 µm long and 120 µm wide at the base; each bristle showing striated cuticle and radially arranged epidermal cells at the base; glandular hairs with 2 celled stalk and multicellular head, up to 70 µm long. Mesocarp has outer 1 to 3 layers of large, thin walled, tangentially elongated cells followed by a zone of 1 or 2 layers of markedly pitted, rounded, angular or isodiametric stone cells, below which is found another zone of rounded polygonal cells

of progressively bigger size with dense, pitted, lignified walls, intermingled with fibres and vascular bundles, containing vessels with spiral thickenings. The endocarp which is present below the mesocarp lines the locules and consists of layer of delicate, narrow cells which run parallel or are stretched in different directions. Seeds covered with thin hard seed coat enclosing embryo with 2 thick, yellowish white cotyledons containing oil. Peripheral region of seed coat consists of epidermis, often dark brown in colour with few cells still lighter in shade, having outer walls thin and lateral walls irregularly thickened. Below the epidermis is a layer of cells, with thin brown walls, which is followed by another equally thick zone of cells with light coloured walls. Adjacent to it, is a layer of brachysclereids with pitted walls. It is followed by a layer of palisade like, rod-shaped cells, 140 to 150  $\mu\text{m}$  by 40 to 53  $\mu\text{m}$ . Below this occurs a zone of spongy parenchyma type of cells, containing a small amount of fatty oils. Inner boundary of seed coat is limited by a single layer of tangentially elongated thin walled cells.

Cotyledon: inner epidermis about 7  $\mu\text{m}$  broad while the outer 15  $\mu\text{m}$ . Below the epidermis is radially stretched thin walled palisade like cells and containing fatty oil.

**Distribution** : Tropical America.

**History and authority** : Introduced and proved by Willmar Schwabe and M. Stuber; Julian, O.A., *Dictionary of Homoeopathic Materia Medica* and *New Homoeotherapeutics*, 1984, 327.

**Preparation** : (a) Mother Tincture  $\phi$  Drugstrength 1/10  
                   Luffa Operculata in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 650 ml  
                   to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**MALVA**  
(Malva)

- Botanical name** : *Malva sylvestris* Linn. **Family:** Malvaceae
- Common name** : *English:* High mallow.
- Description** : Usually biennial, sometimes annual or perennial. Stem erect, 90 to 100 cm high, sparsely hirtellose or glabrate and branched. Leaves orbicular or reniform, 5 to 7 lobed, lobes broadly rounded, serrate; petiole pubescent on the upper side sometimes hairs developing pubescence only in a single line. Bractlets oblong to ovate or obovate. Flowers fascicled in upper axils on peduncles. Calyx and epicalyx green in colour; petals red-purple, 2 to 2.5 cm long. Seeds rugose-reticulate on the back, glabrous or sparsely pubescent.
- Part used** : Dried flowers.
- Macroscopical** : Flowers: up to 5 cm wide. Epicalyx 3, oblong; lanceolate, segments acute, up to 5 mm long, more or less glabrous on inner side while prominently hairy outer side and have bristly hairs on margins, calyx 5, tips triangular, up to 8 mm long, with bristly hairs on margins. Petals, purple, upto 2.5 cm long, obcordate or obovate, cuneate, deeply emerginate. Stamens form a violet staminal tube which at the base unites with the basal part of petals; filaments free at the top. Ovary superior, disc-shaped, 10 locular; fused columnar pistil enclosed in the staminal tube, stigmas free, purple, as many as locules.
- Microscopical** : Calyx and epicalyx both have walls of outer epidermal cells generally straight, while those of inner epidermal cells sinuous. Both have anomocytic stomata. Outer epidermis of both calyx and epicalyx are beset with mainly six types of trichomes: (1) unicellular, acuminate, rigid, thick-walled trichomes, up to 2 mm long; (2) with punctate base, present on the veins and margins encircled by elevated epidermal cells; (3) small, unicellular; (4) stellate with punctate base on the laminar surface; (5) markedly twisted, unicellular lignified, mainly at the apex; and (6) multicellular, multiseriate, glandular. Mesophyll of isodiametric closely packed cells containing clusters of calcium oxalate crystals, about 16 µm in diameter. In corolla epidermal cells in a row, bearing at the corollar base: (a) numerous, multiseriate, glandular hairs, up to 200 µm; (b) lateral rows of unicellular, acuminate, punctate, thick-walled hairs, about 1000 µm long, a little sunk into the epidermis. Pollen grains spherical, yellow, 110 to 140 µm, with coarse exine spines and numerous round pores. All parts of the flower contain variable number of large mucilage cells and cells containing clusters of calcium oxalate crystals.

**Identification** : Test Solution: gently heat 1.0 g of minced drug with 10 ml of 5% *ethanol* for 30 minutes on a water bath at 80°C. Filter when cold, wash the filter paper with 5% *ethanol* and make up the volume to 10.0 ml. To 1 ml of the test solution add 1 ml of *dilute hydrochloric acid*. A deep red colour is produced that changes to yellow brown on addition to 4 ml of 10% (w/v) solution of *sodium sulphate*. Purified in *water*. The mixture fluoresces yellow under ultra violet light at 365 nm.

**Description** : Native of Eurasia, also found in North America.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 643.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Malva in *coarse powder* 100 g  
                   Purified Water 510 ml  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.



**MENYANTHES TRIFOLIATA**

(Menyan. t.)

- Botanical names** : *Menyanthes trifoliata* Linn. **Family:** Gentianaceae
- Common names** : *English:* Bitter worm, Bog bean, Brook bean, Buck bean; *French:* Trefled' can (de marais); *German:* Fieberiklee, Drei blatt.
- Description** : A perennial herb, with a thick horizontal rhizome. Leaves: alternate, trifoliate each with 3 obovate leaflets, arising from rhizome; petiole long, broad, flat and striated, about 16 cm long; stipule broad and sheathing the petiole base; leaflets ash-green, glabrous, somewhat fleshy, obtuse or acute at apex, margin entire or coarsely undulate, base cuneate, 3 to 8 cm long, midrib prominent. Flowers: pentamerous white or pink, in long conical raceme on stout, glabrous pedicels. Calyx 5-cleft, calyx-lobes somewhat recurved and ovate. Corolla pink outside, pale or white within, about 15 mm across, funnel-shaped and much fimbriate on its upper surface. Stamens 5; pistil bicarpellary with slender style and 2-lobed stigma. Fruit a capsule, many seeded, unilocular.
- Part used** : Whole plant.
- Microscopical** : Leaf: shows uniseriate, mucilaginous trichomes; stomata on both epidermis anomocytic; hydathodes present at leaf margin, at enlarged terminations of veins.
- Petiole: vascular bundles widely spaced and arranged in a ring.  
 Pedicel: cortex containing numerous vertically elongated air-cavities, vascular bundles widely spaced and unconnected by inter fascicular cambium; vessels thick-walled with scalariform thickenings.
- Root: in transection shows single layer of epiblema; 2 or 3 layers of hypodermis; cortex large, aerenchymatous having large air cavities; endodermis distinct with casparian strips; pericycle single layered; stele polyarch, xylem exarch. Pith small, parenchymatous.
- Rhizome: transection shows single layer of epidermis, hypodermis 2 or 3 layered, collenchymatous; cortex aerenchymatous with air spaces and cortical vascular bundles. Vascular bundles arranged in a ring, in places separated by parenchymatous medullary rays and continuous in some places, fibre patches present both outside and inside the vascular bundles. Pith aerenchymatous.

**Identification** : Evaporate 20 ml of 60% alcoholic extract on a water bath to remove *alcohol*. Extract aqueous layer with 3×20 ml *chloroform* and concentrate the chloroform layer to 2 ml. Carryout TLC of chloroform extract on silica gel ‘G’ plate using *chloroform* : *methanol* (9 : 1 v/v), as mobile phase. In Iodine vapour, four spots appeared at R<sub>f</sub> 0.34 (brown), 0.42 (light brown), 0.54 (yellow).

**Distribution** : Asia including India, Europe, North America.

**History and authority** : Introduced into Homoeopathic practice in 1826 by Hahnemann; Allen, T. F., *Encyclop. Mat. Med.*, 1877, **6**, 183; Hering C., *Guiding Symptoms*, 1879, **3**, 329.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Menyanthes Trifoliata, moist magma containing  
 solids 100 g and plant moisture 400 ml 500 g  
 Strong Alcohol 635 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four part Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MOMORDICA CHARANTIA**

(Momor. ch.)

- Botanical name** : *Momordica charantia* Linn. **Family:** Cucurbitaceae
- Common names** : *Hindi:* Karela; *English:* Bitter gourd.
- Description** : A monoecious climber. Stem slender, more or less pubescent. Leaves: sub-orbicular, 5 to 7 lobed, pubescent or sub-glabrous. Flowers: yellow, solitary. Fruit: a pepo, fusiform and ribbed.
- Part used** : Fruit.
- Macroscopical** : Fruit: 5 to 25 cm long, pendulous, fusiform, ribbed with numerous tubercles; seeds brownish, 13 to 16 mm long, compressed, embedded in pulp.
- Microscopical** : Fruit: transection circular in outline with highly and moderately elevated tubercles. Epidermis single layered of small cells, bearing hairs of 2 types: (a) uniseriate, multicellular, 3 or 4 celled, having warts on the wall and (b) hairs with one-celled stalk and one-celled spatulate head. Epicarp shows tubercles with thick-walled chlorenchymatous cells; followed by a wide zone of thin walled parenchymatous cells having starch grains. Mesocarp parenchymatous with abundant starch grain and a few conjoint, collateral vascular bundles. An endocarp of simple parenchyma cells with starch grains.
- Seed: testa and tegmen fused. Transection shows ridges and grooves, single layer of elongated mucilage cells in grooves followed by several layers of pigmented cells. Endosperm parenchymatous containing vascular bundles.
- Cotyledon: crescent shaped in outline, with an epidermis single layered, ground tissue parenchymatous, vascular bundles present in the middle and almost in a row.
- Distribution** : Throughout India.
- History and authority** : Mentioned in Bhattacharya, M., *Homoeopathic Pharmacopoeia*, 1927, 299.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |        |
|--|--------|--------|
| Momordica Charantia, fresh pulp containing solids 100 g, drug moisture approximately | 460 ml | 560 g  |
| Strong Alcohol   |        | 600 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, five parts Distilled Water and four parts *Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MYRRHIS ODORATA**

(Myr. odo.)

**Botanical name** : *Myrrhis odorata* (L.) Scop.      **Family:** Apiaceae (Umbelliferae)

**Common name** : *English:* Sweet cicely.

**Description** : A stout, erect, puberulent perennial herb, up to 2 m in height. Stem: hollow, somewhat grooved. Leaves: up to 30 cm in length, 2 or 3 pinnate, leaflets oblong-ovate, pinnatisect, the lobes coarsely serrate, pale beneath and usually with some whitish markings, petiole base sheathing the stem. Inflorescence: a compound umbel, devoid of a general involucre; 1 to 5 cm in diameter, terminal, bearing both hermaphrodite and male flowers; rays bearing hermaphrodite flowers stout and those bearing male flowers slender; lateral umbels that appear later bear only male flowers; bracteoles about 5, lanceolate, aristate. Flowers: white, calyx 5; petals 5, unequal; ovary inferior, styles 2. Fruit: a cremocarp, linear-oblong, 18 to 25 mm long, strongly and sharply ridged, ridges scarbid with bristly hairs. Odour strong aromatic.

**Part used** : Whole plant excluding roots.

**Identification** : Extract 3 ml of the 65% alcoholic extract with 5 ml of *pentane*. Transfer the organic phase to a test tube and carefully pour a 10% solution (w/v) of *dimethyl-aminobenzaldehyde* in *sulphuric acid* down the side of the tube; the lower phase turns red.

**Distribution** : Europe (North England and South Scotland).

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 671.

**Preparation** : (a) Mother Tincture  $\phi$       Drug strength 1/10

Myrrhis Odorate in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	683 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MYRTILLOCACTUS GEOMETRIZANS**

(Myrt. geo.)

**Botanical name** : *Myrtillocactus geometrizans* Console **Family:** Cactaceae**Synonym** : *Cereus geometrizans* Mart.**Description** : Plant body tree like, about 4 m in height, with a distinct trunk. Branches more or less curving upwards, 6 to 10 cm in diameter, strongly bluish and frosted. Ribs 5 or 6, sometimes 9, acute or obtuse with broad intervals in between. Radial spines 5 to 8 or sometimes 9, approximately 2 mm (rarely 3 cm) long, reddish at first; central spine 1, up to 7 cm long, more or less curving, angular to dagger-shaped, blackish. Flowers: very small 2.5 cm to 3.5 cm in diameter, several (up to 9) in a cluster, develop sometimes from an areole, greenish white, not revolute, shortly funnel-form, diurnal. Fruit: a berry, edible, bluish-purple, of the size of an olive.**Part used** : Shoot.**Identification** : (1) Transfer 1 ml of the 60% alcoholic extract to a test tube and carefully pour 1 ml of *sulphuric acid* down the side of the tube; an orange red ring is produced that fluoresces yellow under ultra-violet light (365 nm).(2) To 1 ml of the 60% alcoholic extract add 50 mg of *resorcinol* and 1 ml of *hydrochloric acid* and heat to boiling for about 3 minutes; an orange brown colour is produced.**Distribution** : Mexico.**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 299, 1990.**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10Myrtillocactus Geometrizans in *coarse powder* 100 g

Purified Water 400 ml

Strong Alcohol 635 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.**Storage** : Protected from light.

**NASTURTIUM OFFICINALE**

(Nas. off.)

**Botanical name** : *Nasturtium officinale* R. Br.      **Family:** Brassicaceae (Cruciferae)

**Synonym** : *Nasturtium amphibium* R. Br.

**Common names** : *English:* Watercress; *French:* Cresson de Fontaine; *German:* Brunnenkresse.

**Description** : A perennial herb, 25 to 90 cm in height. Stem: glabrous, hollow, adventitious, rooting from the nodes, submerged or partly floating in water or prostrate on soil or mud. Leaves: alternate, broadly ovate or elliptical, entire or with wavy margins; lower leaves 1 to 5 pinnate, with long petioles, upper leaves 5 to 9 pinnate, shorter petioled and lyriform. Flowers: white, small about 5 mm wide, arranged in racemes or contracted into umbel-like forms. Corolla limb clawed. Fruit: a siliqua, slender, 10 to 25 mm long, beaked.

**Part used** : Aerial parts.

**Microscopical** : Leaf: vertical section shows a single layer of epidermis with a few characteristic large cells for water storage; stomata anisocytic, present on both the surfaces; mesophyll differentiated into 2 or 3 layers of palisade and spongy parenchyma; meristele of an arc shaped vascular bundle. Stomatal index of lower epidermis 21.21 to 28.12 and upper epidermis 20 to 27.42.

Stem: In transection, circular in outline and shows a single layered epidermis with characteristic large storage cells like in leaf; cortex parenchymatous of loosely arranged thin-walled polygonal cells; endodermis single layered; pericycle represented by a few sclerenchymatous cells. Vascular bundles conjoint, collateral, arranged in a ring. A continuous zone of a few layers of sclerenchyma cells immediately following vascular bundles. Pith large, parenchymatous and hollow in the central portion.

**Identification** : To 1 ml of mother tincture, add 5 ml of *water* and 0.1 ml of 8.5% *sodium hydroxide* solution. An intense yellow colour is produced.

**Distribution** : Native of Europe and North Asia, cultivated in America.

**History and authority** : Boericke, W., *Materia Medica and Repertory*, 1927, 417.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Nasturtium Officinale in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 530 ml |
| Strong Alcohol                                | 480 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts *Strong Alcohol* and five parts Purified Water; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.



**NATRUM HYPOCHLOROSUM**

(Nat. h. chl.)

NaClO

Mol. wt.: 74.44

- Common name** : *English*: Sodium hypochlorite.
- Description** : Colourless crystals. Pentahydrate is highly unstable. Anhydrous form may be obtained by freeze drying in a vacuum oven conc. *sulphuric acid*. Very explosive. Soluble in *water*. Aqueous solution contains not less than 4% w/v and not more than 6.0 w/v of NaClO.
- Identification** : (1) Solution of *sodium hypochlorite* first colours red litmus blue and then bleaches it.  
(2) Addition of 3 N *hydrochloric acid* causes evolution of chlorine.
- Assay** : Weigh accurately about 3 ml (4% solution) in a glass stoppered flask and dilute it with 50 ml of *water*. Add 2 g of *potassium iodide* and 10 ml of 6 N, *acetic acid* and titrate the liberated iodine with 0.1N *sodium thiosulphate* adding 3 ml of *starch* as the end point is approached. Perform the blank determination. Each ml of 0.1 N *sodium thiosulphate* is equivalent of 3.722 mg of NaClO.
- History and authority** : Proved by Robert Cooper; Allen, T.F., *Encyclop. of Pure. Mat. Med.* 1877, **10**, 596; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, **2**, 545.
- Preparation** : (a) Mother Solution Drug strength 1/10  
                   Natum Hypochlorosum 100 g  
                   Purified Water in sufficient quantity  
                   to make one thousand millilitres of the Mother solution.  
                   (b) Potencies: 2x with Purified Water. 3x and higher with *Dispensing Alcohol*.
- Caution** : The solution is not suitable for application to wounds. Not to be dispensed below 6x.
- Storage** : Preserve in air tight, dark coloured containers, at a temperature not exceeding 25°.

**ONONIS SPINOSA**

(*Onon. spi.*)

- Botanical name** : *Ononis spinosa* Linn. **Family**: Fabaceae (Leguminosae)
- Common name** : Nest helrozl.
- Description** : Plant somewhat shrubby, spinose and more or less glandular-pubescent; stem prostrate or creeping, 30 to 60 cm long, branches often ending in weak thorns. Stipules about as long as the petiole and adnate to it. Leaflets: 3 or reduced to 1 if subtending flower, elliptic-oblong to oval, 1 to 2 cm long. Flowers: solitary, papilionaceous, pale-red, about 15 mm long. Calyx regular, deeply 5-cleft; corolla papilionaceous; stamens monadelphous in a closed tube. Root twisted and curved with deep longitudinal fissures and laterally compressed. Fruit: a small pod with persistent calyx.
- Part used** : Root.
- Macroscopical** : Root geryish-brown outside, almost white inside, short and somewhat nodular, bearing deep longitudinal fissures, a number of lignified shoots scars and rootlets around shoot scars, fibrous and extremely hard. Taste sweetish bitter, tart and rough.
- Microscopical** : Outermost layer of cork consisting of thin-walled, brown cells. Cortex narrow, containing occasional calcium oxalate crystals. Bundles of thick-walled, bast fibres present accompanied by calcium oxalate crystal-containing parenchyma. Primary xylem diarch; rays broad, up to 20 cell wide towards the periphery, having pitted cell walls. Vessels with both reticulate thickening and bordered pitted 40 to 80 µm in diameter and accompanied by small, pitted parenchyma cells. Numerous fibre bundles distributed in xylem, each accompanied by calcium oxalate crystal-containing parenchyma cells. Starch grains present throughout parenchyma.
- Identification** : Reflux 1g coarsely powdered drug with 10 ml 60% *alcohol* on a water bath for 30 minutes. Filter after cooling, when exposed to UV light (365 nm), it shows blue fluorescence that changes to greyish yellow on addition of twice the volume of *dilute sodium hydroxide* solution.
- Distribution** : Native of western Europe.
- History and authority** : Mentioned in Boericke W., *Materia Medica and Repertory*, 1927, 637.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Ononis Spinosa in <i>Coarse powder</i> | 100 g  |
| Purified Water                         | 350 ml |
| Strong Alcohol                         | 687 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**OXALIS ACETOSELLA**

(Oxal. ac.)

**Botanical name** : *Oxalis acetosella* Linn. **Family:** Oxalidaceae

**Description** : Perennial herb, acaulescent, with a slender scally rhizome. Leaves few, alternate, digitately compound, 3-foliolate, basal, long petioled; leaflets obcordate, sparsely pilose. Flowers axillary, solitary, peduncle recurved, 6 to 15 cm long, slightly surpassing the leaves, with 3 bracts above the middle of peduncle, sepals 5; corolla 5, white, veined with pink, oblong, 10 to 15 mm long, stamens 10, alternately 5 longer and 5 shorter, monadelphous at base; ovary 5-locular, several ovules in each locule, styles 5. Fruit a loculicidally dehiscent capsule; taste sour. Flowering from May to August.

**Part used** : Aerial parts of the plant.

**Identification** : (1) To 1 ml of the 42 % alcoholic extract, add 0.1 ml of *ferric chloride solution*. A brown colour is produced.

(2) To 3 ml of the 42 % alcoholic extract, add 1.5 ml of *calcium chloride solution*. Heat gently until the precipitate coagulates. Filter and wash with a small amount of *water*. Suspend the residue in 1 ml of *water* and add 2 ml of dilute *sulphuric acid*. Heat until the residue is completely dissolved. Add 0.1 ml of *potassium permanganate solution* to the solution, when it is warm. The colour is immediately discharged.

**Distribution** : U.K., India.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 705; Boericke, *W. Mat. Med. and Reportory*, 1927, 583.

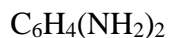
**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Oxalis Acetosella in coarse powder* 100 g  
 Purified Water 600 ml  
 Strong Alcohol 435 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**PARAPHENYLENE DIAMINE**

(P. phen. di.)



**Mol. wt.:** 108.10

**Common names** : *English:* p-diaminobenzene, Orsin.

**Description** : White to reddish crystals which darkens on exposure to air, sparingly soluble in *water*, soluble in *chloroform*, *ethanol* and *ether*.

**Melting range** : 145° to 147°

**Identification** : (1) With a solution of 3% *hydrogen peroxide*, a black colour develops.

(2) With a solution of 5% *ferric chloride*, a brown colour develops.

(3) When added with *Mandelins' reagent* on a white tile, yellow colour appears.

**History and authority** : Proved by O.A. Julian, *Materia Medica of New Homoeopathic Remedies*, 1972, 385.

**Preparation** : (a) Trituration 1x Drug strength 1/10

Paraphenylene Diamine in *coarse powder* 100 g

Saccharaum Lactis 900 g

to make one thousand grammes of the trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

**Storage** : Preparations below 6x are to be stored in well closed container protected from light.

**PARONICHIA ILLECEBRUM**

(Paro. il.)

**Botanical name** : *Paronychia illecebroides* Webb. **Family:** Illecebraceae

**Common name** : *English:* Yucatan.

**Description** : A small, perennial, prostrate, much branched, mat-forming herb, spreading 5 to 20 cm, growing on damp sand with stem slender, often reddish, rooting at nodes. Leaves conspicuous, 2 to 25 mm long and 3 to 5 mm wide, usually unequal, short petioled, rhombic, ovate to elliptic-obovate, obtuse, acute or acuminate at the base, sparsely villose and wide when young but soon glabrate; stipules papery. Inflorescence: axillary, sessile, often glomerate (compact cluster), up to 5 mm long and 5 to 8 mm thick, bearing tiny, shining white flowers. Flowers 4 to 5 mm, white, 4 to 6 in a cluster, clusters much shorter than the leaves; sepals 2 mm long, shining white, thick spongy, with fine bristles; corolla 5, white. Fruit a capsule, dry, enclosed by persistent erect calyx.

**Part used** : Whole plant.

**Microscopical** : Leaf: Mesophyll centric type. Stomata anomocytic present on both the surfaces, simple, unicellular hairs present.

Stem: sub-epidermal cork present, pericycle sclerenchymatous; rays absent.

**Distribution** : West and Central Europe.

**History and authority** : Proved by late Dr. Manuel M. de Legarreta, as published in his book *Patogenesis de Cinco Medicines Introduced as en la Mat. Med. Homoeopatic para la Curaction del Tifo y otras Pirexias*; mentioned in *HPUS* 7<sup>th</sup> Ed. Supplement, 710.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Paronichia Illecebrum, moist magma containing  
solids 100 g and plant moisture 233 ml 333 g

Strong Alcohol 800 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**PERILLA FRUTESCENS**

(Per. fru.)

- Botanical name** : *Perilla frutescens* (Linn.) Britt.      **Family:** Lamiaceae (Labiatae)
- Synonyms** : *Perilla ocymoides* Linn.; *Ocimum frutescence* Linn.; *Mentha perilloides* Willd.
- Description** : Annual herb. Leaves: opposite, sometimes speckled with brownish purple spots, slightly wrinkled, ovate-oblong to broadly ovate, 8 to 15 cm long, short-acuminate, coarsely serrate or incised, obtuse to rounded at base but always cuneate at the summit of the long petiole. Inflorescence: racemose, 5 to 15 cm long, terminal or arising from the upper axils. Flowers: bracteate with bracts oval, folded; pedicels 1 to 3 mm long. Calyx at anthesis 3 mm long, in fruit 9 to 12 mm long, hairy within; corolla 5, shorter than calyx, lobes broadly rounded and about equal in length, stamens 4. Fruit: a nutlet, globose.
- Part used** : Aerial stem.
- Identification** : (1) Extract 3 ml of the alcoholic extract with 5 ml of *petroleum ether*. Evaporate the organic phase in a small porcelain dish on a water bath. To the residue add 0.5 ml of a mixture of 2 ml of *acetic anhydride* and 0.3 ml of *sulphuric acid*. A violet colour is immediately produced. It changes to grey after about 5 minutes.
- (2) To 1 ml of the alcoholic extract, add 10 ml of *water* and 0.1 ml of *ferric chloride solution*. A green colour is produced.
- (3) To 1 ml of the alcoholic extract, add 1 ml of *hydrochloric acid*, 50 mg of *resorcinol* and heat to boiling. A dark red colour is produced.
- Distribution** : United States.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 715.
- Preparation** : (a) Mother Tincture  $\phi$       Drug strength 1/10
- |  |        |
|--|--------|
| Perilla Frutescens in <i>coarse powder</i> | 100 g  |
| Purified Water                             | 350 ml |
| Strong Alcohol                             | 687 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.





**PIMPINELLA ANISUM**

(Pimp. ani.)

**Botanical name** : *Pimpinella anisum* Linn. **Family:** Apiaceae (Umbelliferae)

**Common names** : *Hindi:* Sonf; *English:* Anise; *French:* Anis; *German:* Anissame.

**Description** : An annual herb; stem erect, smooth, branched, cylindrical, striated and about 45 to 60 cm in height. Leaves: alternate below, opposite above; lower leaves long-petioled, ovate to orbicular, dentate, while the upper ones with short dialed petioles, pinnatifid, pinnae cuneate. Inflorescence: compound umbel, 8 to 14 rayed, long-stalked. Flowers small, white, each on a long hairy pedicel. Fruit: a cremocarp with a small stylopod.

**Part used** : Dried ripe fruit.

**Macroscopical** : Cremocarp broadly ovoid or pyriform, yellowish brown, 3 to 5 mm long and 1.5 to 2 mm wide, flat or concave on commissural side, convex on dorsal side, with 5 filiform ridges and crowned by a short, bifurcate stylopod, surface rough owing to the presence of numerous short, conical epidermal trichomes. A carpophore separates the commissural surfaces of 2 mericarps. Taste sweet, odour characteristically aromatic.

**Microscopical** : Each mericarp shows the following characters: epicarp consists of an outer layer of greyish brown epidermal cells having numerous papillae and short, nonglandular, unicellular and some bicellular trichomes; trichomes with thick, warty walls, 20 to 160  $\mu$ m long and 15 to 40  $\mu$ m wide at base; stomata present on the epicarp. Each primary ridge is multicellular structure containing small fibrovascular bundle. Mesocarp consists of several layers of tangentially elongated parenchyma cells in the dorsal part of which an arc of 15 to 45 small oval vittae present, while on commissural side only 2 large vittae present. Endocarp consists of a layer of tangentially elongated, thin walled cells closely adherent to the seed coat except near the middle line of the commissural side where the endocarp cells have thick porous or reticulate walls resembling stone cells. Seed coat comprises a layer of epidermis of tangentially elongated cells with cutinised outer walls and thickened, yellow to greenish-yellow inner walls. A raphe is situated centrally on the commissural side where several layers of parenchyma cells are present below epidermal cells. Seed coat is closely united with endocarp except where separated by a large cavity along the commissural side. Endosperm consists of numerous, thick walled, polyhedral, colourless cells containing globules of oil and small rosette aggregates of calcium oxalate crystals. Upper portion of seed contains embryo in the center of endosperm having radicle towards apex of seed. The carpophore also has a vascular bundle.

**Ash values** : Sulphated ash: Not more than 12.0 percent. Use 2 g of the coarsely powdered drug. Acid insoluble ash. Not more than 2.5 percent.

**Identification** : (1) Extract 10 ml of the 65% alcoholic extract with (3x10 ml) *pentane*. Filter the combined organic phases and evaporate under reduced pressure. Dissolve the residue in 2 ml of *chloroform*. Take 0.2 ml of this solution add 0.1 ml of *acetic anhydride* and 0.1 ml of *sulphuric acid*. A reddish violet colour is produced.

(2) Carryout thin layer chromatography using silica gel GF 254 control solution: Dissolve 3 ml of anethole in 1 ml of toluene. Apply separately Mother Tincture 20 µl and control solution 10 µl. The mobile phase is *methylene chloride*. Allow the solvent front to rise to 10 cm above the line of application. Following evaporation of the mobile phase, evaluate the chromatography under UV light which shows a dark spot both in the upper third. Spray the chromatograms with a freshly prepared 20 percent solution (w/v) phosphomolybdic acid in anhydrous ethanol, heat to 115° to 120° for 5 minutes and evaluate in day light. Both the chromatograms show a blue spot at the same level in the upper one third.

**Distribution** : Greece, Egypt, Asia minor, cultivated in northwest India, U.P., Punjab and Orissa.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 737.

**Preparation** : (a) Mother Tincture φ Drug strength 1/10

Pimpinella Anisum in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	685 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**POTENTILLA ANSERINA**

(Pot. ans.)

**Botanical name** : *Potentilla anserina* Linn. **Family:** Rosaceae

**Common name** : *English:* Silver-weed.

**Description** : A perennial herb, bearing one or more long stolons, which give rise to roots below and leaves above. Stem: slender, sometimes prostrate and creeping, rooting at the nodes; when erect, up to 90 cm high. Leaves: erect, oblanceolate, upto 30 cm long, pinnately compound with large leaflets, often alternating with smaller one; leaflets oblanceolate or narrowly elliptic, up to 4 cm long, acute or rounded at the summit, sharply toothed, green or whitish above, densely white to lustrous silky-tomentose beneath with silvery-sericeous (silky) long appressed hairs. Inflorescence: flowers solitary on naked peduncles. Flowers: 5-merous, 15 to 25 mm wide, sepals 5; petals 5, obovate, entire, exceeding the sepals, golden yellow. Carpels many, glabrous at maturity, thick, ovoid, corky, dorsally furrowed; style lateral, filiform. Fruit: an achene, about 2.5 mm long, deeply furrowed on the summit and back.

**Part used** : Aerial parts.

**Identification** : (1) To 2 ml of the 65% alcoholic extract, add 0.1 ml of *ferric chloride solution*. A dark precipitate is produced.

(2) Evaporate 1 ml of the 65% alcoholic extract on a water bath until the odour of *ethyl alcohol* has disappeared. Transfer the residue to a small separating funnel and extract with 3 ml of *ether*. Place 0.1 ml of aqueous phase on a glass plate and add 0.2 ml of *sodium nitrate solution*. A red colour is produced, which after a few minutes changes to a dirty blue. To 0.1 ml of resulting mixture, add 0.3 ml of 0.1 N *sodium hydroxide solution*. The colour immediately changes to yellow.

**Distribution** : Widely distributed in Eurasia, U.S.A. up to Alaska.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 751–752.

<b>Preparation</b>	: (a) Mother Tincture $\phi$ 1/10	Drugs	strength
	<i>Potentilla Anserina</i> in <i>coarse powder</i>		100 g
	Purified Water		350 ml
	Strong Alcohol		683 ml

to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

**POTENTILLA ERECTA**

(Pot. er.)

- Botanical name** : *Potentilla erecta* (Linn.) Rauschel. **Family:** Rosaceae
- Synonyms** : *Potentilla erecta* Linn.; *P. tormentilla* Stokes.
- Common name** : *English:* Tormentil.
- Description** : A perennial herb, with stock or caudex very thick, woody and reddish; terminal rosette of leaves. Flowering stem up to 80 cm high, several, axillary, dichotomously branched above, pilose, not rooting at nodes. Leaves: digitately compound; lower leaves long-petioled with 5 to 7 leaflets; upper short-petioled to sessile, with only 3 leaflets; leaflets obovate to oblanceolate-oblong, deeply toothed, glabrous or sparingly pilose above, appressed silky pilose on the margins and veins beneath; stipules large, adnate, palmately lobed. Inflorescence: terminal cymes. Flower: pediceled, tetramerous (sometimes 3, 5 or 6 merous), with bracts leaf-like; calyx 4, laxly appressed-pilose, ovate-lanceolate, acute; epicalyx-segments linear-oblong; corolla 4, yellow, coniform, emarginated; stamens 14 to 20, usually 16; carpels 4 to 8 (or up to 20), ovoid, rugose, obscurely keeled; Fruit: an achene, striate with low curved ridges.
- Part used** : Root.
- Macroscopical** : Cylindrical, club-shaped or irregularly modular, hard, outer surface dark brown; the fracture irregular with short fibres.
- Microscopical** : Cross section shown an outer periderm consisting of several layers of deep brown tabular cork cells, alternating with layers of parenchymatous cells; a secondary cortex of 6 to 8 layers of parenchymatous cells containing starch grains, tannin and crystals of calcium-oxalate; phloem a small zone of sieve tubes, companion cells and phloem parenchyma containing starch, tannin and no bast fibres; a cambium, 2 to 3 layered of thin walled cells. Wide zones of parenchymatous, multiseriate rays separating almost concentric groups of xylem bundles, each consisting of fibrous cells, small pitted vessels and tangential layers of parenchyma cells. At places, few medullary rays also containing pitted elements. Pith thick-walled parenchymatous.

- Identification** : (a) To 5 ml of 43% alcoholic extract add 10 ml of *water* and 2 ml of 10% (w/v) *ammonium ferrous sulphate* solution. A greyish blue colour and turbidity are produced. After sedimentation the supernatant liquid shows greyish green colour.
- (b) Dilute 0.1 ml of 43% alcoholic extract with 100 ml of *water*. Add 10% solution (w/v) of *ferric chloride* in *ethanol* and shake. A greyish green colour is produced.
- (c) To 1 ml of 43% alcoholic extract, add 2 ml of 1% solution (w/v) of *vanillin* in *hydrochloric acid*. A red colour is produced.

**Distribution** : Europe, Temperate Asia and North America.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 751.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Potentilla Erecta in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 600 ml |
| Strong Alcohol                            | 457 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, six parts Purified Water, three parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. IV

**RANUNCULUS BULBOSUS**

(Ran. bulb.)

- Botanical name** : *Ranunculos bulbosus* Linn. **Family:** Ranunculaceae
- Synonym** : *Ranunculus speciosus* Hort.
- Common names** : *English:* Buttercup; *French:* Renoncule bulbeuse; *German:* Hahnenfuss Krollenhahnenfuss.
- Description** : Perennial herb, about 30 cm high; root a true bulb. Stem erect, hirsute. Leaves petiolate broad-ovate, 3 to 5 parted, terminal division petioled, lateral sessile or nearly so, all variously lobed or cleft; peduncles sulcate. Flowers bright yellow, about 2.5 cm across. Sepals often reflexed; petals 5 to 7, much larger than sepals, ovate, compressed, receptacle slightly villous. The whole plant is exceedingly acrid, raising blisters, sometimes followed by deep sloughing ulcers.
- Part used** : Whole plant.
- Microscopical** : Leaf: Transection shows single layered epidermis with thin cuticle; stomata anomocytic, more frequent on lower surface; trichomes unicellular, varying in length, with multicellular emerging bulbous base on both the surfaces; mesophyll differentiated into 2- layered palisade and 3 or 4 layers of loosely arranged spongy parenchyma enclosing large air spaces. Midrib convex on lower side and concave on upper side forming deep notch; two layers of collenchyma below the upper epidermis and single layer below the lower epidermis; ground tissue of thin walled parenchymatous cells; vascular bundles conjoint, collateral.
- Petiole: shows an arc-shaped outline with small notch. Epidermis single layered; ground tissue containing thin-walled parenchymatous cells; vascular bundles conjoint, collateral; 3 big arranged in an arc and 2 small subsidiary, one in each in petiolar wing. Trichomes same as on leaf surface.
- Distribution** : Europe, naturalized in United States, found in grassy fields and along road sides. Abundant in New England.
- History and authority** : Proved and introduced by Franz; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **8**, 257; Hering, C., *Guiding Symptoms*, 1879, **9**; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1879, **3**, 945.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Ranunculus Bulbosus in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 300 ml |
| Strong Alcohol                              | 730 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part of Mother Tincture, two parts Purified Water, seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.





**RESINA LARICIS**

(Res. lar.)

**Description** : Yellow or brownish yellow, clear or at the most slightly opalescent, highly viscous resin obtained by drilling trunks of *Larix decidua* Mill. (Family: Pinaceae) containing not less than 10% and not more than 20% of constituents volatile in steam. The odour is turpentine like, the taste slightly bitter. Soluble in *strong alcohol*.

**Identification** : (1) Dissolve about 50 mg in 2 ml of *acetic anhydride* and add 0.1 ml of *sulphuric acid*. A violet colour is produced that rapidly changes to green.

(2) Dissolve about 50 mg in 2 ml of *petroleum ether*, add 2 ml of a 0.5% solution (w/v) of *cupric acetate* and shake repeatedly. The organic phase is green.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 871.

**Preparation** : (a) Mother Tincture  $\phi$ , 2x Drug strength 1/10  
 Resina Laricis 10 g  
 Absolute Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Strong Alcohol*, 3x and higher with *Dispensing Alcohol*.

**Storage** : Store in a well-sealed container protected from light.

**RUMEX ACETOSA**

(Rum. acet.)

**Botanical name** : *Rumex acetosa* Linn. **Family:** Polygonaceae

**Common names** : *Hindi:* Khatta palak; *English:* Garden sorrel.

**Discription** : Perennial herb; stem stout, erect, 30 to 90 cm. Leaves: oblong, the lower radical ones long petioled with two lateral teeth the upper ones sessile with acute, triangular basal lobes directed backward. Inflorescence: panicle 10 to 20 cm long, usually leafless. Sepals 6 in two whorls of 3 in each whorl, sepals of staminate flowers 2 to 3 mm long, outer oblong, inner obovate. Outer sepals of pistillate flowers reflexed, triangular-ovate, nearly 2 mm long; inner sepals round-ovate, broadly round-cordate, 4 to 6 mm long and about as wide as long, reticulately veined, the midrib conspicuously dilated at base into a tuberculiform appendage. Petals nil. Stamens 6. Fruit: an achene, dark brown, 2 to 2.5 mm long.

**Part used** : Leaf.

**Microscopical** : Leaf: dorsiventral and in transection shows a single layered epidermis with thin cuticle, anisocytic stomata, glandular and non glandular trichomes. Glandular trichomes sessile, peltate. Non-glandular small, unicellular, warty papillae-like. Midrib prominent towards the lower side, with a single layered epidermis followed by 2 or 3 layers of collenchyma on both the sides, discontinuous palisade; meristele consisting of two large and a few small vascular bundles; large bundles, one each towards the upper and lower epidermis; each bundle consisting of endarch xylem and peripheral phloem, encapped on both aspects by the sclerenchymatous cells and surrounded by parenchymatous bundle sheath and a few secretory cells. Phloem contains idioblasts. Mesophyll differentiated into two layers of palisade and 4 or 5 layers of spongy parenchyma. Clusters of calcium oxalate crystals present in parenchyma cells of midrib and lamina.

Petiole: in transection triangular in outline, concave on the upper side while convex or with buldge on the lower side. Epidermis single-layered with papillae like hairs, followed by 3 or 4 layers of collenchyma at angles and 1 or 2 layers in remaining parts. Vascular bundles in an arc on adaxial side with a few median vascular bundles towards the upper side; ground tissue parenchymatous containing clusters of calcium oxalate crystals.

**Identification** : Take 25 ml of 60% alcoholic extract of the drug. Evaporate on a water bath to remove *alcohol*, then extract with 3×20 ml *chloroform* three times. Combine the chloroform extract and concentrate to 2 ml. Carryout TLC of chloroform extract on silica gel G using *cyclohexane : ethyl acetate* (1 : 1 v/v) as mobile phase, four spots appeared at  $R_f$  0.73 (blue), 0.83 (pink), 0.86 (blue) and 0.96 (yellow). On spraying with *cupric acetate reagent*, four spots appeared at  $R_f$  0.83 (yellow), 0.86 (pink), 0.92 (green) and 0.96 (pink).

**Distribution** : Temperate Europe and Asia. Cultivated in temperate zones of old and new world.

**History and authority** : Proved by Dr. Henry Hawks; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1877, **8**, 415.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

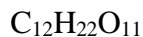
Rumex Acetosa, moist magma containing solids 100 g and plant moisture 233 ml	333 g
Purified Water	167 ml
Strong Alcohol	635 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SACCHARUM OFFICINALE**

(Sac. off.)

**Mol. wt.:** 342. 30

- Common name** : *English:* Sucrose.
- Description** : Colourless crystals or a white crystalline powder, odourless, taste sweet, very soluble in water, sparingly soluble in ethyl alcohol, insoluble in chloroform and ether. Obtained from sugarcane or sugarbeet. It contains no added substances.
- Identification** : (1) When heated, it melts, swells up and burns, giving of an odour of burnt sugar and leaving a bulky carbonaceous residue.  
(2) Hydrolyse a solution in water by boiling with 0.1 N *sulphuric acid* and neutralise with *sodium hydroxide solution*. Add *potassium cupritartrate solution* and heat. A copious red precipitate is produced.
- Specific optical rotation** : Not less than + 65.9° determined in a 20.0 percent w/v solution.
- Acidity or alkalinity** : Dissolve 5.0 g in sufficient water to produce 10 ml. Add three drops of *phenolphthalein solution*. The solution is colourless. Titrate with 0.01 N *sodium hydroxide solution* to a pink colour. Not more than 0.25 ml of 0.01 N *sodium hydroxide solution* is required.
- Barium** : Acidify 10 ml of a 10.0% w/v solution with *dilute sulphuric acid* and allow to stand for twenty four hours. No turbidity is produced.
- Calcium** : To 10 ml of a 10.0% w/v solution, add 1 ml of ammonium oxalate solution, the solution remains clear for atleast one minute.
- Sulphites** : Dissolve 2.0 g in 20 ml of water without heating, add 0.05 ml of 0.1N *iodine* and one drop of starch solution. A blue colour develops.
- Dextrine** : Dissolve 0.1 g in 10 ml of water, add one drop of *dilute hydrochloric acid* and one drop of 0.1 N *iodine*. The solution remains yellow.
- Reducing sugars** : Dissolve 10.0 g in 20 ml of water, add 5 ml of potassium cupritartrate solution, boil for five minutes and cool. The solution remains blue and clear and does not form an orange coloured precipitate within one hour.

- Sulphated ash** : Not more than 0.02 percent.
- Foreign colouring matter** : Dissolve 50 g in sufficient water to produce 100 ml and add 1 ml of dilute hypophosphorus acid. No unpleasant odour is given off for at least one hour.
- Preparation** : (a) Trituration 1x Drug strength 1/10  
Saccharum Officinale 100 g  
Saccharum Lactis in sufficient quantity  
to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, Vol. I, 6x may be converted to liquid 8x, HPI, Vol. I.

Original Monograph Appeared in HPI Vol. VI & VII

**SAPONARIA OFFICINALIS**

(Sap. off.)

- Botanical names** : *Saponaria officinalis* Linn. **Family:** Caryophyllaceae
- Common names** : *English:* Bouncing bet; *French:* Saponaire; *German:* Seifenkrant.
- Description** : A perennial herb, up to 80 cm in height, Stem: arising from a horizontal rhizome, erect, simple, often branched, leafy clustered, glabrous. Leaves: 7 to 10 cm long and 2 to 4 cm wide, elliptic to oblong-lanceolate, acute, glabrous, 3 nerved, rarely puberulent. Inflorescence: compact, subcapitate to open, corymbose, paniculate cyme, up to 15 cm long with primary bracts coriaceous, ultimate ones scarious. Flowers: fragrant, frequently double (in horticultural varieties). Calyx 5, 1.5 to 2.5 cm long, 20 nerved, glabrous, calyx tube toothed, triangularly acuminate. Petals 5, white or pinkish, petal lobes oblong to oblong-ovate, 8 to 15 mm long, entire, notched at the apex, auricles lacking, appendages conspicuous, Stamens 10 exserted. Ovary 1 celled. Fruit a capsule, elliptic oblong.
- Part used** : Root.
- Microscopical** : Root: Outermost zone of 3 to 4 layers of brown coloured cork cell, followed by 1 or 2 layered cork cambium, parenchymatous cortex, containing clustered crystals of calcium oxalate, secondary phloem containing sieve tubes, phloem parenchyma and a few calcium oxalate crystals. Xylem crystals, large, having scattered vessels mostly solitary or tending to be in radial rows, become twisted in older roots; rays absent; pith small and parenchymatous. Starch absent and saponin present.
- Identification** : Evaporate 2 ml of the 60% alcoholic extract on a water bath to dryness; dissolve the residue in chloroform, add a few drops of acetic anhydride and 2 ml sulphuric acid through the side; pink colour is produced.
- Distribution** : Europe, occasionally in Asia.
- History and authority** : Boericke, W., *Mat. Med. and Repertory*, 1927, 573.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Saponaria Officinalis in <i>coarse powder</i> | 100 g  |
| Purified Water                                | 400 ml |
| Strong Alcohol                                | 635 ml |
- to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three part Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.





## STROPHANTHUS GRATUS

(Stroph. g.)

**Botanical name** : *Strophanthus gratus* (Wall. et Hook.) Franchet

**Family:** Apocynaceae

**Description** : A small glabrous tree or shrub with reddish brown branches, dotted with lenticles. Leaves: petiolate, oblong, 7 to 15 cm long, shortly acuminate, obtuse or subacute at the base, coriaceous; secondary veins very distinct, about 7 on each side. Inflorescence: terminal cymes, sessile, up to 12-flowered. Flowers: bracteate, bracts ovate, acute, deciduous; pedicels stout; sepals-5, imbricate, broad, oblong or obovate, scarious, obtuse rounded at apex; petals-5, large, white or tinged with pink, obtuse, forming a funnel-shaped tube below; lobes broad, obovate, throat scales lanceolate-subulate, glabrous, purple in colour; anthers tapering into a more or less exerted awn; ovary glabrous. Fruit: a follicle, obtusely acuminate, minutely lenticellate; seeds glabrous, lanceolate, awn 4 to 6.25 cm long, warty hairs present all over (visible only under microscope).

**Part used** : Seeds.

**Macroscopical** : Seeds bright yellow or yellowish brown, compressed, spindle-shaped, edges acute and almost winged glabrous (to naked eye), 11 to 19 mm long, 3 to 5 mm wide and 1 to 1.3 mm thick; 100 seeds weigh about 3.25 g. Give red-rose colour with *sulphuric acid*.

**Microscopical** : Transection shows rough and granular surface with short warty hairs; epidermis of elongated tabloid cells some of which project as conical papillae, with anticlinal walls showing bulbous thickenings, beneath epidermis several layers of compressed cells. Endosperm, about half of the seed, consists of thick-walled, pitted cells containing droplets of oil, aleurone grains and occasionally a few starch grains; embryo consists of small, thin-walled cells. Neither seed coat nor embryo contains calcium oxalate crystals.

**Identification** : (1) Place the cut sections of seeds in a mixture of *sulphuric acid* and *glycerol* (3:1). Within a few minutes the whole cut surface turns pale pink or reddish violet.

(2) Carefully evaporate 0.2 ml of 60% alcoholic extract on a water bath. To the residue add 0.1 ml of *dinitrobenzoic acid* and 0.2 ml of dilute *sodium hydroxide* solution. A reddish violet colour is produced.

(3) Heat a mixture of 2 ml of the 60% alcoholic extract and 1 ml of dilute *sulphuric acid* on a water bath for 10 minutes. A yellow colour and turbidity are produced. Filter when cold. To the filtrate add 1 ml of *dilute sodium hydroxide* solution and 0.5 ml *cuprous citrate* solution and heat on a water bath. An orange red precipitate appears.

**Distribution** : Sierra Leone. Cameroon and Gabbon.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 847.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Strophanthus Gratus in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**STROPHANTHUS SARMENTOSUS**

(Stro. sar.)

- Botanical name** : *Strophanthus sarmentosus* DC. **Family**: Apocynaceae
- Description** : A tall climbing shrub, glabrous, with branches brown, rough, dotted with lenticles. Leaves: opposite, broad, ovate or oblong, more or less acuminate, acute or obtuse at the base, firm, papery, lateral vein 4 or 5 on both sides; petiole 5 to 10 cm long. Inflorescence: a terminal cyme, sessile, 1 to few flowered on short lateral branches which are for the most part leafless or with young leaves. Calyx 5, 10 to 17.5 cm long, lanceolate or oblong-lanceolate, acute or acuminate; corolla white with pink marks inside, glabrous outside while minutely puberulose inside; infrastaminal part of the tube long, suparstaminal part wide, funnel-shaped or campanulate, corolla-lobes 5, ovate or lanceolate, attenuated into linear tails, 5 to 6.5 cm long with purple, subulate glabrous coronal throat-scales. Fruit: a follicle, spreading horizontally, spindle-shaped, brown, silky, awn 5 to 7.5 cm long, naked for 2 to 5 cm, hairs up to 3 cm long.
- Part used** : Seeds.
- Macroscopical** : The cut surface of the seeds moistened with 80% *sulphuric acid*, gives pale red-rose colour. This differentiates it from seeds of *Strophanthus hispidus*.
- Microscopical** : Seed coat contains both single prisms and cluster crystals of calcium oxalate while cotyledons contain abundant cluster crystals of calcium oxalate.
- Identification** : Carryout TLC of alcoholic extract of seeds in *ethyl acetate: ethanol: water* (81:11:8) as solvent system on silica gel 'G'. With *antimony trichloride reagent* three spots/bands appear at  $R_f$  0.25 to 0.4 (yellow band), 0.4 (yellow spot) and 0.7 to 0.9 (yellow band).
- History and authority** : Templeton, W.J., *The British Homoeopathic Journal*, 1952, 42, 4 – 12; O' Hanlon, *The British Homoeopathic Journal*, 1952, 42, 13 – 15; *The Homoeopathic Pharmacopoeia of the United States*, 1964, 716.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Strophanthus Sarmentosus* in *coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.  
 (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**SWERTIA CHIRATA**

(Chirata)

- Botanical name** : *Swertia chirata* Ham. **Family**: Gentianaceae
- Common name** : *Hindi*: Chirayata.
- Description** : An erect, annual herb with robust stem, 0.6 to 1.5 m in height, terete except near the top. Stem up to 1 m in length, externally yellowish or yellowish brown, cylindrical at base, quadrangular or slightly winged above. Leaves opposite, decussate, sessile, lanceolate, 10 cm long and 3.8 cm broad, acute; flowers, small, in panicles. Calyx 4, corolla 4, both greenish-yellow; corolla tinged purple with two glands on each lobe, each gland greenish, fringed with long hair; stamens 4, perigynous. Fruit a capsule, 0.6 cm, ovoid. Seeds 0.5 mm; polyhedral, smooth. Contains not less than 1.3 percent bitter principle.
- Part used** : Whole plant excluding root.
- Macroscopical** : The stem constitutes the major source of the drug, up to 1 m in length and 6 mm in diameter, purplish-brown, glabrous, slightly winged, much branched above, having a narrow wood enclosing a large continuous easily separable yellow pith; slender branches bearing numerous fruits, some flowers and a few leaves; fruits ovoid and pointed bicarpellary, unilocular, containing numerous minute reticulated seeds, each about 0.5 mm long; leaves glabrous, with five to seven prominent curving, lateral veins; root small and always oblique, attaining 10 cm length and 12 mm diameter at the crown; odourless; taste bitter.
- Microscopical** : Leaf: in surface view shows striated cuticle; sinuous lower epidermal cell; stomata present only on the lower epidermis, anisocytic; rhomboidal crystals in mesophyll cells.
- Stem: shows interxylary phloem (anomalous structure). Pith very wide and continuous.
- Assay** : Extract 20g of the plant in 100 ml boiling water containing 0.5 g of calcium carbonate till the last portion of the extract is devoid of bitterness; concentrate in vacuum and dissolve the residue in hot alcohol (95%) filter while hot and wash the residue three times with hot alcohol (3x10 ml), remove the alcohol from the filtrate and wash the residue repeatedly with hot water 25, 20, 15 and 15 ml. Shake the filtrate repeatedly with 25, 20, 15 and 10 ml of ethyl acetate. Collect the ethyl acetate shakings; evaporate, dry weigh (should contain not less than 1.40 w/w of the residue).

**Distribution** : Temperate Himalayas at an altitude between 1200 m and 3000 m from Kashmir to Bhutan.

**History and authority** : First proved by Bhattacharjee; Ghose S.C., *Drug of Hindoosthan*, 1965, 286.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Swertia Chirata, pulp containing solids 100 g  
and plant moisture 260 ml 360 g

Strong Alcohol 775 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three part Purified Water and six parts *Strong Alcohol*, 3x and higher with *Dispensing Alcohol*.

**TEUCRIUM SCORODONIA**

(*Teu. scor.*)

- Botanical name** : *Teucrium scorodonia* Linn. **Family:** Lamiaceae (Labiatae)
- Description** : An erect, hispid perennial herb, 30 to 50 cm high with slender rhizome. Leaves: ovate-oblong or triangular-ovate, 3 to 6 cm long, crenate, broadly truncate to shallowly cordate at base; petiole about 1 cm long. Inflorescence: raceme, few to several, terminal and from the upper leaf axils, about 10 cm long, bears 1 or 2 flowers at each node. Flowers: yellow, bilabiate bracteate with bracts ovate or ovate lanceolate; pedicels 1 to 3 mm long. Calyx pale green, 5 to 6 mm long, bilabiate, lower lip divided into four subulate lobes, upper lip broadly acuminate; corolla yellow, about 1 cm long, the tube much exceeding the calyx, united, appears to be unilabiate, lower lip divided in three with a much broadened and pendent middle lobe and 2 small, erect, spreading lateral lobes; stamens 4, filaments nearly straight; ovary shallowly 4-lobed, style terminal, Fruit: a nutlet.
- Part used** : Aerial parts.
- Microscopical** : Leaf: in surface view shows stomata anomocytic with typical subsidiary cells, on both surfaces and multicellular trichomes.
- Identification** : (a) To 1 ml of 60% alcoholic extract, add 1% solution (w/v) of *copper (II) acetate*. An olive green colour is produced.  
(b) To 1 ml of the 60% alcoholic extract, add 20 ml of *water* and 0.1 ml of *ferric chloride* solution. Green colour is produced.
- Distribution** : Native of Europe, introduced in East-North America.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 875–876.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
     *Teucrium Scorodonia* in *coarse powder* 100 g  
     Purified Water 400 ml  
     Strong Alcohol 637 ml  
     to make one thousand milliliters of the Mother Tincture.  
     (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x higher with *Dispensing Alcohol*.
- Storage** : Protected from light.

**THYMUS VULGARIS**

(Thym. vul.)

**Botanical name** : *Thymus vulgaris* Linn. **Family:** Lamiaceae (Labiatae)

**Common name** : *English:* Common Thyme.

**Description** : A sub-shrub, erect, up to 15 cm in height, with stem 4-angled, sometimes decumbent at base, with branches stiff and woody, usually white-pubescent, nodes, up to 20 mm apart. Leaves: linear, linear-lanceolate, ovate or oblong, up to 6 mm long, 0.5 to 2 mm broad with laminar apex acute, base obtuse, tapering into a petiole, margins revolute; upper surface light grey or light brownish grey to weak olive green, puberulent, with numerous hairs; lower surface greyish, pubescent and glandular punctate. Inflorescence: having about 10 flowers in axillary whorls. Flowers: polygamous; calyx tubular-bilabiate, about 4 mm in length, pubescent, 9 to 12 nerved, upper lip 3-toothed, lower lip with 2 hairy, ascending attenuate divisions, the throat bearded; corolla about twice as long as the calyx, purplish, bilabiate, upper lip emarginated, lower spreading and 3-lobed; stamens 4, didynamous; ovary 4-parted; stigma bifid. Fruit: a nutlet, spheroidal, about 0.5 mm in diameter, finely tuberculated. Odour aromatic, taste aromatic and warming.

**Part used** : Whole plant.

**Microscopical** : Leaf: Transection shows tangentially elongated cells of epidermis with thick cuticle and diacytic stomata. Trichomes both non-glandular and glandular. Nonglandular trichomes unicellular or multicellular, uniseriate usually warty, with apical cell either straight, pointed, curved or hooked. Glandular hairs numerous, of 2 kinds: short stalked with a unicellular head and sessile, peltate with an 8 to 12 celled head. Stomata and hairs more frequent on lower surface than the upper surface. Mesophyll differentiated into 2-layered columnar palisade, occasionally with an interrupted third layer and spongy parenchyma of about 5 layers; midrib contains fibro-vascular bundle.

Stem: shows a single layered epidermis bearing papillose, non glandular 1 to 3 celled hairs and short-stalked glandular hairs with one-celled head; a narrow zone of cortical parenchyma, pericycle indistinct, a narrow zone of phloem, wood large, pith small and parenchymatous.



**Identification** : (1) To 1 ml of the 62% alcoholic extract, add 50 ml of *water* and 0.1 ml of *ferric chloride* solution; a green colour is produced.

(2) To 0.5 ml of the 62% alcoholic extract add 10 ml of *water*, then 0.1 ml of *sodium carbonate solution* and 0.1 ml of a 2% solution (w/v) of *dichloroquinone chlorimide in ethanol*; a blue colour is produced.

**Distribution** : Southern Europe.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 885.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Thymus Vulgaris in *coarse powder* 100 g

Purified Water 350 ml

Strong Alcohol 683 ml

to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**VINCETOXICUM HIRUDINARIA**

(Vinc. hir.)

- Botanical name** : *Vincetoxicum hirudinaria* Medic. **Family**: Asclepiadaceae
- Synonyms** : *Vincetoxicum officinale* Moench; *Cynachum vincetoxicum* (L.) Pers.; *Antitoxicum officinale* Pobed.
- Description** : A herb with stem, up to 120 cm high, erect or slightly twinning, puberulent or sub-glabrous. Leaves: broadly ovate to ovate-lanceolate, acute, more or less pubescent. Inflorescence: cyme, 6 to 8 flowered. Flowers: white or yellow; peduncle 10 to 40 mm. Calyx-lobes linear; corolla 3 to 10 mm in diameter, white or yellow, lobes ovate, glabrous or with curved hairs on upper surface; coronamembrance up to two-third as long as the segments. Fruit a follicle, 6 × 0.8 cm, fusiform, glabrous.
- Part used** : Leaves.
- Macroscopical** : Leaves glabrous or more or less pubescent specially on veins and margins; 6 to 10 cm long and 2.5 to 5 cm broad, broadly ovate to ovate-lanceolate, acute, veins prominent on lower surface; petiole 5 to 10 mm long. Odour unpleasant and taste sweetish.
- Microscopical** : Stomata anomocytic. Transection through distal end of petiole shows a crescentic, bicollateral vascular strand in the middle and small accessory vascular bundles in wings, one on each side.
- Identification** : (1) To 1 ml of 65 % alcoholic extract, add 1 ml of *Fehling's solution* and boil. A reddish brown precipitate is produced.  
(2) To 1 ml of 65 % alcoholic extract, add 0.2 ml of *Ferric chloride solution*. An olive green colour is produced.
- Distribution** : Europe and America.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 903–904.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Vincetoxicum Hirudinaria in *coarse powder* 100 g  
                   Purified Water 350 ml  
                   Strong Alcohol 683 ml  
                   to make one thousand millilitres of Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Storage** : Protected from light.

Original Monograph Appeared in HPI Vol. I

Revised Monograph Appeared in HPI Vol. X

**WITHANIA SOMNIFERA**

(With. som.)

**Botanical name** : *Withania somnifera* Dunal. **Family**: Solanaceae**Synonyms** : *Physalis somnifera* Linn.; *Physalis flexuosa* Linn.**Common name** : *Hindi*: Ashvagandha.**Description** : An erect, branched, under-shrub, up to 1.5 m high, nearly all parts more or less stellately tomentose; branches flexuous, densely tomentose. Leaves simply, 5 to 10 cm long, 2.5 to 7.0 cm broad, short petioled, sub-opposite or alternate, broadly ovate to oblong, entire, pubescent, main lateral nerves about 6 pairs, prominent; petiole 6 to 12 mm long. Stem nodes prominent only on the side where from petiole arises. Flowers greenish yellow, usually about 5 together, in sub-sessile umbelliform cymes in the axils of leaves, pedicels about 6 mm long. Calyx 5, gamosepalous, campanulate, 5 mm long, the segments becoming linear, acute, with broad base after flowering, increasing up to 18 mm, becoming inflated, nearly globose and enclosing the fruit; corolla 5, gamopetalous, bell-shaped, 0.6 to 0.8 cm in diameter, globose, two chambered, brick red when ripe enclosed within the enlarged calyx; seeds many, small 2 to 2.5 mm in diameter, with smooth or pitted testa.**Part used** : Root.**Macroscopical** : Straight, unbranched and conical, varying in thickness with age, generally up to 2.5 cm in diameter, buff to grey-yellow with longitudinal wrinkles; crown consisting of 2 to 6 remains of the stem bases. Stem bases variously thickened. Fracture short and uneven; taste starchy; odour pungent.**Microscopical** : Transection of root shows phellum of 6 to 8 layers of thin-walled cubical or rectangular cells; filled with secondary cortex composed of thin-walled, parenchymatous cells, filled with 2 to 5 compound, almost round and 5 to 15  $\mu\text{m}$ , starch grains; some cells containing microcrystals of calcium oxalate. Phloem a narrow ring, composed of sieve tubes, companion cells and phloem parenchyma, a few cells of which having micro-crystals; phloem rays containing starch grains. A distinct cambium of 2 or 3 rows of thin-walled rectangular cells. A wide xylem containing radially arranged vessels and tracheids, fibres, parenchyma and uni- to multi-seriate parenchymatous rays, parenchyma completely packed with starch grains and occasional micro-crystals. Primary xylem in the centre is diarch.

**Distribution** : Throughout India.

**History and authority** : Bhattacharya, M., *Homoeopathic Pharmacopoeia*, 1927, 92.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Withania Somnifera in *coarse powder* 100 g  
Purified Water 250 ml  
Strong Alcohol 800 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

# APPENDICES

## APPENDIX

### (1) Determination of $\lambda$ max. by U.V. Spectrophotometer

#### (A) For single beam instruments

1. Take blank reading of solvent (distilled water / dispensing alcohol).
2. Take 0.5 to 1.0 ml sample (Mother Tincture) in the cuvette and add the solvent and adjust till the absorption is below 2.00 Optical Density (O.D.) using UV spectrophotometer. Then take 2.0 to 2.5 ml of the above sample solution in other cuvette and take reading in UV region i.e. 360 to 200 nm and record the absorption maxima.
3. Tolerance limit in  $\lambda$  max. is  $\pm 4$  nm for sharp peaks and  $\pm 7$  nm for broad peaks.

(B) For double beam instruments – Corresponding adjustments can be made.

### (2) Thin Layer Chromatography

Tolerance limit in  $R_f$  value  $\pm 0.05$  is permitted.

**LIST OF FINISHED PRODUCTS STANDARDS INCLUDED IN H.P.I. VOL.-VIII**

1. ABIES CANADENSIS
2. ABSINTHIUM
3. ACIDUM BENZOICUM
4. ACIDUM CARBOLICUM
5. ACIDUM CITRICUM
6. ACIDUM BORACICUM
7. ACIDUM HYDROFLUORICUM
8. ACIDUM LACTICUM
9. ACIDUM SALICYLICUM
10. ACIDUM OXALICUM
11. ACIDUM SARCOLACTICUM
12. ACIDUM TARTARICUM
13. ACETANILIDUM
14. ADONIS VERNALIS
15. ALETRIS FARINOSA
16. ACONITE NEPALLUS
17. ALFALFA
18. AMMONIUM BENZOICUM
19. AMMONIUM BROMIDUM
20. ANGUSTURA
21. ANILINUM
22. ANTIPYRINUM
23. APIUM GRAVEOLENS
24. ARGENTUM MURIATICUM
25. ATROPINUM
26. AURUM MURIATICUM NATRONATUM
27. BLATTA ORIENTALIS
28. BOERHAAVIA DIFFUSA
29. BOVISTA
30. BROMIUM
31. CADMIUM BROMATUM
32. CADMIUM SULPHURICUM
33. CALCAREA ACETICA
34. CALCAREA CAUSTICA
35. CAPSICUM ANNUM
36. CARDUUS BENEDICTUS
37. CARICA PAPAYA
38. CASCARILLA
39. CASTOREUM
40. CASCARA SAGRADA
41. CASTANEA VESCA
42. CHIMAPHILLA UMBELATA
43. COCCUS CACTI



44. COLLINSONIA CANADENSIS
45. COPAIBA OFFICINALIS
46. CUBEBA OFFICINALIS
47. CUNDURANGO
48. CUPRUM ACETICUM
49. CUPRUM SULPHURICUM
50. CYNODON DACTYLON
51. DAMIANA
52. DUBOISIA MYOPOROIDES
53. EMBELIA RIBES
54. ERIGERON CANADENSIS
55. EUCALYPTUS GLOBULUS
56. FERRUM IODATUM
57. FICUS RELIGIOSA
58. FILIX MAS
59. FUCUS VESICULOSUS
60. GAMBOGIA
61. GELSEMIUM SEMPERVIRENS
62. GENTIANA LUTEA
63. GINSENG
64. GOSSYPIUM HERBACEUM
65. GRANATUM
66. GRINDELIA ROBUSTA
67. GUAIAACUM
68. HYDRANGEA
69. HYOSCYAMINE SULPHATE
70. JABORANDI
71. JALAPA
72. JUNIPERUS COMMUNIS
73. KALI PERMANGANICUM
74. LEPTENDRA
75. MENYENTHES TRIFOLIATA
76. NAJA TRIPUDIANA
77. NATRUM SALICYLICUM
78. NICCOLUM CARBONICUM
79. OLEUM SANTALI
80. PARIS QUADRIFOLIA
81. PHYSOSTIGMA VENENOSUM
82. PIPER NIGRUM
83. PLANTAGO MAJOR
84. PLATINUM MURIATICUM
85. RATANHIA
86. RUMEX CRISPUS
87. RHEUM
88. SENNA

89. STROPHENTHUS HISPIDUS
90. STRAMONIUM
91. SULPHANILAMIDE
92. SULPHUR
93. SUMBUL
94. TABACUM
95. TARAXACUM
96. TELLURIUM
97. TEREBINTHINAE OLEUM
98. THYMOLUM
99. TINOSPORA CORDIFOLIA
100. VALERIANA OFFICINALIS
101. VERATRUM ALBUM
102. VIBURNUM OPULUS
103. VISCUM ALBUM
104. ZINGIBER OFFICINALIS

<b>ABIES CANADENSIS</b>	: Mother Tincture
<b>Alcohol content</b>	: 72.0 to 76.0 percent v/v
<b>pH</b>	: Between 4.50 to 5.80
<b>Wt. per ml</b>	: From 0.870 to 0.900 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 282 nm
<b>Identification</b>	: Carry out TLC of Mother Tincture using <i>chloroform : methanol</i> (98 : 2 v/v) as mobile phase and <i>antimony trichloride</i> as spray reagent. Two spots appear at $R_f$ 0.25 and 0.87.

<b>ABSINTHIUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 63.0 to 67.0 percent v/v
<b>pH</b>	: Between 5.20 to 6.20
<b>Wt. per ml</b>	: From 0.880 to 920 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 272 nm
<b>Identification</b>	: Carryout TLC of concentrated Mother Tincture using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light four spots appear at $R_f$ 0.20, 0.50, 0.62 and 0.93. With <i>antimony trichloride</i> spray reagent one spot appears at $R_f$ 0.93 (yellow).

**ACIDUM BENZOICUM**

- Potency** : 1x  
Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of  $C_6H_5COOH$ .
- Assay** : Complies with the assay method given under Acidum Benzoicum.
- Potency** : 2x  
Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of  $C_6H_5COOH$ .
- Assay** : Start with 5 g drug, dissolve in 100 ml of water and titrate with 0.1N *sodium hydroxide* using *phenol red solution* as indicator. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.01221 g of  $C_6H_5COOH$ .
- Potency** : 3x  
Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of  $C_6H_5COOH$ .
- Assay** : Weigh accurately about 20 g, dissolve in 100 ml water and titrate with 0.05N *sodium hydroxide* using *phenol red solution* as indicator. Each ml of 0.05N *sodium hydroxide* is equivalent to 0.006106 g of  $C_6H_5COOH$ .

**ACIDUM CARBOLICUM**

- Potency** : 1x  
Contains not less than 9.40 percent w/v to not more than 10.40 percent w/v of  $C_6H_5OH$ .
- Assay** : Complies with the assay method given under Acidum Carbolicum.
- Potency** : 2x  
Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of  $C_6H_5OH$ .
- Assay** : Start with 10 ml of drug and follow the same method as given in Acidum Carbolicum.

## ACIDUM CITRICUM

- Potency** : 1x  
Contains not less than 9.50 percent w/w to not more than 10.60 percent w/w of  $C_6H_8O_7 \cdot H_2O$ .
- Assay** : Complies with the assay method given under Acidum Citricum.
- Potency** : 2x  
Contains not less than 0.95 percent w/w to not more than 1.06 percent w/w of  $C_6H_8O_7 \cdot H_2O$ .
- Assay** : 50g complies with the assay method given under Acidum citricum. For titration use 0.1N sodium hydroxide. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.007005 g of  $C_6H_8O_7 \cdot H_2O$ .

## ACIDUM BORACICUM

- Potency** : 1x  
Contains not less than 0.95 percent w/v to not more than 10.0 percent w/v of  $H_3BO_3$ .
- Assay** : Complies with the assay method given under Acidum Boracicum.
- Potency** : 2x  
Contains not less than 0.95 percent w/v to more than 1.05 percent w/v of  $H_3BO_3$ .
- Assay** : 5g complies with the assay method given under Acidum Boracicum. For titration use 0.1N *sodium hydroxide*. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.006183 of  $H_3BO_3$ .
- Potency** : 3x  
Contains not less than 0.095 percent w/v to not more than 0.105 percent w/v of  $H_3BO_3$ .
- Assay** : 20 g complies with the assay method given under Acidum Boracicum. For titration use 0.02 N *sodium hydroxide*. Each ml of 0.02N *sodium hydroxide* is equivalent to 0.001736 g of  $H_3BO_3$ .

**ACIDUM HYDROFLUORICUM**

- Potency** : 1x  
Contains not less than 9.50 percent w/v to not more than 10.50 percent w/v of HF.
- Assay** : Start with 10 g of drug and follow the method given under Acidum Hydrofluoricum.
- Potency** : 2x  
Contains not less than 0.95 percent w/v to not more than 1.05 percent w/v of HF.
- Assay** : Weigh accurately about 10 g and use 0.1N *sodium hydroxide* and 0.1N *sulphuric acid* for the method given under Acidum Hydrofluoricum. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.002001 g of HF.
- Potency** : 3x  
Contains not less than 0.095 percent w/v to not more than 0.105 percent w/v of HF.
- Assay** : Weigh accurately about 20 g and follow the assay method given under Acidum Hydrofluoricum using 0.02 N *sodium hydroxide* and 0.02 N *sulphuric acid*. Each ml of 0.02 N *sodium hydroxide* is equivalent to 0.0004 of HF.

**ACIDUM LACTICUM**

- Potency** : 1x  
Contains not less than 9.40 percent w/v to not more than 10.40 percent w/v of C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>.
- Assay** : Complies with the assay method given under Acidum Lacticum.
- Potency** : 2x  
Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>.
- Assay** : 5 g complies with the assay method given under Acidum Lacticum. In assay method use 0.1N *sodium hydroxide* and 0.1N *sulphuric acid*. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.009008 g of C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>.
- Potency** : 3x  
Contains not less than 0.094 percent w/v to not more than 0.104 percent w/v of C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>.
- Assay** : 20 g complies with the assay method given under Acidum Lacticum. In assay method use 0.01N *sodium hydroxide* and 0.01 N *sulphuric acid*. Each ml of 0.01 N *sodium hydroxide* is equivalent to 0.0009 g to C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>.

### ACIDUM SALICYLICUM

- Potency** : 1x  
Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of  $C_6H_4(OH)COOH$ .
- Assay** : Complies with the assay method given under Acidum Salicylicum.
- Potency** : 2x  
Contains not less than 0.95 percent w/w, w/v to not more than 1.05 percent w/w, w/v of  $C_6H_4(OH)COOH$ .
- Assay** : Follow the assay method given under Acidum Salicylicum using 0.1N *sodium hydroxide* for titration. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.013812 g of  $C_6H_4(OH)COOH$ .
- Potency** : 3x  
Contains not less than 0.095 percent w/w, w/v to not more than 0.105 percent w/w, w/v of  $C_6H_4(OH)COOH$ .
- Assay** : Weigh accurately about 20g, dissolve in 100 ml hot water and titrate with 0.02N *sodium hydroxide solution* using *phenol-red* as indicator. Each ml of 0.02 N *sodium hydroxide* is equivalent to 0.002762 g of  $C_6H_4(OH)COOH$ .

### ACIDUM OXALICUM

- Potency** : 1x  
Contains not less than 9.50 percent w/w, w/v to not more than 10.50 percent w/w, w/v of  $C_2H_2O_4.2H_2O$ .
- Assay** : Complies with the assay method given under Acidum Oxalicum.
- Potency** : 2x  
Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w, w/v of  $C_2H_2O_4.2H_2O$ .
- Assay** : 5g complies with the assay method given under Acidum Oxalicum.
- Potency** : 3x  
Contains not less than 0.095 percent w/w, to not more than 0.105 percent w/w,  $C_2H_2O_4.2H_2O$ .
- Assay** : 20 g complies with the assay method given under Acidum Oxalicum. For titration use 0.05N *potassium permanganate*. Each ml of 0.5N *potassium permanganate* is equivalent to 0.00315 g of  $C_2H_2O_4.2H_2O$ .

### ACIDUM SARCOLACTICUM

- Potency** : 1x  
Contains not less than 8.36 percent w/v to not more than 9.24 percent w/v of  $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$ .
- Assay** : Complies with the assay method given under Acidum Sarcolacticum.
- Potency** : 2x  
Contains not less than 0.84 percent w/v to not more than 0.920 percent w/v of  $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$ .
- Assay** : Weigh accurately about 10 g and use 0.1N *sodium hydroxide* and 0.1N *hydrochloric acid* in the assay method given under Acidum Sarcolacticum. Each ml of 0.1N acid is equivalent to 0.009008 g of  $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$ .
- Potency** : 3x  
Contains not less than 0.084 percent w/v to not more than 0.092 percent w/v of  $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$ .
- Assay** : Weigh accurately about 20 g and use 0.02N *sodium hydroxide* and 0.02N *hydrochloric acid* in the assay method given under Acidum Sarcolacticum. Each ml of 0.02N acid is equivalent to 0.0018 g of  $\text{CH}_3\text{CH}(\text{OH})\text{COOH}$ .

### ACIDUM TARTARICUM

- Potency** : 1x  
Contains not less than 9.55 percent w/w to not more than 10.55 percent w/w of  $\text{C}_4\text{H}_6\text{O}_6$ .
- Assay** : Complies with the assay method given under Acidum Tartaricum.
- Potency** : 2x  
Contains not less than 0.955 percent w/w to not more than 1.055 percent w/w of  $\text{C}_4\text{H}_6\text{O}_6$ .
- Assay** : 5g complies with the assay method given under Acidum Tartaricum. For titration use 0.1N *sodium hydroxide*. Each ml of 0.1N *sodium hydroxide* is equivalent to 0.00705 g of  $\text{C}_4\text{H}_6\text{O}_6$ .
- Potency** : 3x  
Contains not less than 0.096 percent w/w to not more than 0.106 percent w/w of  $\text{C}_4\text{H}_6\text{O}_6$ .
- Assay** : 20 g complies with the assay method given under Acidum Tartaricum. For titration use 0.01N *sodium hydroxide*. Each ml of 0.01N *sodium hydroxide* is equivalent to 0.000705 g of  $\text{C}_4\text{H}_6\text{O}_6$ .



**ACETANILIDUM**

- Potency** : 1x  
 Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of C<sub>6</sub>H<sub>5</sub>NHCOCH<sub>3</sub>.
- Assay** : Complies with the assay method.
- Potency** : 2x  
 Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of C<sub>6</sub>H<sub>5</sub>NHCOCH<sub>3</sub>.
- Assay** : 10 g complies with the assay method.
- Potency** : 3x  
 Contains not less than 0.93 percent w/w to not more than 0.103 percent of C<sub>6</sub>H<sub>5</sub>NHCOCH<sub>3</sub>.
- Assay** : Weigh accurately about 0.5 g in 50 ml 1N *sodium hydroxide solution* and reflux for one hour on a water bath. Cool and extract it with 3×20 ml *chloroform*. Wash the chloroform layer with alkaline water. Combine the washings with aqueous solution. Titrate the aqueous layer with 1N *hydrochloric acid* using *phenolphthalein* as indicator. Carryout a blank with 50 ml 1N *sodium hydroxide solution*. Each ml of 1N *sodium hydroxide* is equivalent to 0.135 g of C<sub>6</sub>H<sub>5</sub>NHCOCH<sub>3</sub>.

- ADONIS VERNALIS** : Mother Tincture
- Alcohol content** : 48.0 to 52.0 percent v/v
- pH** : Between 5.10 to 6.30
- Wt. per ml** : From 0.920 to 0.980 g
- Total solids** : Not less than 1.00 percent w/v
- λ max** : 272, 340 nm
- Identification** : (1) Evaporate 20 ml of Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml *chloroform*. Concentrate it to 2 ml and carryout TLC on silica gel 'G' plate using *chloroform;methanol* (9:1 v/v) as mobile phase. With *antimony trichloride reagent* four spots appear at R<sub>f</sub> 0.19, 0.31, 0.62 and 0.78.
- (2) Carryout TLC of aqueous layer on silica gel 'G' plate using *n-butanol : acetic acid : water* (4:1:1 v/v) as mobile phase. With *methanolic aluminium chloride reagent* one yellow coloured spot appears at R<sub>f</sub> 0.76.

- ALETRIS FARINOSA** : Mother Tincture
- Alcohol content** : 57 to 61 percent v/v
- pH** : Between 4.80 to 5.80
- Wt. per ml** : From 0.880 to 0.910 g
- Total solids** : Not less than 1.0 percent w/v
- $\lambda$  max** : 278 nm
- Identification** : Carryout TLC of Mother Tincture using *n-butanol : acetic acid : water* (4:1:1 v/v) as spray reagent. After spray heat the plate at 105° for 15 minutes. One spot appears at  $R_f$  0.21 (reddish brown).
- 
- ACONITE NAPELLUS** : Mother Tincture
- Alcohol content** : 61.0 to 65.0 percent v/v
- pH** : 5.5 to 7.00
- Wt. per ml** : 0.896 g to 0.920 g
- Total solids** : Not less than 0.50 percent w/v
- $\lambda$  max** : 285 nm.
- Identification** : (a) Take one drop on a filter paper and dry, place one drop of acetic anhydride on the spot and dry again. Examine under UV light, greenish blue fluorescence is produced.
- (b) Evaporate 20 ml Mother Tincture on water-bath to remove alcohol. Extract the aqueous part with 3 x 20 ml chloroform, concentrate and carryout TLC of chloroform extract of the drug using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light four spots appear at  $R_f$  0.08, 0.29, 0.38 and 0.63. With *Dragendroff's reagent* two orange spots appear at  $R_f$  0.08 and 0.16.
- 
- ALFALFA** : Mother Tincture
- Alcohol content** : 64.0 to 68.0 percent v/v
- pH** : Between 5.50 to 6.50
- Wt. per ml** : From 0.870 to 0.910 g
- Total solids** : Not less than 1.10 percent w/v
- $\lambda$  max** : 270, 320 nm
- Identification** : (1) Evaporate the Mother Tincture to dryness, add 1 ml of 5 percent *copper sulphate solution* and make it alkaline by adding 0.5 ml of *sodium hydroxide solution*, a bluish green precipitate is formed.
- (2) Carryout TLC of Mother Tincture using *n-butanol:acetic acid:water* as mobile phase and *ninhydrin solution* as spray reagent. Five spots appear at  $R_f$  0.12, 0.20, 0.30, 0.40 and 0.54 (violet-pink).
- (3) The above TLC plate when sprayed with *aluminium chloride solution*, three spots appear at  $R_f$  0.50, 0.64 and 0.91 (greenish fluorescence under UV light).

### AMMONIUM BENZOICUM

- Potency** : 1x  
 Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of  $C_6H_5CO_2NH_4$ .
- Assay** : 5 g complies with the assay method given under Ammonium Benzoicum.
- Potency** : 2x  
 Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $C_6H_5CO_2NH_4$ .
- Assay** : 20g complies with the assay method given under Ammonium Benzoicum. For titration use 0.1N *hydrochloric acid*. Each ml of 0.1N *hydrochloric acid* is equivalent to 0.01391 g of  $C_6H_5CO_2NH_4$ .

### AMMONIUM BROMIDUM

- Potency** : 1x  
 Contains not less than 0.30 percent w/w to not more than 10.30 percent w/w of  $NH_4Br$ .
- Assay** : Complies with the assay method given under Ammonium Bromidum.
- Potency** : 2x  
 Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of  $NH_4Br$ .
- Assay** : 5g complies with the assay method given under Ammonium Bromidum.
- Potency** : 3x  
 Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of  $NH_4Br$ .
- Assay** : 20 g complies with the assay method given under Ammonium Bromidum. *In assay method use 0.01N silver nitrate and 0.01N ammonium thiosulphate. Each ml of 0.01N silver nitrate is equivalent to 0.000979 g of  $NH_4Br$ .*

<b>ANGUSTURA</b>	: Mother Tincture
<b>Alcohol content</b>	: 66.0 to 70.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.890 to 0.920 g
<b>Total solids</b>	: Not less than 2.0 percent w/v
<b><math>\lambda</math> max</b>	: 270, 308 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml <i>chloroform</i> . Concentrate and carryout TLC using <i>chloroform : methanol</i> (9:1 v/v), as mobile phase and <i>Dragendorff's reagent</i> for spray. Three spots appear at $R_f$ 0.40, 0.74 and 0.90.

## ANILNUM

<b>Potency</b>	: 1x Contains not less than 9.40 percent v/v to not more than 10.40 percent v/v $C_6H_5NH_2$ .
<b>Assay</b>	: Complies with the assay method given under Anilinum. Carryout a blank with same amount of Dispensing Alcohol and add the volume of <i>perchloric acid</i> used.
<b>Potency</b>	: 2x Contains not less than 0.94 percent v/v to not more than 1.04 percent v/v of $C_6H_5NH_2$ .
<b>Assay</b>	: 5 g complies with the assay method given under Anilinum. Carryout blank with same amount of Dispensing Alcohol and add the volume of <i>perchloric acid</i> used.
<b>Potency</b>	: 3x Contains not less than 0.094 percent v/v to not more than 0.104 percent v/v $C_6H_5NH_2$ .
<b>Assay</b>	: Weigh accurately about 25 g and titrate with 0.01N <i>perchloric acid</i> . Carryout a blank with 25 g Dispensing Alcohol and add the volume of perchloric acid used. Each ml of 0.01N <i>perchloric acid</i> is equivalent to 0.00093 g of $C_6H_6NH_2$ .

## ANTIPYRINUM

- Potency** : 1x  
Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of  $C_{11}H_{12}N_2O$ .
- Assay** : 1 g complies with the assay method given under Antipyrinum.
- Potency** : 2x  
Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of  $C_{11}H_{12}N_2O$ .
- Assay** : 5 g complies with the assay method given under Antipyrinum.
- Potency** : 3x  
Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of  $C_{11}H_{12}N_2O$ .
- Assay** : 20 g complies with the assay method given under Antipyrinum. In assay method use 0.01 N *iodine* and 0.01 N *sodium thiosulphate solution*. Each ml of 0.1 N *iodine* is equivalent to 0.000941 g of  $C_{11}H_{12}N_2O$ .

**APIUM GRAVEOLENS** : Mother Tincture

- Alcohol content** : 91.0 to 95.0 percent v/v
- pH** : Between 5.50 to 6.50
- Wt. per ml** : From 0.800 to 0.30 g
- $\lambda$  max** : 288, 318 nm
- Identification** : Evaporate 20 ml of Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml *chloroform*, concentrate it to 2 ml and carryout TLC on silica gel G plate using *chloroform* : *methanol* (9:1 v/v) as mobile phase. With *antimony trichloride* spray reagent two spots appear at  $R_f$  0.28 (brown) and 0.72 (Pink).

## ARGENTUM MURIATICUM

- Potency** : 1x  
Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of AgCl.
- Assay** : Complies with the assay method given under Argentum Muriaticum.
- Potency** : 2x  
Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of AgCl.
- Assay** : 10g complies with the assay method given under Argentum Muriaticum.

## ATROPINUM

- Potency** : 1x  
Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of C<sub>17</sub>H<sub>23</sub>O<sub>3</sub>N.
- Assay** : 1 g complies with the assay method given under Atropinum.
- Potency** : 2x  
Contains not less than 0.94 percent w/w to not more than 1.04 percent w/w of C<sub>17</sub>H<sub>23</sub>O<sub>3</sub>N.
- Assay** : 5 g complies with the assay method given under Atropinum.
- Potency** : 3x  
Contains not less than 0.094 percent w/w to not more than 0.104 percent w/w of Atropinum.
- Assay** : 20 g complies with the assay method given under Atropinum. For titration use 0.01 N *hydrochloric acid* and 0.01 N *sodium hydroxide*. Each ml 0.01 N *hydrochloric acid* is equivalent to 0.002894 g of C<sub>17</sub>H<sub>23</sub>O<sub>3</sub>N.

## AURUM MURIATICUM NATRONATUM

- Potency** : 1x  
Contains not less than 9.40 percent w/v to not more than 10.40 percent w/v of NaAuCl<sub>4</sub>.2H<sub>2</sub>O.
- Assay** : Weigh accurately about 2.0 g and follow the assay method given under Aurum Muriaticum Natronatum.
- Potency** : 2x  
Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of NaAuCl<sub>4</sub>.2H<sub>2</sub>O.
- Assay** : Weigh accurately about 20 g and follow the assay method given under Aurum Muriaticum Natronatum.

## BLATTA ORIENTALIS : Mother Tincture

- Alcohol content** : 87.0 to 91.0 percent v/v
- pH** : Between 6.0 to 7.0
- Wt. per ml** : From 0.820 to 0.850 g
- Total solids** : Not less than 0.75 percent w/v
- λ max** : 235, 270 nm
- Identification** : Carryout TLC of Mother Tincture using *chloroform : methanol* (9:1 v/v) as mobile phase and *antimony trichloride reagent* for spray. Four spots appear at R<sub>f</sub> 0.20, 0.63, 0.78 and 0.82 (all light brown).

**BOERHAAVIA  
DIFFUSA**

: Mother Tincture

**Alcohol content** : 57.0 to 61.0 percent v/v

**pH** : Between 5.60 to 6.50

**Wt. per ml** : From 0.910 to 0.945 g

**$\lambda$  max** : 265 and 320 nm

**Identification** : (1) Carryout TLC of Mother Tincture using *chloroform:methanol* (9:1 v/v) as mobile phase. Under UV light, five spots appear at  $R_f$  0.60 (red), 0.68, 0.78, 0.85 (all blue) and 0.96 (red).

(2) Carryout TLC of Mother Tincture using *n-butanol:acetic acid:water* (4:1:1 v/v) as mobile phase. Under UV light, three spots appear at  $R_f$  0.40, 0.70 and 0.90 (all blue).

**BOVISTA** : Mother Tincture

**Alcohol content** : 57.0 to 61.0 percent v/v

**pH** : Between 5.0 to 6.0

**Wt. per ml** : From 0.920 to 0.955 g.

**Total solids** : Not less than 0.75 percent w/v

**$\lambda$  max** : 270 nm

**Identification** : (1) Carryout TLC of Mother Tincture using *n-butanol:acetic acid:water* (4:1:1 v/v) as mobile phase. Under UV light, two spots appear at  $R_f$  0.80 and 0.90 (both blue).

(2) Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml *chloroform*. Concentrate it and carryout TLC on silica gel 'G' plate using *chloroform:methanol* (9:1 v/v) as mobile phase and seen under UV light. Five spots appear at  $R_f$  0.28 (pink), 0.48, 0.60, 0.72 and 0.88 (all blue).

## BROMIUM

- Potency** : Q  
Dark red coloured liquid. Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of Br.
- Assay** : 2 g complies with the assay method given under Bromium.
- Potency** : 3x  
Red coloured liquid. Contains not less than 0.094 percent w/v to not more than 0.104 percent w/v of Br.
- Assay** : 20 g complies with the assay method given under Bromium.

## CADMIUM BROMATUM

- Potency** : 1x  
Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of CdBr<sub>2</sub>.
- Assay** : Complies with the assay method given under Cadmium Bromatum.
- Potency** : 2x  
Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of CdBr<sub>2</sub>.
- Assay** : Take about 5g accurately weighed and dissolve in 600 ml of water and follow the assay method given under Cadmium Bromatum.
- Potency** : 3x  
Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of CdBr<sub>2</sub>.
- Assay** : Take about 25 g, dissolve in 50 ml of water, filter, again dissolve the residue in 50 ml of water, filter and combine the filtrate and add 3 drops of *xyleneol orange* and follow the assay method given under Cadmium Bromatum using 0.01 M EDTA. Each g of 0.01M EDTA is equivalent to 0.00272 g of CdBr<sub>2</sub>.



**CADMIUM SULPHURICUM**

- Potency** : 1x  
Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of  $3\text{CdSO}_4 \cdot 8\text{H}_2\text{O}$ .
- Assay** : Complies with the assay method given under Cadmium Sulphuricum.
- Potency** : 2x  
Contains not less than 0.93 percent w/v to not more than 1.03 percent w/w of  $3\text{CdSO}_4 \cdot 8\text{H}_2\text{O}$ .
- Assay** : 5 g complies with the assay method given under Cadmium Sulphuricum.
- Potency** : 3x  
Contains not less than 0.093 percent w/v to not more than 0.103 percent w/w of  $3\text{CdSO}_4 \cdot 8\text{H}_2\text{O}$ .
- Assay** : Char 20 g to ash and dissolve the ash in minimum quantity of dilute *hydrochloric acid* and follow the assay method given under Cadmium Sulphuricum. For titration use 0.02M EDTA. Each ml of 0.02M EDTA is equivalent to 0.00513 g of  $3\text{CdSO}_4 \cdot 8\text{H}_2\text{O}$ .

**CALCAREA ACETICA**

- Potency** : 1x  
Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of  $\text{C}_4\text{H}_8\text{O}_5\text{Ca}$ .
- Assay** : Complies with the assay method given under Calcarea Acetica.
- Potency** : 2x  
Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of  $\text{C}_4\text{H}_8\text{O}_5\text{Ca}$ .
- Assay** : 10 ml complies with the assay method given under Calcarea Acetica.
- Potency** : 3x  
Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of  $\text{C}_4\text{H}_8\text{O}_5\text{Ca}$ .
- Assay** : 50 ml complies with the assay method given under Calcarea Acetica.

**CALCAREA CAUSTICA**

- Potency** : 1x  
Contains not less than 8.55 percent w/w to not more than 9.45 percent w/w of Ca(OH)<sub>2</sub>.
- Assay** : Complies with the assay method given under Calcarea Caustica.
- Potency** : 2x  
Contains not less than 0.855 percent w/w to not more than 0.945 percent w/w of Ca(OH)<sub>2</sub>.
- Assay** : 10g complies with the assay method given under Calcarea Caustica.
- Potency** : 3x  
Contains not less than 0.086 percent w/w to not more than 0.094 percent w/w of Ca(OH)<sub>2</sub>.

- CAPSICUM ANNUM** : Mother Tincture
- Alcohol content** : 87.5 to 91.5 percent v/v
- pH** : Between 4.70 to 5.70
- Wt. per ml** : From 0.850 to 0.880 g
- Total solids** : Not less than 1.10 percent v/v
- λ max** : 272 nm
- Identification** : Carryout TLC of Mother Tincture using *chloroform : methanol* (9:1 v/v) as mobile phase. In iodine vapours four spots appear at R<sub>f</sub> 0.11, 0.24, 0.58 and 0.83 (corresponding with standard capsicum).

- CARDUUS BENEDICTUS** : Mother Tincture
- Alcohol content** : 47.0 to 51.0 percent v/v
- pH** : Between 5.50 to 6.50
- Wt. per ml** : From 0.920 to 0.950 g
- Total solids** : Not less than 1.25 percent w/v
- λ max** : 270 and 318 nm
- Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, make it alkaline with *ammonia solution* and extract with 3×20 ml *chloroform*, concentrate the chloroform layer to 2 ml and carryout TLC using *chloroform:methanol* (95:5) v/v as mobile phase. Under UV light four spots appear at R<sub>f</sub> 0.11 (red), 0.42, 0.35 and 0.70 (blue). With *Dragendorff's reagent* three spots appear at R<sub>f</sub> 0.05, 0.08 and 0.42 (all orange).

<b>CARICA PAPAYA</b>	: Mother Tincture.
<b>Alcohol content</b>	: 57.0 TO 61.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.935 to 0.970 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 266 nm
<b>Identification</b>	: Carryout TLC of Mother Tincture using <i>n-butanol : acetic acid : water</i> (4:1:1 v/v) as mobile phase and <i>ninhydrin</i> as spray reagent. Five spots appear at $R_f$ 0.10, 0.21, 0.31, 0.47 and 0.63 (all pink).

<b>CASCARILLA</b>	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.00 to 5.80
<b>Wt. per ml</b>	: From 0.810 to 0.840 g
<b>Total solids</b>	: Not less than 0.40 percent w/v
<b><math>\lambda</math> max</b>	: 270 nm (broad)
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to dryness. Dissolve the residue on <i>solvent ether</i> and carryout TLC of ether extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light five spots appear at $R_f$ 0.40, 0.79, 0.96 (all red), 0.86 (blue) and 0.90 (very bright blue). With <i>antimony trichloride</i> spray reagent five spots appear at $R_f$ 0.18, 0.32 (brown), 0.36 (red), 0.82 (brown) and 0.96 (blackish brown).

<b>CASTOREUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.910 to 0.940 g
<b>Total solids</b>	: Not less than 2.0 percent w/v
<b><math>\lambda</math> max</b>	: 230 and 275 nm
<b>Identification</b>	: Carryout paper chromatography on Whatmann No. 1 filter paper using <i>n-butanol: acetic acid:water</i> (4:1:1 v/v) as mobile phase and <i>ninhydrin</i> for spray. Eight spots appear at $R_f$ 0.08, 0.19 (both orange), 0.26, 0.33, 0.40, 0.50, 0.58, 0.72 (all violet).

<b>CASCARA SAGRADA</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.20 to 6.20
<b>Wt. per ml</b>	: From 0.900 to 0.930 g
<b>Total solids</b>	: Not less than 1.25 percent v/v
<b><math>\lambda</math> max</b>	: 245, 282 and 326 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml chloroform. Concentrate the chloroform layer to 2 ml and carryout TLC using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Three spots appear at $R_f$ 0.45 (light brown), 0.87 (light brown) and 0.97 (yellow) seen in visible light. On exposure the plate in ammonia vapour, spot at $R_f$ 0.87 turns to red.

<b>CASTANEA VESCA</b>	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 5.0 to 6.0
<b>Wt. per ml</b>	: From 0.930 to 0.960
<b>Total solids</b>	: Not less than 1.0 percent w/v
<b><math>\lambda</math> max</b>	: 240 nm
<b>Identification</b>	: Carryout TLC of chloroform extract of Mother Tincture on silica gel 'G' plate using <i>chloroform:methanol</i> (9:1 v/v) solvent system as mobile phase. The plate when exposed to iodine chamber four spots appear at $R_f$ 0.42, 0.65, 0.90 and 0.97.

**CHIMAPHILLA  
UMBELLATA**

	: Mother Tincture
<b>Alcohol content</b>	: 66.0 to 70.0 percent v/v
<b>pH</b>	: Between 4.8 to 6.5
<b>Wt. per ml</b>	: From 0.870 to 0.900 g
<b>Total solids</b>	: Not less than 0.40 percent w/v
<b><math>\lambda</math> max</b>	: 265 nm
<b>Identification</b>	: Carryout TLC of Mother Tincture on silica gel 'G' plate using <i>n-butanol:acetic acid:water</i> (4:1:1 v/v) as mobile phase. In iodine vapours six spots appear at $R_f$ 0.24, 0.48, 0.63, 0.74, 0.85 and 0.92.

**COCCUS CACTI**

	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.910 to 0.950 g
<b>Total solids</b>	: Not less than 1.50 percent w/v
<b><math>\lambda</math> max</b>	: 22 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract it with 3×20 ml <i>chloroform</i> . Concentrate to 2 ml and carryout TLC on silica gel 'G' plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.11, 0.21, 0.28, 0.82 and 0.91 (all blue) and 0.44 (red). With <i>antimony trichloride</i> spray reagent five spots appear at $R_f$ 0.11 (grey), 0.21 (grey), 0.28 (grey), 0.44 (yellow) and 0.82 (grey).

**COLLINSONIA  
CANADENSIS**

	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.910 to 0.940 g
<b>Total solids</b>	: Not less than 0.75 percent v/v
<b>λ max</b>	: 286, 324 nm
<b>Identification</b>	: Evaporate 20 ml of Mother Tincture on a water bath to remove alcohol. Extract it with 3×20 ml <i>chloroform</i> , concentrate to 2 ml and carryout TLC on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. In iodine vapours six spots appear at R <sub>f</sub> 0.27, 0.42, 0.54, 0.67, 0.77 and 0.92. With <i>antimony trichloride reagent</i> one spot appears at R <sub>f</sub> 0.80 (dark grey).

**COPAIBA  
OFFICINALIS**

	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 4.80 to 5.80
<b>Wt. per ml</b>	: From 0.810 to 0.840 g
<b>Total solids</b>	: Not less than 1.7 percent w/v
<b>λ max</b>	: 268 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on water bath to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate to 2 ml and carryout TLC of chloroform extract on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. With <i>antimony trichloride spray reagent</i> three spots appear at R <sub>f</sub> 0.72, 0.94 and 0.96.

**CUBEBA OFFICINALIS** : Mother Tincture

**Alcohol content** : 91.0 to 95.0 percent v/v

**pH** : Between 5.50 to 6.50

**Wt. per ml** : From 0.810 to 0.840 g

**Total solids** : Not less than 1.0 percent w/v

**$\lambda$  max** : 284 nm is strong alcohol

**Identification** : Carryout TLC of concentrated Mother Tincture using *chloroform:methanol* (9:1 v/v) as mobile phase. Under UV light four spots appear at  $R_f$  0.77 (blue), 0.86 (blue) , 0.92 (blue) and 0.96 (red). With *antimony trichloride reagent*, three spots appear at  $R_f$  0.88 (violet), 0.91 (blue) and 0.94 (violet).

**CUNDURANGO** : Mother Tincture

**Alcohol content** : 48.0 to 52.0 percent v/v

**pH** : Between 5.40 to 6.40

**Wt. per ml** : From 0.910 to 0.940 g

**Total solids** : Not less than 0.60 percent w/v

**$\lambda$  max** : 280 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the remaining part with 3×20 ml *chloroform* and carryout TLC of chloroform extract using *chloroform:methanol* (9:1 v/v) as mobile phase. In iodine vapours seven spots appear at  $R_f$  0.30, 0.44, 0.55, 0.65, 0.70, 0.89 and 0.96.

### CUPRUM ACETICUM

**Potency** : 1x  
Contains not less than 9.45 percent w/w to not more than 10.45 percent w/w of  $(\text{CH}_3\text{COO})_2\text{Cu}\cdot\text{H}_2\text{O}$ .

**Assay** : Complies with the assay method given in *Cuprum Sulphuratum*. In this case each ml of 0.1N *sodium thiosulphate* is equivalent to 0.01996 g of  $(\text{CH}_3\text{COO})_2\text{Cu}\cdot\text{H}_2\text{O}$ .

**Potency** : 2x  
Contains not less than 0.945 percent w/w to not more than 1.045 percent w/w of  $(\text{CH}_3\text{COO})_2\text{Cu}\cdot\text{H}_2\text{O}$ .

**Assay** : Weigh accurately about 5g and char. The residue complies with the above assay method.

**Potency** : 3x  
Contains not less than 0.095 percent w/w to not more than 0.105 percent w/w of  $(\text{CH}_3\text{COO})_2\text{Cu}\cdot\text{H}_2\text{O}$ .

**Assay** : Weigh accurately about 25 g, char it and the residue complies with the assay method given above. For titration use 0.02N *sodium thiosulphate* solution. Each ml of 0.02 N *sodium thiosulphate* is equivalent to 0.004 g of  $(\text{CH}_3\text{COO})_2\text{Cu}\cdot\text{H}_2\text{O}$ .

### CUPRUM SULPHURICUM

**Potency** : 1x  
Contains not less than 9.35 percent w/w to not more than 10.35 percent w/w of  $\text{CuSO}_4\cdot 5\text{H}_2\text{O}$ .

**Assay** : Complies with the assay method given under *Cuprum Sulphuricum*.

**Potency** : 2x  
Contains not less than 0.935 percent w/w to not more than 1.035 percent w/w of  $\text{CuSO}_4\cdot 5\text{H}_2\text{O}$ .

**Assay** : 10 g complies with the assay method given under *Cuprum Sulphuricum*.



**CYNODON DACTYLON: Mother Tincture**

**Alcohol content** : 57.0 to 61.0 percent v/v

**pH** : Between 5.60 to 6.60

**Wt. per ml** : From 0.890 to 0.930 g

**Total solids** : Not less than 0.75 percent w/v

**$\lambda$  max** : 274, 322 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract it with 3×20 ml *chloroform* and concentrate to 2 ml. Carryout TLC of chloroform extract using *chloroform:methanol* (9:1 v/v) as mobile phase. Under UV light five spots appear at  $R_f$  0.11 (red), 0.25 (red), 0.36 (red), 0.75 (blue) and 0.84 (red). With *antimony trichloride reagent* spots at  $R_f$  0.24, 0.36 and 0.84 turn to green.

**DAMIANA** : Mother Tincture

**Alcohol content** : 57.0 to 61.0 percent v/v

**pH** : Between 5.40 to 6.40

**Wt. per ml** : From 0.870 to 0.910 g

**Total solids** : Not less than 0.75 percent w/v

**$\lambda$  max** : 270, 314 nm

**Identification** : Carryout TLC of concentrated extract of drug on silica gel ‘G’ plate using *chloroform:methanol* (9:1 v/v) as mobile phase. With *antimony trichloride reagent* and under UV light four spots appear at  $R_f$  0.10 (red), 0.25 (violet), 0.62 (pink) and 0.94 (red).

**DUBOISIA  
MYOPOROIDES**

: Mother Tincture

**Alcohol content** : 74.0 to 78.0 percent v/v

**pH** : Between 5.50 to 6.50

**Total solids** : Not less than 1.5 percent w/v

**$\lambda$  max** : 260, 316 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Make the aqueous part alkaline with *ammonia* solution and extract with 3×20 ml *chloroform*. Concentrate the chloroform extract to 2 ml and carryout Co-TLC with Hyoscyamine on silica gel ‘G’ plate using *chloroform:methanol* (9:1 v/v) as mobile phase. With *Dragendorff’s reagent* two spots appear at  $R_f$  0.62 and 0.41 (orange).

**EMBELIA RIBES** : Mother Tincture

**Alcohol content** : 57.0 to 61.0 percent v/v

**pH** : Between 5.50 to 6.50

**Wt. per ml** : From 0.860 to 0.910 g

**Total solids** : Not less than 0.50 percent w/v

**$\lambda$  max** : 272 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the remaining part with 3×20 ml *chloroform*. Concentrate it to 2 ml and carryout. TLC of chloroform extracts on silica gel ‘G’ plate using *chloroform:methanol* (9:1 v/v) as mobile phase. With *antimony trichloride reagent* two spots appear at  $R_f$  0.64 and 0.91.

**ERIGERON  
CANADENSIS**

	: Mother Tincture
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50.
<b>Wt. per ml</b>	: From 0.910 to 0.940 g.
<b>Total solids</b>	: Not less than 1.25 percent w/v
<b><math>\lambda</math> max</b>	: 285 and 320 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml *chloroform*. Concentrate to 2 ml and carryout TLC using *chloroform:methanol* (9:1 v/v) as mobile phase. Under UV light five spots appear at  $R_f$  0.22 (red), 0.47 (blue), 0.67 (blue), 0.73 (blue) and 0.99. With *antimony trichloride reagent* three spots appear at  $R_f$  0.29 (pink), 0.86 (violet) and 0.94 (violet).

**EUCALYPTUS  
GLOBULUS**

	: Mother Tincture
<b>Alcohol content</b>	: 83.0 to 87.0 percent v/v
<b>pH</b>	: Between 5.20 to 6.20
<b>Wt. per ml</b>	: From 0.830 to 0.870 g
<b>Total solids</b>	: Not less than 100 percent w/v
<b><math>\lambda</math> max</b>	: 272 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml *petroleum ether*. Concentrate to 5 ml and carryout TLC of *petroleum ether* extract using *chloroform* as mobile phase. Under UV light four spots appear at  $R_f$  0.52 (red), 0.61 (blue), 0.70 (blue) and 0.75 (red). With *antimony trichloride* spray reagent six spots appear at  $R_f$  0.11, 0.17, 0.41, 0.56, 0.77 and 0.95 (all yellow).

**FERRUM IODATUM**

**Potency** : 1x  
 Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of FeI<sub>2</sub>.

**Assay** : Dissolve 2 g in 20 ml water. Add 30 ml of 0.1N *silver nitrate solution*, 3 ml *Nitric Acid* and titrate the excess of *silver nitrate* with 0.1 N *ammonium thiocyanate* using *ferric alum* as indicator. Each ml of 0.1 N *silver nitrate* is equivalent to 0.01548 of FeI<sub>2</sub>.

**Potency** : 2x  
 Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of FeI<sub>2</sub>.

**Assay** : As given above.

**FICUS RELIGIOSA** : Mother Tincture

**Alcohol content** : 69.0 to 73.0 percent v/v

**pH** : Between 5.50 to 6.50

**Wt. per ml** : From 0.870 to 0.910 g

**Total solids** : Not less than 0.73 percent w/v

**λ max** : 266 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml *chloroform*. Concentrate to 2 ml and carryout TLC on silica gel ‘G’ plate using *chloroform:methanol* (95:05) v/v) as mobile phase. Under UV light five spots appear at R<sub>f</sub> 0.29 (blue), 0.34 (violet), 0.62 (blue), 0.73 (violet) and 0.89 (bluish green). On spraying with *antimony trichloride reagent* four spots appear at R<sub>f</sub> 0.08 (pinkish), 0.34 (pink), 0.73 (pink) and 0.87 (brown).

<b>FILIX MAS</b>	: Mother Tincture
<b>Alcohol content</b>	: 73.0 to 77.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.860 to 0.920 g
<b>Total solids</b>	: Not less than 1.00 percent w/v
<b><math>\lambda</math> max</b>	: 284 nm
<b>Identification</b>	: (i) Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate to 5 ml and carryout TLC on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. With <i>antimony trichloride reagent</i> four spots appear at $R_f$ 0.06 (yellow), 0.35 (pink), 0.63 (yellow) and 0.95 (greenish yellow).  (ii) Carryout TLC of aqueous extract on silica gel ‘G’ plate using <i>n-butanol:acetic acid:water</i> (4:1:1 v/v) as mobile phase. Under UV light two spots appear at $R_f$ 0.15 (red) and 0.57 (yellow).

<b>FUCUS VESICULOSUS</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.890 to 0.920 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 270 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carryout TLC on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride reagent</i> for spray, heat the plate at 105° and 15 minutes. Three spots appear at $R_f$ 0.48, 0.66 and 0.92 (brownish violet).

<b>GAMBOGIA</b>	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.830 to 0.850 g
<b>Total solids</b>	: Not less than 6.00 percent w/v
<b><math>\lambda</math> max</b>	: 225, 265, 279, 295, 314 and 345 nm
<b>Identification</b>	: Carryout TLC of Mother Tincture using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>antimony trichloride</i> for spray. Four yellow coloured spots appear at $R_f$ 0.56, 0.70, 0.75 and 0.98.

<b>GELSEMIUM SEMPERVIRENS</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.0 to 6.0
<b>Wt. per ml</b>	: From 0.910 to 0.940 g
<b>Total solids</b>	: Not less than 1.50 percent w/v
<b><math>\lambda</math> max</b>	: 282, 326 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml <i>chloroform</i> and concentrate to 2 ml. Carryout TLC of chloroform extract using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and in Iodine Vapours, three spots appear at $R_f$ 0.30, 0.53 and 0.77.

<b>GENTIANA LUTEA</b>	: Mother Tincture
<b>Alcohol content</b>	: 47.0 to 51.0 percent v/v
<b>pH</b>	: Between 5.70 to 6.20
<b>Wt. per ml</b>	: From 0.920 to 0.950 g
<b>Total solids</b>	: Not less than 1.10 percent w/v
<b><math>\lambda</math> max</b>	: 280, 320 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the residue with 3×20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carryout TLC using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light one brown spot appears at $R_f$ 0.84. On spraying with <i>antimony trichloride reagent</i> one yellow coloured spot appears at $R_f$ 0.84.

<b>GINSENG</b>	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.40 to 6.40
<b>Wt. per ml</b>	: From 0.820 to 0.850 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 260, 320 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> and concentrate the chloroform layer to 2 ml. Carryout TLC of chloroform layer using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. With <i>antimony trichloride</i> spray reagent, 3 spots appear at $R_f$ 0.30, 0.64 and 0.80.

<b>GOSSYPIUM HERBACEUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 38.5 to 42.5 percent v/v
<b>pH</b>	: Between 5.40 to 6.40
<b>Wt. per ml</b>	: From 0.870 to 0.920 g
<b>Total solids</b>	: Not less than 0.50 percent w/v
<b><math>\lambda</math> max</b>	: 280, 316 nm
<b>Identification</b>	: Carryout TLC of Mother Tincture on silica gel ‘G’ using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and on spraying with 10 percent <i>methanolic sulphuric acid</i> and subsequent heating at 100° for 10 minutes, four black spots appear at $R_f$ 0.26, 0.43, 0.70 and 0.90.

<b>GRANATUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 5.20 to 6.20
<b>Wt. per ml</b>	: From 0.910 to 0.940 g.
<b>Total solids</b>	: Not less than 2.0 percent w/v
<b><math>\lambda</math> max</b>	: 275 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, make it alkaline with <i>ammonia solution</i> and extract with 3×20 ml <i>chloroform</i> . Carryout TLC of concentrated chloroform extracts using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and <i>Dragendorff’s reagent</i> for spray. Four orange coloured spots appear at $R_f$ 0.24, 0.39, 0.76 and 0.91.

<b>GRINDELLIA ROBUSTA</b>	: Mother Tincture
<b>Alcohol content</b>	: 80.0 to 84.0 percent v/v
<b>pH</b>	: Between 5.30 to 6.30
<b>Wt. per ml</b>	: From 0.840 to 0.870 g
<b>Total solids</b>	: Not less than 1.25 percent w/v
<b><math>\lambda</math> max</b>	: 265, 285 and 330 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture to remove alcohol. Extract the remaining aqueous part with 3×20 ml <i>petroleum ether</i> (40-60). Concentrate the petroleum ether extract to 2 ml and carryout TLC using <i>petroleum ether</i> : <i>chloroform</i> (40:60 v/v) as mobile phase and spray with <i>antimony trichloride</i> . Two yellow spots appear at $R_f$ 0.13 and 0.37.
<b>GUAIAECUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 4.50 to 6.10
<b>Wt. per ml</b>	: From 0.840 to 0.870 g
<b>Total solids</b>	: Not less than 1.25 percent w/v
<b><math>\lambda</math> max</b>	: 282, 316 nm
<b>Identification</b>	: Carryout TLC of concentrated Mother Tincture on silica gel 'G' plate using <i>chloroform</i> : <i>methanol</i> ) (9:1 v/v) as mobile phase. With <i>antimony trichloride reagent</i> , three spots appear at $R_f$ 0.48 (green), 0.58 (green) and 0.70 (brown).
<b>HYDRANGEA</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.880 to 0.910 g
<b>Total solids</b>	: Not less than 0.70 percent w/v
<b><math>\lambda</math> max</b>	: 270 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carryout TLC on silica gel 'G' plate using <i>chloroform</i> : <i>methanol</i> (9:1 v/v) as mobile phase and spray with <i>antimony trichloride reagent</i> , on heating the plate at 105° for 15 minutes, three spots appear at $R_f$ 0.35, 0.44 and 0.62.



**HYOSCYAMINE SULPHATE**

**Potency** : 1c  
 Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of  $(C_{17}H_{23}NO_3)_2 H_2SO_4$ .

**Assay** : As given in the monograph. Start with 3 g of 1c drug.

**JABORANDI** : Mother Tincture

**Alcohol content** : 91.0 to 95.0 percent v/v

**pH** : Between 5.50 to 6.50

**Wt. per ml** : From 0.810 to 0.850 g

**Total solids** : Not less than 0.50 percent w/v

**$\lambda$  max** : 282 nm

**Identification** : Evaporate 20 ml Mother Tincture to dryness. Dissolve the residue in 20 ml *chloroform* and concentrate to 2 ml and carryout TLC on silica gel 'G' plate using *chloroform* : *methanol* (9:1 v/v) as mobile phase. With *Dragendorff's reagent* two orange coloured spots appear at  $R_f$  0.50 and 0.62.

**JALAPA** : Mother Tincture

**Alcohol content** : 91.0 to 95.0 percent v/v

**pH** : Between 4.60 to 5.60

**Wt. per ml** : From 0.810 to 0.850 g

**Total solids** : Not less than 1.00 percent w/v

**$\lambda$  max** : 282 nm

**Identification** : Carryout TLC of Mother Tincture on silica gel 'G' plate using *chloroform* : *methanol* (9:1 v/v) as mobile phase and *antimony trichloride* as spray reagent. Four spots appear at  $R_f$  0.17 (brown), 0.47 (brown), 0.72 (violet) and 0.96 (brown).

**JUNIPERUS**

**COMMUNIS**

- : Mother Tincture
- Alcohol content** : 79.0 to 83.0 percent v/v
- pH** : Between 5.50 to 6.50
- Wt. per ml** : From 0.850 to 0.870 g
- Total solids** : Not less than 2.0 percent w/v
- λ max** : 276, 338 nm
- Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove *alcohol*. Extract the aqueous layer with 3×20 ml and carryout TLC on silica gel ‘G’ plate using *chloroform:methanol* (9:1 v/v) solvent system as mobile phase. The plate when kept in iodine chamber 4 spots appears at  $R_f$  0.46, 0.58, 0.88 and 0.93.

**KALI PERMANGANICUM**

- Potency** : 2x  
Contains not less than 0.94 percent w/v to not more than 1.04 percent w/v of  $\text{KMnO}_4$ .
- Assay** : Prepare a standard curve using 0.01 percent and 0.001 percent w/v solution of  $\text{KMnO}_4$  and measure absorbance at 520 nm. Dilute the 2x drug to 100 times and find out the amount from standard curve.
- Potency** : 3x  
Contains not less than 0.094 percent w/v to not more than 0.104 percent w/v of  $\text{KMnO}_4$ .
- Assay** : As given above.

**LEPTENDRA**

- : Mother Tincture
- Alcohol content** : 57.0 to 61.0 percent v/v
- pH** : Between 4.80 to 5.80
- Wt. per ml** : From 0.890 to 0.920 g
- Total solids** : Not less than 1.50 percent w/v
- λ max** : 286 nm
- Identification** : Evaporate 20 ml Mother Tincture to remove alcohol, extract the aqueous part with 3×20 ml *chloroform* concentrate the chloroform layer to 2 ml and carryout TLC on silica gel ‘G’ plate using *chloroform:methanol* (9:1 v/v) as mobile phase and *antimony trichloride* for spray. Three spots appear at  $R_f$  0.41, 0.53 and 0.87.

**MENYENTHES**

**TRIFOLIATA**

- : Mother Tincture
- Alcohol content** : 57.0 to 61.0 percent v/v
- pH** : Between 5.50 to 6.50
- Wt. per ml** : From 0.900 to 0.930 g
- Total solids** : Not less than 1.00 percent w/v
- λ max** : 290, 324 nm
- Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml *chloroform* and concentrate the chloroform layer to 2 ml. Carryout TLC of chloroform extract on silica gel 'G' plate using *chloroform:methanol* (9:1 v/v) as mobile phase. In iodine vapour four spots appear at R<sub>f</sub> 0.34, 0.42, 0.54 and 0.97.

**NAJA TRIPUDIANA**

- : Mother Tincture. Take about 0.5 ml Mother Tincture, add 2 ml *hydrochloric acid* and keep on a water bath for four hours. Dilute it with 5 ml *alcohol* and carryout TLC using *n-butanol:acetic acid water* (4:1:1 v/v) as mobile phase and spray with *ninhydrin reagent* and heat the plate at 105° for 10 minutes. Five violet coloured spots appear at R<sub>f</sub> 0.26, 0.31, 0.44, 0.53 and 0.56.

**NATRUM SALICYLICUM**

- Potency** : 1x  
Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of C<sub>7</sub>H<sub>5</sub>O<sub>3</sub>Na.
- Assay** : Complies with the assay method given under Natrum Salicylicum.
- Potency** : 2x  
Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of C<sub>7</sub>H<sub>5</sub>O<sub>3</sub>Na.
- Assay** : 5g complies with the assay method given under Natrum Salicylicum. For titration use 0.1 N *hydrochloric acid*. Each ml of 0.1 N *hydrochloric acid* is equivalent to 0.016 g of C<sub>7</sub>H<sub>5</sub>O<sub>3</sub>Na.
- Potency** : 3x  
Contains not less than 0.095 percent w/w not more than 0.105 percent w/w of C<sub>7</sub>H<sub>5</sub>O<sub>3</sub>Na.
- Assay** : 20 g complies with the assay method given under Natrum Salicylicum. For titration use 0.02 N *hydrochloric acid*. Each ml of 0.02 N *hydrochloric acid* is equivalent to 0.003202 g of C<sub>7</sub>H<sub>5</sub>O<sub>3</sub>Na.

**NICCOLUM CARBONICUM**

- Potency** : 1x  
 Contains not less than 4.30 percent w/w to not more than 5.30 percent w/w of Ni.
- Assay** : Complies with the assay method given under Niccolum Carbonicum.
- Potency** : 2x  
 Contains not less than 0.43 percent w/w to not more than 0.53 percent w/w of Ni.
- Assay** : 10 g complies with the assay method given under Niccolum Carbonicum.

- OLEUM SANTALI** : Mother Tincture
- Alcohol content** : 82.0 to 86.0 percent v/v
- pH** : Between 5.50 to 6.20
- Wt. per ml** : From 0.780 to 0.800 g
- λ max** : 284 (VB) 273 (S) 257 (S) 250 (S)
- Identification** : Extract 10 ml Mother Tincture with 3×20 ml *chloroform*, concentrates on a water bath to 2 ml and carryout TLC using *chloroform* as mobile phase. Five spots appear at R<sub>f</sub> 0.10 (brown), 0.30 (orange), 0.50 (orange), 0.70 to 0.90 (green) and 0.95 (orange).

- PARIS QUADRIFOLIA** : Mother Tincture
- Alcohol content** : 56.0 to 60.0 percent v/v
- pH** : Between 5.050 to 6.50
- Wt. per ml** : From 0.890 to 0.920 g
- Total solids** : Not less than 1.50 percent w/v
- λ max** : 264 nm
- Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove *alcohol*. Extract aqueous part with 3×20 ml *chloroform*. Concentrate the chloroform layer to 2 ml and carryout TLC using *chloroform* : *methanol* (9:1 v/v) as mobile phase. Under UV light six spots appear at R<sub>f</sub> 0.20 (red), 0.40 (red), 0.52 (blue), 0.57 (red), 0.70 (red) and 0.96 (red). With *antimony trichloride reagent* three spots appear at R<sub>f</sub> 0.57, 0.70 and 0.96 (all yellow).

**PHYSOSTIGMA  
VENENOSUM**

	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.30 to 6.30
<b>Wt. per ml</b>	: From 0.82 to 0.865 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 254, 306 nm

**Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Add 10 ml water and 1 ml *ammonia solution* and extract with 3×20 ml *chloroform*. Concentrate the chloroform extract to 2ml and carryout TLC of chloroform extract on silica gel ‘G’ plate using *methanol : ammonia* (100:1:5 v/v) as mobile phase. With *Dragendorff’s reagent* three spots appear at  $R_f$  0.67 (comparable with Physostigmine) 0.46 and 0.38.

**PIPER NIGRUM**

	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.810 to 0.840 g
<b>Total solids</b>	: Not less than 1.10 percent w/v
<b><math>\lambda</math> max</b>	: 260, 305 and 340 nm

**Identification** : Carryout TLC of concentrated Mother Tincture using *chloroform:methanol* (9:1 v/v) as mobile phase. In UV light six spots appear at  $R_f$  0.08 (red), 0.28 (red), 0.76 (blue), 0.85 (blue), 0.8 (yellow) and 0.95 (blue). With *Dragendorff’s reagent* one spot appears at  $R_f$  0.88 (orange).

<b>PLANTAGO MAJOR</b>	: Mother Tincture
<b>Alcohol content</b>	: 62.0 to 66.0 percent v/v
<b>pH</b>	: Between 5.40 to 6.40
<b>Wt. per ml</b>	: From 0.910 to 0.950 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b>λ max</b>	: 286, 330 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on water bath to remove <i>alcohol</i> . Extract the remaining aqueous layer with 3×20 ml <i>chloroform</i> . Concentrate the chloroform layer to 2 ml and carryout TLC on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. With <i>antimony trichloride</i> spray reagent four spots appear at R <sub>f</sub> 0.28, 0.43, 0.83 and 0.87 (all violet).

**PLATINUM MURIATICUM**

<b>Potency</b>	: 1x Contains not less than 9.50 percent w/w to not more than 10.50percent w/w of the H <sub>2</sub> PtCl <sub>6</sub> .
<b>Assay</b>	: Complies with the assay method given under Platinum Muriaticum.
<b>Potency</b>	: 2x Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of the H <sub>2</sub> PtCl <sub>6</sub> .
<b>Assay</b>	: 10 g complies with the assay method given under Platinum Muriaticum.

<b>RATANHIA</b>	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 4.50 to 5.70
<b>Wt. per ml</b>	: From 0.880 to 0.920 g
<b>Total solids</b>	: Not less than 1.00 percent w/v
<b>λ max</b>	: 266 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove <i>alcohol</i> . Extract it with 3×20 ml <i>chloroform</i> . Concentrate chloroform extract to 2 ml and carryout TLC using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. In iodine vapour four spots appear at R <sub>f</sub> 0.35, 0.48, 0.65 and 0.78.

<b>RUMEX CRISPUS</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.890 to 0.920 g
<b>Total solids</b>	: Not less than 1.50 percent w/v
<b><math>\lambda</math> max</b>	: 278 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove <i>alcohol</i> . Extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate the chloroform layer to 2 ml and carryout TLC using <i>chloroform:methanol:methyl ethyl ketone</i> (85:10:15 v/v) as mobile phase and on spraying with 0.5 percent <i>methanolic magnesium acetate</i> four spots appear at $R_f$ 0.25 (yellow), 0.43 (red), 0.79 (yellow) and 0.94 (red).
<b>RHEUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 4.20 to 5.20
<b>Wt. per ml</b>	: From 0.910 to 0.940 g
<b>Total solids</b>	: Not less than 1.50 percent w/v
<b><math>\lambda</math> max</b>	: 284 nm
<b>Identification</b>	: Concentrate 20 ml Mother Tincture to remove alcohol and carryout TLC on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase and ammonia vapour for visualization. Three spots appear at $R_f$ 0.13, 0.21 and 0.90 (all pink) and a yellow coloured spot appears at $R_f$ 0.38 (which does not change in ammonia vapour).

<b>SENNA</b>	: Mother Tincture
<b>Alcohol content</b>	: 58.0 to 62.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.920 to 0.950 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 268 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate the chloroform layer to 2 ml and carryout TLC using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. Under UV light six spots appear at $R_f$ 0.20 (red), 0.40 (red), 0.52 (blue), 0.57 (red), 0.70 (red) and 0.96 (red).

**STROPHENTHUS  
HISPIDUS**

	: Mother Tincture
<b>Alcohol content</b>	: 91.0 to 95.0 percent v/v
<b>pH</b>	: Between 5.70 to 6.50
<b>Wt. per ml</b>	: From 0.820 to 0.860 g
<b>Total solids</b>	: Not less than 0.90 percent w/v
<b><math>\lambda</math> max</b>	: 270 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate the chloroform layer to 2 ml and carryout TLC on silica gel 'G' plate using <i>chloroform:methanol</i> (9 : 1 v/v) as mobile phase and seen in iodine vapour. Eight spots appear at $R_f$ 0.25, 0.55, 0.85, 1.12, 1.35, 1.50, 1.88 and 2.30 with reference to <i>cinchonine</i> as standard ( $R_f$ 1.0).



<b>STRAMONIUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.890 to 0.920 g
<b>Total solids</b>	: Not less than 0.50 percent w/v
<b><math>\lambda</math> max</b>	: 268 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove <i>alcohol</i> , make it alkaline by adding <i>ammonia</i> and extract it with 3×20 ml <i>chloroform</i> . Concentrate the chloroform layer to 2 ml and carryout TLC using <i>chloroform</i> : <i>methanol</i> (9 : 1 v/v) as mobile phase and spray with <i>Dragendorff's reagent</i> . Two spots appear at $R_f$ 0.25 (corresponds to hyoscyamine) and 0.90 (corresponds to scopolamine).
<b>SULPHANILAMIDE</b>	: Trituration
<b>Potency</b>	: 1x Contains not less than 9.40 percent w/w to not more than 10.40 percent w/w of the $C_6H_8O_2N_2S$ .
<b>Assay</b>	: Complies with the assay method given under sulphanilamide.
<b>Potency</b>	: 2x Contains not less than 0.940 percent w/w to not more than 1.04 percent w/w of the $C_6H_8O_2N_2S$ .
<b>Assay</b>	: 10 g complies with the assay method given under Sulphanilamide.
<b>SULPHUR</b>	: 1x Yellowish white amorphous powder. Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of S.
<b>Assay</b>	: Schoniger oxygen flask method. Complies with the assay method.
<b>Potency</b>	: 2x Yellowish white amorphous powder. Contains not less than 0.93 percent w/w to not more than 1.02 percent w/w of S.
<b>Assay</b>	: Dissolve about 5g in 25 ml <i>carbon disulphide</i> . Shake and filter, evaporate the filtrate to dryness. To the residue perform Schoniger oxygen flask method.

<b>SUMBUL</b>	: Mother Tincture
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.860 to 0.890 g
<b>Total solids</b>	: Not less than 0.85 percent w/v
<b><math>\lambda</math> max</b>	: 278 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, extract the aqueous part with 3×20 ml <i>chloroform</i> . Concentrate the chloroform extract to 2 ml and carryout TLC on silica gel ‘G’ plate using <i>chloroform:methanol</i> (9:1 v/v) as mobile phase. With <i>antimony trichloride</i> reagent three spots appear at $R_f$ 0.37, 0.43 and 0.54 (all brown).

<b>TABACUM</b>	: Mother Tincture (HPLC standard)
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v.
<b>Column</b>	: C <sup>13</sup> bondapack (reversed phase)
<b>Solvent</b>	: Methanol
<b>Flow rate</b>	: 0.6 ml/min.
<b>UV filter</b>	: 254 nm.
<b>Volume injected</b>	: 5 $\mu$ l
<b>RT</b>	: 13.15 minutes for Nicotine.

<b>TARAXACUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.910 to 0.940 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 288, 324 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml <i>chloroform</i> and concentrate the chloroform layer to 2 ml. Carryout TLC of chloroform layer using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase. Under UV light, three spots appear at $R_f$ 0.27, 0.50, 0.58. With <i>antimony trichloride</i> spray reagent four spots appear at $R_f$ 0.41, 0.51, 0.57 and 0.78.

## TELLURIUM

<b>Potency</b>	: 1x Contains not less than 9.30 percent w/w to not more than 10.30 percent w/w of Tellurium.
<b>Assay</b>	: Complies with the assay method given under Tellurium.
<b>Potency</b>	: 2x Contains not less than 0.93 percent w/w to not more than 1.03 percent w/w of Tellurium.
<b>Assay</b>	: 5 g complies with the assay method given under Tellurium.
<b>Potency</b>	: 3x Contains not less than 0.093 percent w/w to not more than 0.103 percent w/w of Tellurium.
<b>Assay</b>	: Start with 50 g of 3x drug, char in Silica crucible to remove sugar of milk and proceed with residue as given in the method under Tellurium.

## TEREBINTHINAE

<b>OLEUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 84.0 to 88.0 percent v/v
<b>pH</b>	: Between 5.00 to 6.00
<b>Wt. per ml</b>	: From 0.800 to 0.830 g
<b>Total solids</b>	: Not less than 0.25 percent w/v
<b>Identification</b>	: Carryout TLC of Mother Tincture on silica gel 'G' plate using <i>chloroform</i> as mobile phase. With <i>antimony trichloride reagent</i> single spot appears at $R_f$ 0.72.

**THYMOLUM**

- Potency** : 1x  
 Contains not less than 9.50 percent w/w to not more than 10.50 percent w/w of the  $C_{10}H_{14}O$ .
- Assay** : Complies with the assay method given under Thymolum.
- Potency** : 2x  
 Contains not less than 0.95 percent w/w to not more than 1.05 percent w/w of the  $C_{10}H_{14}O$ .
- Assay** : 10 g complies with the assay method given under Thymolum.

**TINOSPORA  
 CORDIFOLIA**

- : Mother Tincture
- Alcohol content** : 45.0 to 49.0 percent v/v
- pH** : Between 5.40 to 6.40
- Wt. per ml** : From 0.920 to 0.960 g
- Total solids** : Not less than 0.75 percent w/v
- $\lambda$  max** : 320 nm
- Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous part with 3×20 ml *chloroform*. Concentrate the chloroform extract to 2 ml and carryout TLC over silica gel 'G' plate using *chloroform : methanol* (9:1 v/v) as mobile phase and *antimony trichloride reagent* for spray. Four spots appear at  $R_f$  0.24 (yellow), 0.52 (Brown), 0.60 (brown), and 0.80 (yellow).

<b>VELERIANA OFFICINALIS</b>	: Mother Tincture
<b>Alcohol content</b>	: 48.0 to 52.0 percent v/v
<b>pH</b>	: Between 5.50 to 6.50
<b>Wt. per ml</b>	: From 0.880 to 0.930 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 280 nm
<b>Identification</b>	: Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract it with 3×20 ml <i>chloroform</i> , concentrate the chloroform extract to 1 ml and carryout TLC with <i>cinchonine</i> using <i>chloroform methanol</i> (9:1 v/v) as mobile phase and spray with <i>antimony trichloride reagent</i> . Two violet spots appear at $R_f$ 0.68 and 0.85 with reference to cinchonine as standard ( $R_f$ 1.0).
<b>VERATRUM ALBUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.850 to 0.895 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 270 nm
<b>Identification</b>	: (1) Take 1 ml of Mother Tincture. Make it acidic with <i>dilute hydrochloric acid</i> and add a few drops of <i>Mayer's reagent</i> ; a yellowish coloured precipitate is produced.  (2) Take 1 ml of Mother Tincture, make it acidic with <i>dilute hydrochloric acid</i> and a few drops of <i>Dragendorff's reagent</i> , an orange coloured precipitate is produced.  (3) Evaporate 20 ml Mother Tincture on a water bath to remove alcohol, make alkaline to aqueous layer, extract it with 3×20 ml <i>chloroform</i> , concentrate chloroform extract to 1 ml and carryout Co-TLC with <i>veratrine</i> using <i>chloroform : methanol</i> (9:1 v/v) as mobile phase and spray with <i>Dragendorff's reagent</i> ; spots comparable to veratrine appears.

<b>VIBURNUM OPULUS</b>	: Mother Tincture
<b>Alcohol content</b>	: 57.0 to 61.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.20
<b>Wt. per ml</b>	: From 0.890 to 0.920 g
<b>Total solids</b>	: Not less than 0.75 percent w/v
<b><math>\lambda</math> max</b>	: 270 and 320 nm
<b>Identification</b>	: (1) To 2 ml of Mother Tincture add a drop of 1N <i>hydrochloric acid</i> : orange precipitate is produced.  (2) To 2 ml Mother Tincture add a drop of <i>alcoholic ferric chloride</i> solution; green colour is produced.

<b>VISCUM ALBUM</b>	: Mother Tincture
<b>Alcohol content</b>	: 75.0 to 79.0 percent v/v
<b>pH</b>	: Between 5.60 to 6.60
<b>Wt. per ml</b>	: From 0.870 to 0.900 g
<b>Total solids</b>	: Not less than 0.70 percent w/v
<b><math>\lambda</math> max</b>	: 278 nm
<b>Identification</b>	: (1) To 2 ml of Mother Tincture, add a drop of 1N <i>hydrochloric acid</i> ; dirty yellow precipitate is produced.  (2) To 2 ml of Mother Tincture add a few drop of <i>alcoholic ferric chloride</i> solution; blackish green precipitate is produced.  (3) To 2 ml of Mother Tincture add a drop of <i>potassium permanganate</i> solution; brown coloured precipitate is produced.

**ZINGIBER  
OFFICINALIS**

: Mother Tincture

**Alcohol content**

: 89.0 to 93.0 percent u/v

**pH**

: Between 5.80 to 6.80

**Wt. per ml**

: From 0.800 to 0.830 g

**Total solids**

: Not less than 0.50 percent w/v

**$\lambda$  max**

: 272 nm

**Identification**

: Evaporate 20 ml Mother Tincture on a water bath to remove *alcohol*. Extract the remaining aqueous part with 3×20 ml *chloroform*. Concentrate the chloroform layer to 2 ml and carryout TLC on silica gel ‘G’ plate using *chloroform:methanol* (9:1 v/v) as mobile phase and *antimony trichloride* as spray reagent. Four spots appear at  $R_f$  0.32 (violet), 0.65 (violet), 0.72 (brown) and 0.84 (brown).

**HOMOEOPATHIC PHARMACOPOEIA  
OF  
INDIA**

**(H.P.I.)**

**VOLUME – IX**

**2006**



सत्यमेव जयते

**GOVERNMENT OF INDIA  
MINISTRY OF HEALTH AND FAMILY WELFARE  
DEPARTMENT OF AYURVEDA, YOGA & NATUROPATHY,  
UNANI, SIDDHA AND HOMOEOPATHY  
NEW DELHI**



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## FOREWORD

The Present Homoeopathic Pharmacopoeia Committee was constituted by the Government of India, Ministry of Health and Family Welfare vide letter No. Z-28015/11/2000-HPC dated 20th Jan., 2004.

The material in the Ninth Volume of Homoeopathic Pharmacopoeia of India consists of:-

1. Preface
2. Introduction
3. Monographs
4. Appendix

The Ninth Volume of Homoeopathic Pharmacopoeia of India is presented herewith to the Government of India.

(Sd)

**(DR. ALOK KUMAR)**

Member Secretary

(Homoeopathic Pharmacopoeia Committee)

New Delhi

Dated:

(Sd)

**(DR. S.P. SINGH)**

Chairman

(Homoeopathic Pharmacopoeia Committee)

## PREFACE

The Government of India constituted Homoeopathic Pharmacopoeia Committee in 1962 for the purpose of preparing the Homoeopathic Pharmacopoeia of India with the following objectives:

- (i) to prepare a Pharmacopoeia of Homoeopathic drugs whose therapeutic usefulness has been proved on the lines of American, German and British Homoeopathic Pharmacopoeiae,
- (ii) to lay down principles and standards for the preparation of Homoeopathic drugs,
- (iii) to lay down test of identity, quality, purity and
- (iv) such other matters as are incidental and necessary for the preparation of Homoeopathic Pharmacopoeia.

The Committee approved 180 monographs for Volume I of Homoeopathic Pharmacopoeia of India (1971).

The Homoeopathic Pharmacopoeia Committee was reconstituted by the Government of India, Ministry of Health & Family Welfare in 1971 which approved 100 monographs for Volume II (1974), 105 monographs for Volume III (1978), 65 monographs for Volume IV (1983) of Homoeopathic Pharmacopoeia of India. The term of Committee was extended vide letter No. X. 19018/21/76-Homoeo, dated the 30<sup>th</sup> November, 1976.

The objectives of Committee were further enlarged to prepare standards for the preparation of Nosodes for inclusion in the Homoeopathic Pharmacopoeia of India. In addition, it undertook the preparation of Homoeopathic Pharmaceutical Codex in order to give detailed information on drugs and other Pharmaceutical substances and materials that are not included in H.P.I. as well as to supplement the information on drugs already included but could not be listed in the H.P.I.

The Homoeopathic Pharmacopoeia Committee was again reconstituted by the Government of India, Ministry of Health & Family Welfare vide letter No. X. 19018/26/79-Homoeo, dated 12<sup>th</sup> November, 1980 which approved 52 monographs of Fourth Volume (1983), 114 monographs of Fifth Volume and 62 monographs of Sixth Volume of the Homoeopathic Pharmacopoeia of India.

The Homoeopathic Pharmacopoeia Committee was further reconstituted by the Government of India, Ministry of Health & Family Welfare vide letter No. X. 19018/68/88-Homoeo, dated 24<sup>th</sup> February, 1988. The members of the Committee were as follows:

1. Deputy Adviser (Homoeo) subsequently upgraded as Adviser (Homoeopathy) (Dr. V.T. Augustine), Ministry of Health & F. W. *Chairman*
2. Drugs Controller (India) (Dr. P. K. Gupta & Dr. P. Das Gupta), Director General of Health Services, New Delhi *Member*

- |  |                         |
|--|-------------------------|
| <p>3. Director, Central Drugs Laboratory, Kyd Street, Kolkata.<br/> (Dr. S. K. Roy) 1988-92<br/> (Dr. M. K. Mazumdar) 1993-96<br/> (Sh. B. Mandal) From 1997</p>   | <i>Member</i>           |
| <p>4. Director (Dr. D. P. Rastogi), Central Council for Research in Homoeopathy, New Delhi</p>   | <i>Member</i>           |
| <p>5. Prof. &amp; Head of the Deptt. of Microbiology (Dr. Srinivas), All India Institute of Medical Sciences, New Delhi</p>  | <i>Member</i>           |
| <p>6. Director (Sh. P. N. Varma), Homoeopathic Pharmacopoeia Laboratory, C.G.O. Complex, Kamla Nehru Nagar, Ghaziabad-201002.</p>  | <i>Member</i>           |
| <p>7. Prof. (Dr.) R. N. Khanna, M.Sc., Ph.D., Deptt. of Chemistry, University of Delhi, Delhi</p>  | <i>Member</i>           |
| <p>8. Sh. G. S. Bhar, B. A. Homoeopathic Manufacturing Pharmacist, Hyderabad</p>   | <i>Member</i>           |
| <p>9. Dr. N. Krishna Rao, BA (Hons.) Homoeopathic Manufacturing Pharmacist, Hyderabad</p>  | <i>Member</i>           |
| <p>10. Dr. A. U. Ramakrishnan, M.B.B.S., M.F. Hom. (London) Homoeopathic Physician, Madras</p>   | <i>Member</i>           |
| <p>11. Prof. Dr. K. P. Muzumdar, B.Sc., D.M.S., M.B.S. M.F. (Malaysia), Homoeopathic Physician, Bombay</p>   | <i>Member</i>           |
| <p>12. Dr. Dilip Kumar Saha, DMS (Kolkata) Homoeopathic Physician, Kolkata</p>   | <i>Member</i>           |
| <p>13. Dr. R. K. Bhandari, Homoeopathic Manufacturer, New Delhi</p>  | <i>Member</i>           |
| <p>14. Dr. P. N. Mehra, D.Sc., F.N.A. F.N.A.Sc., Prof. Emer, Punjab University, Chandigarh (Till 1992)<br/> Prof. (Dr.) S. C. Gupta, M.Sc., Ph.D., Deptt. of Botany University of Delhi, Delhi (from 1993-1996)</p>                          | <i>Member</i>           |
| <p>15. Assistant Adviser (Homoeo), Ministry of Health &amp; F. W., New Delhi (Dr. B. P. Misra) from Feb., 1988 to March, 1992<br/> (Dr. J. K. Asthana) from April, 1992 to Dec., 1993<br/> (Dr. Eswara Das) from Jan., 1994 to May, 1997</p> | <i>Member-Secretary</i> |

This Committee finalised 42 monographs of Volume VI of H.P.I. and 100 monographs for Volume VII of the Homoeopathic Pharmacopoeia of India.

After the creation of new independent Department of I.S.M. & Homoeopathy, the H.P.C. was reconstituted in 1997 by the Government of India, Deptt. of ISM & H, Ministry of Health & Family Welfare vide letter No. U. 13012/2/96-HPC, dated 26<sup>th</sup> May, 1997.

The members of the Committee are as follows:

- |   |                         |
|---|-------------------------|
| 1. Prof. Dr. K. P. Muzumdar, B.Sc., D.M.S. M.B.S. M.F. (Malaysia)   | <i>Chairman</i>         |
| 2. Drugs Controller General of India, (Dr. P. Das Gupta)  | <i>Member</i>           |
| 3. Director, (Sh. B. Mandal), Central Drugs Laboratory, Kolkata   | <i>Member</i>           |
| 4. Director, (Shri Vikramaditya), Homoeopathic Pharmacopoeia Laboratory, Ghaziabad  | <i>Member</i>           |
| 5. Director, Central Council for Research in Homoeopathy, New Delhi (Dr. D. P. Rastogi upto July, 99) (Dr. R. N. Shaw August, 99) | <i>Member</i>           |
| 6. Prof. (Dr.) R. N. Khanna, M.Sc., Ph.D. Deptt. of Chemistry, University of Delhi, Delhi   | <i>Member</i>           |
| 7. Prof. (Dr.) A. K. Bhatnagar, M.Sc., Ph.D. Deptt. of Botany, University of Delhi, Delhi   | <i>Member</i>           |
| 8. Sh. P. N. Bhatt, M.Sc. Production Manager, M/s S.B.L. Ltd., Sahibabad, U.P.  | <i>Member</i>           |
| 9. Sh. Sharad Vaknalli, B.E. (Hons.), MIE (Ind), M.R.S.H. (Eng.), Director, M/s. Beck & Koll Laboratories Ltd., Mumbai            | <i>Member</i>           |
| 10. Deputy Adviser (Homoeopathy) (Dr. S. P. Singh), Deptt. of ISM & Homoeopathy, Ministry of Health and Family Welfare            | <i>Member-Secretary</i> |

This Committee finalised 101 monographs for inclusion in the Homoeopathic Pharmacopoeia of India, Vol. VIII. The Homoeopathic Pharmacopoeia Committee was assisted by the following technical and administrative staff:-

- |                     |                                |
|---------------------|--------------------------------|
| 1. Dr. G. P. Garg   | <i>Chief Chemist (HPC)</i>     |
| 2. Dr. Alok Kumar   | <i>Asstt. Adviser (Homoeo)</i> |
| 3. Sh. S. K. Kapoor | <i>Asstt. Secretary (HPC)</i>  |

The Government of India, Department of AYUSH, Ministry of Health & Family Welfare re-constituted the Homoeopathic Pharmacopoeia Committee vide order No. Z-28015/11/2000-HPC dated 20<sup>th</sup> Jan., 2004. The composition of the Committee is as follows:-

- |  |          |
|--|----------|
| 1. Dr. S.P. Singh, B.Sc., MD (Hom.)<br>Adviser (Homoeopathy)<br>Department of AYUSH<br>Ministry of Health and FW | Chairman |
|--|----------|

OFFICIAL MEMBERS

- |   |        |
|---|--------|
| 2. Drug Controller General of India<br>or his nominee                                 | Member |
| 3. Director, Central Drugs<br>Laboratory, Kolkata                                     | Member |
| 4. Dr. D.R. Lohar, Director, Homoeopathic<br>Pharmacopoeia Laboratory,<br>Ghaziabad.  | Member |
| 5. Director, Central Council<br>for Research in Homoeopathy,<br>Janakpuri, New Delhi. | Member |
| 6. Director, National Institute of<br>Homoeopathy, Kolkata                            | Member |

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- |  |        |
|--|--------|
| 7. Principal, Nehru Homeopathic<br>Medical College, New Delhi<br>Dr. V.K. Khanna, M.D. (Hom.)                            | Member |
| 8. Head, Deptt. of Chemistry<br>Punjab University  | Member |
| 9. Head, Deptt. of Botany,<br>Lucknow University<br>Dr. S.C. Srivastava, M.Sc., Ph.D.                                    | Member |
| 10. M/s Willmar Schwabe India<br>Noida, U.P.<br>Dr. Mukesh Babu, M.Sc., Ph.D.  | Member |
| 11. Dr. Kalyan Banerjee, DHMS<br>Senior Physician & Research<br>Director, Mihijam Institute of<br>Homoeopathy, New Delhi | Member |

12. Deputy Adviser (Homoeopathy)  
Deptt. of AYUSH  
Ministry of Health and FW  
Dr. Alok Kumar, B.Sc., M.D. (Hom.)  
Dr. S.N. Sahu, M.D. (Hom.)

Member-Secretary  
  
(upto March, 2006)  
(since April, 2006)

The Committee commends the work done by Dr. D.R. Lohar, Director, Late Vikramaditya, Former Director In-charge, Dr. (Mrs.) Manisha Sarkar, Dy. Director, Dr. (Mrs.) Indu Vaid, Research Officer (Homoeopathy), Dr. (Mrs.) Rajat Rashmi, Research Officer (Plant Introduction) and Sh. K.N. Sharma, Scientific Assistant (Pharmacognocny) of Homoeopathic Pharmacopoeial Laboratory, Ghaziabad and staff of Central Council for Research in Homoeopathy for assistance in general and for providing technical data in particular for the monographs.

The Government of India, Ministry of Health and Family Welfare takes this opportunity to record its appreciation of work done by the Committee and the staff engaged in this work.

## INTRODUCTION

Eight Volumes of Homoeopathic Pharmacopoeia of India (H.P.I.) have already been published:

<b>Volume</b>		<b>No. of Monographs</b>
Volume I	(1971)	180
Volume II	(1974)	100
Volume III	(1978)	105
Volume IV	(1983)	107
Volume V	(1987)	114
Volume VI	(1990)	104
Volume VII	(1999)	105
Volume VIII	(2000)	101

The present Volume IX comprises 100 monographs. The general notices and general instructions published in Volume I to Volume VIII of HPI with amendments made from time to time are applicable to the contents of all the Volumes published so far.



## LIST OF MONOGRAPHS

S. No.	List of Monographs	Abbreviation
1.	Abelmoschus	Abel.
2.	Abroma Augusta	Abrom. a.
3.	Abrotanum	Abrot.
4.	Acacia Arabica	Aca. arab.
5.	Acetaldehyde	Acetald.
6.	Acidum Chrysophanicum	Acid. chry.
7.	Acidum Stearicum	Ac. stear.
8.	Aesculus Hippocastanum Cortice	Aes. h. cor.
9.	Agaricus Campanulatus	Agar. cam.
10.	Agaricus Citrinus	Agar. cit.
11.	Agaricus Muscarius	Agar. m.
12.	Agaricus Pantherinus	Agar. pan.
13.	Agaricus Phalloides	Agar. ph.
14.	Agaricus Procerus	Agar. pro.
15.	Agnus Castus	Agn. cast.
16.	Agrostemma Githago	Agr. git.
17.	Alcohol Fortis-Strong Alcohol (revised)	Alc.
18.	Ambra Grisea (revised)	Ambra. gris.
19.	Ammi Majus	Ammi. maj.
20.	Ammi Visnaga	Ammi. vis.
21.	Ammonium Citricum	Amm. cit.
22.	Ammonium Valerianicum	Amm. val.
23.	Angelica Archangelica	Angel. ar.
24.	Aralia Racemosa	Aral. rec.
25.	Areca Catechu	Areca c.
26.	Argemone Mexicana	Arge. mex.
27.	Artemisia Vulgaris	Art. vul.
28.	Arundo Donax	Arun. don.
29.	Asclepias Curassavica	Ascl. cur.
30.	Asimina Triloba	Asim. tri.
31.	Averrhoa Carambola	Aver. car.
32.	Bacopa Monnieri	Baco. mon.
33.	Baptisia Tinctoria	Bapt. tin.
34.	Bellis Perennis	Bel. per.
35.	Beta Vulgaris	Beta vul.
36.	Betainum Muriaticum	Betain. m.
37.	Boletus Laricis	Bole. lar.

<b>S. No.</b>	<b>List of Monographs</b>	<b>Abbreviation</b>
38.	Boletus Satanus	Bole. sat.
39.	Bryonia Alba	Bry. alba
40.	Bufo Sahytiensis	Bufo. sah.
41.	Canna	Canna
42.	Carduus Marianus	Card. mar.
43.	Catharanthus Roseus	Cath. ros.
44.	Cenchrus Contortrix	Cen. con.
45.	Cervus Brasilicus	Cerv. bra.
46.	Cichorium Intybus	Cich. int.
47.	Cicuta Maculate	Cicu. mac.
48.	Cina	Cina
49.	Colchicinum	Colchic.
50.	Colchicum Autumnal	Colch. at.
51.	Cresol	Cresol
52.	Cuphea Viscosissima	Cuph. vis.
53.	Cupressus Australis	Cupre. au.
54.	Cuprum Oxydatum Nigrum	Cup. ox. ni.
55.	Cydonia Vulgaris	Cydo. vul.
56.	Cynera Scolymus	Cyn. sco.
57.	Cytisus Laburnum	Cyti. lab.
58.	Delphinium	Delphin.
59.	Draba Verna	Drab. ver.
60.	Drosera Rotundifolia (revised)	Dros. rot.
61.	Echinacea Purpurea	Echi. pur.
62.	Eclipta Alba	Ecl. alba
63.	Elaeis Guinensis	Ela. guin.
64.	Embelia Ribes	Embe. rib.
65.	Fabiana Imbricata	Fab. imb.
66.	Fucus Vesiculosus (revised)	Fucus v.
67.	Galphimia Glauca	Galph. gl.
68.	Grindelia Robusta (revised)	Grind. ro.
69.	Hamamelis Virginica (revised)	Ham. virg.
70.	Hepatica Triloba	Hep. tri.
71.	Hydrastis Canadensis	Hydr. can.
72.	Hygrophilla Spinosa	Hygro. sp.
73.	Iris Germanica	Iris ger.
74.	Jequirity	Jequir.
75.	Juncus Effusus (revised)	Junc. e.
76.	Lespedeza Capitata	Les. cap.

<b>S. No.</b>	<b>List of Monographs</b>	<b>Abbreviation</b>
77.	Lespedeza Sieboldii	Les. sieb.
78.	Lilium Tigrinum	Lili. tig.
79.	Linum Usitatissimum	Linum. us.
80.	Luffa Acutangula	Luffa. ac.
81.	Mentha Arvensis	Ment. arv.
82.	Mentha Viridis	Ment. vir.
83.	Mimosa Pudica	Mimo. pud.
84.	Moringa Olefera	Mor. ole.
85.	Musa Sapientum	Mus. sap.
86.	Ocimum Basillicum	Ocim. bas.
87.	Ornithogalum Umbellatum	Orni. umb.
88.	Papaver Rhoëas	Pap. rhoe.
89.	Persea Americana	Per. amer.
90.	Rhus Toxicodendron (revised)	Rhus tox.
91.	Saccharum Lactis (revised)	Sac. lac.
92.	Saccharum Officinale (revised)	Sac. off.
93.	Santolina Chamaecyparissus	Sant. cha.
94.	Siegesbeckia Orientalis	Sieg. ori.
95.	Solanum Pseudocapsicum	Sol. psu.
96.	Stellaria Media	Stel. med.
97.	Talpa Europea	Talp. eur.
98.	Typha Latifolia	Typh. lat.
99.	Ulex Europaeus	Ulex. eur.
100.	Xanthium Spinosum	Xanth. sp.

**ABELMOSCHUS**

(Abel.)

- Botanical name** : *Hibiscus abelmoschus* Linn. **Family:** Malvaceae
- Synonym** : *Abelmoschus moschatus* Moench.
- Common names** : *Hindi:* Mushkdana; *English:* Musk mallow.
- Description** : An erect hispid annual or biennial shrub, up to 2 m in height, with leaves ovate, cordate or usually palmately 5 to 7 lobed, lobes spreading, oblong-lanceolate and coarsely toothed, hairy on both surfaces; petiole usually longer than the blade with long deflexed hairs; stipules small, subulate; flowers 1 to 10 cm across, bright yellow with purple or crimson center, solitary, often appearing to be terminal; bracteoles 6 to 12, linear, up to 19 mm long; calyx 15-toothed, completely connate; corolla 5; stamens indefinite, monadelphous; capsule 2.5 to 7.5 cm long, oblong, oblong-lanceolate, setose. Fruit a capsule, up to 8 cm.
- Distribution** : Cultivated in hotter parts of India. Grows in Egypt, West Indies, Mexico and sub tropical countries.
- Part used** : Seed.
- Macroscopical** : 3.4 to 3.7 mm long, 2.4 to 2.7 mm in diameter with hilum as a dirty grey scar on one side of the seed; dorsal side roughly semicircular; other sides having prominent depressions; narrow, concentric, warted ridges and furrows running more or less parallel to general contour of the seed.
- Microscopical** : Seed in transection consists of a single-layered epidermis of tangentially elongated thick-walled cells, covered with numerous multicellular, angular papillae; cells of papillae being thick-walled, containing yellowish brown granular masses; followed by a layer of palisade cells which usually connate at the base, containing granular masses between them; a layer of large radially elongated cells; a zone of 4 to 6 layers of thick-walled tangentially elongated cells, followed by 9 to 12 layers of large, oval, isodiametric, elongated, loose, thin-walled colourless parenchyma cells; a single layer of tangentially elongated thin-walled cells of inner epidermis. Embryo curved, with two cotyledons and occupies almost entire seed; radical inferior and foliaceous; cotyledons show conduplicate ptyxis, a distinct palisade layer discernible in each cotyledon; vascular supply mostly procambial, with only a few xylem elements, a thin zone of endosperm surrounding embryo, rest of the seed filled with perisperm.

**History and authority** : Proved by Luis G.; *Homoeopathic Pharmacopoeia of United States*, 1989, 0011.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Abelmoschus in moderately *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.  
(b) Potencies: 2x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**ABROMA AUGUSTA**

(Abrom. a.)

- Botanical name** : *Abroma augusta* (Linn.) L.f. **Family:** Sterculiaceae
- Synonym** : *Theobroma augusta* Linn.
- Common names** : *Hindi:* Olat kambal; *English:* Devil's cotton; *French:* Abrome; *German:* Abrome.
- Description** : Large erect shrub or small tree with downing velvety horizontal branches. Leaves 8 to 15 cm long, distichous, ovate to lanceolate, sub-cordate at base, acuminate, denticulate, glabrous above, tomentose below, stipule linear, deciduous, as long as petiole, petiole about 2.5 cm long. Flower axillary, purple, 5 cm across; calyx 5, up to 2.5 cm, lobes lanceolate, nearly free to the base; corolla 5, concave, clawed at base, prolonged into a large spatulate lamina; purplish, slightly exceeding the calyx, imbricate in bud, deciduous; staminal cup with fertile and as many sterile divisions, fertile filaments opposite the corolla, anthers 2-lobed; ovary sessile, 5-lobed, styles 5. Fruit a capsule, 4 to 5 cm in diameter, thrice as long as the persistent calyx, glabrous or nearly so when ripped, obconical, 5 winged, truncate at apex. Seed oblong, black.
- Distribution** : India, wild or cultivated throughout hot and humid parts from Punjab and Uttar Pradesh, Eastward to Arunachal Pradesh, Assam, Meghalaya and Tripura, upto 1200 m and Southwards in peninsular India.
- Part used** : Leaf.
- Microscopical** : Transection of lamina shows: single layer of epidermis with cuticle; stellate hairs, tufted hairs with 3 to 5 arms and glandular hairs with 1 to 2 celled stalk and multicellular (4 to 8 celled) globular heads; mesophyll differentiated into single layer of palisade beneath upper epidermis and loose spongy parenchyma; occasional stacks of *calcium oxalate* crystals present; stomata anisocytic. Midrib much pronounced towards lower surface and slightly pronounced towards upper surface; pronounced portion contains thick 4 to 5 layers of collenchyma; a big mucilaginous cavity surrounded by epithelial cells present in the middle, below which an arc shaped vascular bundle present which bears xylem towards lower surface; mucilaginous cavities also present in the pronounced portion of lower surface; stacks of *calcium oxalate* crystals present. Hairs like lamina.

Petiole in transection shows single layer of epidermis with hairs like lamina; cortex differentiated into 10 to 15 layers of collenchyma, outer cortex and 8 to 12 layers of parenchymatous inner cortex; mucilaginous canals surrounded by epithelial cells present in a circle; stacks of *calcium oxalate* crystals present; endodermis indistinct; pericycle represented by isolated patches of fibres, vascular bundles 10 to 15, present in a ring; big mucilaginous cavities, almost forming a ring in the outer region of wide parenchymatous pith.

- Identification** : 1. To 1 ml Mother Tincture, add a drop of *dilute hydrochloric acid*, a pink colour develops.
2. Carry out TLC of Mother Tincture, using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light three spots appear at  $R_f$  0.08, 0.68 and 0.85.

**History and authority** : Proved by Ray; Ghose, S.C., *Drugs of Hindoosthan*, 1980, **5**, 23.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Abroma Augusta, moist magma containing solids 100 g and plant moisture 400 ml | 500 g  |
| Purified Water  | 150 ml |
| Strong Alcohol  | 478 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x with *Dilute Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**ABROTANUM**

(Abrot.)

- Botanical name** : *Artemisia abrotanum* Linn.      **Family**: Asteraceae (Compositae)
- Synonym** : *Artemisia procera* Willd.
- Common names** : *English*: Southernwood, Old man, Lad's love; *French*: Aurone des jardins, Garde-robe; *German*: Eberraute, Eberries.
- Description** : A perennial more or less shrubby plant, up to 2 m height, pleasant-scented, much-branched, with striate, glabrous or puberulent twigs. Leaves alternate, petiolate, pinnatifid, usually 3 to 6 cm long, occasionally smaller with slender ascending lobes, green and glabrous or nearly so above, thinly tomentose beneath, 2 to 3 pinnatifid with elongate or filiform, 0.4 to 1.5 mm wide, ascending gland dotted segments. Inflorescence panicle; heads (capitula) discoid, small, ovoid to campanulate; involucre about 2 to 3.5 mm long, subglabrous or thinly tomentose; receptacle glabrous; flowers yellow, all fertile; outer flowers pistilate. Fruit an achene, glabrous, 4 to 5 angled, broadest at the truncate summit. Flowering in August and September.
- Distribution** : Southern Europe and temperate Asia.
- Part used** : Leaf and young shoot.
- Microscopical** : Stem transection round in outline with ridges and grooves. Epidermis single layered, cortex parenchymatous, 8 to 9 layered; pericycle represented by isolated fibre patches, each patch being on the top of each vascular bundle and each bundle being below each ridge; vascular bundles present in a ring, each bundle consists of distinct cambium, phloem and tracheary elements. Pith hollow, shows a stellate appearance.
- Identification** : 1. To 1 ml of the Mother Tincture, add 1 ml of the decolourised *Fuchsin* and heat, a pink to red colour is produced.
2. Carry out TLC of Mother Tincture on *silica gel G* plates, using *n-butanol : acetic acid : water* (4:1:1 v/v) as solvent system and when examined under UV light five spots observed at  $R_f$  0.40 (blue green), 0.80 (greenish yellow), 0.85 (blue fluorescence), 0.90 (blue) and 0.95 (red).



**History and authority** : Proved by Gatchall; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **1**, 558. Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 3.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Abrotanum in moderately *coarse powder* 100 g  
                   Purified Water 233 ml  
                   Strong Alcohol 794 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x with *Dilute Alcohol*; 3x and higher with *Dispensing Alcohol*.



- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI. 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.



**ACIDUM CHRYSOPHANICUM**

(Acid. chry.)

$C_{15}H_{10}O_4$

**Mol. wt.:** 253.93

**Common name** : *English:* Chrysophanic acid.

**Description** : An organic acid obtained from Rhubarb and some lichens, occurring as golden yellow needles in pure form or as brownish-yellow powder in the commerce. Volatilises at high temperature. It is slightly soluble in hot water. Easily dissolves in *alcohol, ether, benzene* and *glacial acetic acid* forming yellow colour. It is tasteless and odourless.

**Melting point** : 196°.

**Identification** : (1) It is dissolved in cold *strong sulphuric acid* without decomposition and giving a red colour but gets precipitated on addition of *water* in yellow flakes.

(2) Dissolves in alkaline solution; a beautiful red colour is produced. Excess of acids precipitates it and the liquid becomes decolourised.

(3)  $\lambda$  Max: 226, 256, 278, 288, 436 nm.

**History and authority** : Proved by Ashburton Thompson; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **10**, 464; Clarke, J. H., *A Dict. of Pure Mat. Med.*, 1900, **1**, 510.

**Preparation** : (a) Trituration 2x Drug strength 1/100

Acidum Chrysophanicum 10 g

Saccharum Lactis 990 g

to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI. 6x may be converted to liquid, HPI. 9x and higher with *Dispensing Alcohol*.

**ACIDUM STEARICUM**

(Ac. stear.)

$C_{18}H_{36}O_2$

**Mol. wt.:** 234.47

- Description** : Occurs as white shining flaky crystals or as a hard somewhat glossy solid. Odour and taste, somewhat tallow like, soluble in *alcohol*; insoluble in *water*. Stearic acid in pure form is obtained from an alcoholic solution of commercial stearic acid by fractional crystallisation, followed by conversion to magnesium stearate and subsequent acidification. It may contain a suitable antioxidant, such as 0.005% of butylated hydroxytoluene.
- Acid value** : 200 to 210 (HPI).
- Iodine value** : Not more than 4 (HPI).
- Congeaing temperature** : Congeals at not lower than 54°, (HPI).
- Sulphated ash** : Not more than 0.1% (HPI).
- Mineral acid** : Melt 5.0 g, shake with 5 ml of hot *carbon dioxide-free water* for 2 minutes, cool and filter; the filtrate is not acidic to *methyl-orange* solution.
- Neutral Fat and Paraffin** : Boil 1.0 g with a solution of 1 g of *sodium carbonate* in 30 ml of *water*, the solution is not more than opalescent.
- History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis*, 1993, 86.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/100  
                   Acidum Stearicum 10 g  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: up to 5x with *Dilute Alcohol*. 6x and higher with *Dispensing Alcohol*.
- Storage** : Preserve in well closed container.

**AESCULUS HIPPOCASTANUM CORTICE**

(Aes. h. cor.)

- Botanical name** : *Aesculus hippocastanum* Linn. **Family:** Hippocastanaceae
- Common name** : *English:* Horse chestnut bark.
- Description** : A large tree, up to 25 m tall. Leaves palmately compound, usually having 7 leaflets, with the upper central leaflet largest, the lower 2 smallest, sessile, cuneate-obovate, acuminate, obtusely serrate, nearly glabrous, pubescent beneath when young. Inflorescence a panicle, many flowered, very showy, 20 to 30 cm long. Flowers white tinged with red; calyx 5, united for their half-length; corolla 5 (2+2+1), white, marked with red or yellow at the base, with 2 upper and 2 lateral corolla rotund but with cordate base on a slender claw, the fifth corolla containing a broad and 3-nerved stalk. Fruit a leathery prickly globose capsule, about 5 cm in diameter, dehiscing by 3 valves. Seeds brownish, smooth, shiny, subglobose or semiglobose with flattened sides.
- Distribution** : North America. Also grown in northern India.
- Part used** : Bark.
- Macroscopical** : Immature bark externally appears to be greyish, copper-coloured, smooth, slightly shiny, partly with round lenticels. Old bark externally appears blackish, rugose to crack, sometime covered with lichens; internally, the inner surface appears to be smooth, finely longitudinally striated and yellowish brown. Fractures in the outer layers appears granular, while in the inner layers short and fibrous. Odour somewhat musty; taste slightly bitter and astringent.
- Microscopical** : Transection shows a uniform rhytidome; phellem of 10 to 15 layers of tabular cells; phelloderm unstratified; cortex made of parenchymatous cells containing branched sclereids and numerous idioblasts containing calcium oxalate crystals. Phloem containing tangential bands of bast fibres, interrupted by longitudinal rays, also contains calcium oxalate crystals; a discontinuous ring of thick-walled branched sclereids presents at the boundary of secondary phloem.

**Identification** : Heat 1 g of powdered drug with 10 ml of 70% ethanol for 15 minutes, cool and filter.

- (i) Carry out TLC on silica gel 'G' plate using mobile phase of 98% *acetic acid* : *water* : *n-butanol* (10 : 40 : 50 v/v) with *aescin* as reference standard. Spray the plate with *anisaldehyde reagent* and heat the plate for 5 to 10 minutes at 100 to 105°, a violet spot corresponding to *aescin* appears. Under UV light (254 nm) a clear quenching zone appears.
- (ii) A similar plate is developed in *chloroform* : *methanol* : *water* (64:50:10 v/v) as mobile phase and sprayed with *antimony trichloride* reagent followed by heating at 105° for 5 to 10 minutes. *Aescin* along with a corresponding spot of the drug appear at  $R_f$  0.5 (violet in day light) and as an intense greenish grey fluorescent spots under UV light (366nm).

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 127.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Aesculus Hippocastanum Cortice*  
in *coarse powder* 100 g  
Purified Water 350 ml  
Strong Alcohol 683 ml  
to make one thousand millilitres of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**AGARICUS CAMPANULATUS**

(Agar. cam.)

- Botanical name** : *Panaeolus campanulatus* (Fr.) Quelet. **Family:** Agaricaceae
- Synonyms** : *Agaricus campanulatus* Fries; *Chalymmota campanulata* Karsten; *Coprinarius campanulatus* Quelet.
- Description** : Basidiocarp (fruit body) has a central stipe and broad pileus. *Pileus* up to 5 cm broad, obtusely conical to sub ovoid, when young with margins somewhat incurved and appendiculate due to adherent scale-like fragments of the broken veil, with age becoming obtusely conic to campanulate. Surface of pileus unpolished at first, soon becoming glabrous and moist or somewhat lubricious to sub-viscid, at times becoming slightly rugulose to pitted with age; usually areolate in dry weather; colour appears typically olive grey to dark smoky-brown, but with age discolouring to near cinnamon buff. Flesh thick under the umbo, thinner toward the margin, fragile, concolourous with the surface; lamellae subdistant, 20 to 30, join the stipe, in 1 to 2 tiers of lamellulae, moderately broad (up to 1 cm) and subventricose, ascending, adnate, pallid to greyish when young, becoming more or less black-spotted by the deposit of maturing spores with age; edges white fimbriate. Stipe 6 to 14 cm long, 1.5 to 3.5 mm thick, equal, tubular, fibrous, brownish within, surface brownish beneath a dense greyish pruinose covering, longitudinally striate near apex or over upper half, sometimes grooved. Spores dark blackish- brown, in mass. Odour and taste of flesh indistinct.
- Distribution** : Occurs mostly on dung and heavily manured ground; common in pastures in USA.
- Part used** : Whole fungus (Basidiocarp).
- Microscopical** : Spores dark blackish brown, slightly flattend, ovoid to somewhat lemon shaped in surface view, 13 to 18x18 to 9x 6 to 7 µm, smooth, with a hyaline apical pore causing the apex to appear truncate; basidia 4-spored, 24 to 28 × 11 to 13 µm; lacking pleurocystidia; cheilocystidia abundant, forming a sterile band on the gill edge, cylindric to flexuous, narrow, scarcely rentricose, 18 to 26 × 5 to 8 µm, apices obtuse. Gill trama not reviving well and no details discernible. Pileus trama (cuticle) corticated by palisade like pear-shaped to saccate or clavate hyaline cells, 10 to 24 × 15 to 28 µm; palisade cells intermingled with projected long 36 to 62 × 4 to 6 µm, flexuous, obtuse hyaline pilocystidia; clamp connections not found. Spore colour does not get readily discoloured when treated with concentrated sulphuric acid.

**History and authority** : Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 68.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Agaricus Campanulatus in *coarse powder* 100 g  
                   Purified Water 567 ml  
                   Strong Alcohol 468 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Caution** : Not to be dispensed below 3x.

**AGARICUS CITRINUS**

(Agar. cit.)

- Botanical name** : *Amanita citrina* (Schaeff) ex. Roques. **Family:** Amanitaceae
- Synonyms** : *Amanita citrina* (Schaeff.) S. F. Grey.; *Amanita mappa* (Batsch ex Lasch) Quet.
- Common names** : *English:* False Death Cap, Bulbose amanita.
- Description** : A poisonous mushroom. Pileus (cap) 4 to 10 cm wide, lemon to greenish-yellow, irregular in shape, always with brownish wart-like projections of veil. Cap never white; gills broad, free, persistently white; stipe glabrous, pale, lemon-yellow, broadened at the base to form a conspicuous semiglobular structure, appearing as if sharply cut at its upper angles; volva a little membranous, firmly attached at the bulbular base of the stipe forming a low collar; annulus also pale lemon-yellow, membranous, smooth; flesh white. Spore print white. The adulterant *Amanita phalloides* (Fr.) Link has cap (pileus) olive-green, yellow-green or brownish-green, always with traces of green colour, radially striate; but lacking in patches of veil; stipe surface below the annulus streaked with greenish scales.
- Distribution** : America and Europe.
- Part used** : Whole fungus (Basidiocarp).
- Microscopical** : Spores subglobose, smooth, transparent, amyloid, 8 to 10 × 7 to 8 µm; cystidia almost inflated, pyriform.
- History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 68.
- Preparation** : (a) Mother Tincture φ Drug strength 1/10
- |   |        |
|---|--------|
| Agaricus Citrinus in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 567 ml |
| Strong Alcohol                            | 468 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.
- Caution** : Not to be dispensed below 3x.

## Original Monograph Appeared in HPI Vol. I

## AGARICUS MUSCARIUS

(Agar. m.)

- Botanical name** : *Amanita muscaria* (Linn. ex Fr.) Hook.      **Family**: Agaricaceae
- Synonym** : *Agaricus muscaria* Linn.
- Common names** : *English*: Bug or fly agaric; *French*: Orange fausse; *German*: Fliagenspilz.
- Description** : Pileus 7 to 13 cm broad, globose at first, then dumble shaped, convex and then expanded, nearly flat with age; margin slightly striate; surface of the cap covered with white easily removable floccose scales which are fragments of the volva. Flesh white, sometimes stained yellow near cuticle; gills pure white or slightly tinged with cream-yellow (never bright yellow), very symmetrical, varying in length, the shorter ones terminating under the cap very abruptly, crowded, free but reaching the stem in the form of lines, somewhat broader in form, sometimes a slight tinge of yellow can be seen in the gills. Stem white, often yellowish with age, 10 to 20 cm long, up to 2.5 cm thick, equal or slightly tapering upwards, pithy and often hollow, becoming rough and saggy, base ovate-bulbous, covered with prominent encircling scales (remaining of volva). Rings whitish or pale creamy-white, large, membranous, fairly persistent, high up to the stem. Veil covers the gills in young ones and later seen as a collar like ring on the stem. Spores white and broadly elliptical. Young ones usually red then orange to pale yellow; old ones almost white.
- Distribution** : In dry pine and birch forests of northern Europe, Asia and America.
- Part used** : The whole young fungus.
- Microscopical** : Spores white in deposit; broadly ovate to ellipsoid, obliquely apiculate, not amyloid, with a large central oil drop; 10 to 12 × 7 to 10 µm; basidia 4-spored, 44 to 52 × 7 to 9 µm; pleurocystidia not present; cheilocystidia present, 38 to 6 × 8 to 10 µm, consisting of septate hyphae of 2 to 4 cells, the terminal cell saccate and broadest, each succeeding cell narrower; gill trama divergent; pileus trama floccose beneath a gelatinous pellicle.
- Identification** : Carryout Co-TLC with standard muscarine using *n-butanol* : *acetic acid* : *water* (4 : 1 : 1 v/v) as mobile phase. In iodine vapour, spot corresponding to standard muscarine appears.

**History and authority** : Proved by Stapf; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 69; Hering, C., *Guiding Symptoms*, 1879, **1**, 169.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Agaricus Muscarius in *coarse powder* 100 g  
                   Purified Water 567 ml  
                   Strong Alcohol 468 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of the Mother Tincture, four parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**AGARICUS PANTHERINUS**

(Agar. pan.)

- Botanical name** : *Amanita pantherina* (DC. Fr.) Krombh. **Family:** Amanitaceae
- Synonyms** : *Agaricus pantherinus* Fr.; *Amanita pantherinoides* Murrill.; *Venearius pantherinoides* Murrill.
- Common name** : *English:* Panther Cap.
- Description** : A very poisonous mushroom with the pileus (cap) 4 to 12 cm in diameter, varying in colour from usually yellowish-brown, greyish or greyish-brown to almost bronze, covered with small, pure white remnants of veil over the margins; pileus surface slimy when moist, shiny when dry with distinctly grooved tuberculate-striate margin, veil fragments often concentrically arranged, resembling panther's skin; gills creamy yellow, 1 to 2 tiers of lamellulae. Stipe 9 to 12.5 cm long, white, hollow with several rings; a white, narrow hoop-like ungrooved ring in the upper part; about 1 to 3 slanting rings near the base; a tuberous base with a narrow ring forming a distinct rim around the base; 1 or 2 slanting rings immediately above the tuberous base; flesh white, not changing colour on injury. Spores white ellipsoid.
- The adultérant *Amanita rubescens* (Pers. ex. Fr.) S.F. Grey has at the base few circular rings with shallow cubicals, rectangles with ridges and grooves; a distinct membranous ring with longitudinal grooves; veil scattered on pileus unlike *Amanita pantherina* (DC.Fr.) Krombh. flesh becoming red on injury.
- Distribution** : U.K. and U.S.A.
- Part used** : Whole fungus (Basidiocarp).
- Microscopical** : Spores broadly ellipsoid to somewhat ovoid, 9 to 11 × 6.5 to 8 µm, smooth, with a large oil globule, non-amyloid; basidia 38 to 52 × 9 to 12 µm, clavate, 4-spored; cheilocystidia abundant and variable, filamentous, irregular, clavate, 32 to 40 × 4 to 6 µm or 24 to 36 × 6 to 12 µm or saccate 18 to 26 × 9 to 14 µm; pleurocystidia not seen; gill trama with the hyphae divergent from a central strand; pileus trama homogeneous beneath a thick gelatinous pellicle composed of narrow (3 to 4 µm) hyphae.
- History and authority** : Introduced by Petersen; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **10**, 278.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Agaricus Pantherinus in <i>coarse powder</i> | 100 g  |
| Purified Water                               | 567 ml |
| Strong Alcohol                               | 468 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.
- Caution** : Poisonous. Not to be dispensed below 3x.

**AGARICUS PHALLOIDES**

(Agar. ph.)

- Botanical name** : *Amanita phalloides* (Vall. Fr.) Link      **Family:** Amanitaceae
- Synonym** : *Agaricus phalloides* Fr.
- Common names** : *English:* The Death Cap; *French:* Amanita phalloide, Orongo verte; *German:* Gruner, Knollenbla terpilz.
- Description** : The pileus (cap) of some shades of green varying from olive-green to brown-green, mostly with a trace of green, 5 to 15 cm in diameter with cuticle radially striate with ingrown dark fibrils; gills free, persistently white, unequal; stipe 5 to 12.5 cm long, yellowish, sometimes greenish streaked, with an annulus (ring), often streaked below the ring with greenish scales; ring with smooth upper surface; volva membranous forming several lobes, enveloping the basal 4 cm thick tuberous part of the stipe forming a cup shaped structure; flesh pure white, non-changing on injury. Spores white.
- Adulterant *Agaricus arvensis* Schaeff. ex. Fr. shows both pileus (cap) and stipe yellowish; gills greyish pink to greyish brown; rapidly becoming bright yellow on injury.
- Distribution** : Europe (late summer to autumn in forest, gardens and pastures specially under oak trees).
- Part used** : Whole fungus (Basidiocarp).
- Microscopical** : Spores transparent to white, globular to subglobose; 8 to 10 µm long, smooth, slightly amyloid, staining blue in iodine.
- History and authority** : Introduced by Carresi; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 5, 278.
- Preparation** : (a) Mother Tincture φ      Drug strength 1/10
- |   |        |
|---|--------|
| Agaricus Phalloides in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 567 ml |
| Strong Alcohol                              | 468 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.
- Caution** : Highly poisonous. Not to be dispensed below 3x.



**AGARICUS PROCERUS**

(Agar. pro.)

- Botanical name** : *Lepiota procera* (Fr.) S.F. Grey. **Family:** Agaricaceae
- Synonyms** : *Agaricus procerus* Fr.; *Leucocoprinus procerus* Patouillard.
- Common names** : *English:* Tall Lepiota, Parasol mushroom.
- Description** : A large beautiful, attractive and edible agaric. Basidiocarp (fruit body) has a long relatively slender furfuraceous stipe and broad pileus; pileus 7 to 20 cm in diameter, ovate when young, becoming campanulate, convex and finally nearly plain with a low obtuse umbo, covered at first with a reddish brown or rust-brown cuticle, which gets ruptured to form flattish scales as the cap expands, besides such flat scales, some small floccose scales may also be found among the large flat ones on the surface of the pileus, which finally becomes fibrillose with whitish flesh visible in places; cuticle over the umbo scarcely ruptured; flesh thick, soft, white or slightly reddish; lamellae free, narrow towards the stipe, broad towards the cap margin, white, becoming faintly pinkish to brownish; stipe 15 to 40 cm long, 8 to 12 mm thick at apex, base bulbous tapering slightly towards the apex, separating readily from the pileus, hollow or stuffed with long delicate fibrils, resembling in colour with the pileus or paler, surface furfuraceous or breaking up into minute scales; annulus movable, lower surface scaly and resembling in colour with the stipe. Spores white in mass. Odour and taste of flesh pleasant.
- Distribution** : In forests, throughout central and eastern USA, during summer.
- Part used** : Whole fungus (Basidiocarp).
- Microscopical** : Spores white, broadly ellipsoid,  $12.5$  to  $15 \times 7.5$  to  $10 \mu\text{m}$ , smooth, with a thick wall and an obscure apical pore, becoming purple-brown in iodine; basidia 4-spored; pleurocystidia not differentiated; cheilocystidia clavate to sub-cylindric,  $20$  to  $38 \times 5$  to  $12 \mu\text{m}$ ; gill trama regular or nearly so; pileus trama with cuticle covering the disc formed by a compact turf of brown cells  $30$  to  $70 \mu\text{m}$  long and  $5$  to  $10 \mu\text{m}$  broad, the terminal cells slightly inflated and either tapered to a point or mucronate; fibrillose scales found over the cap are made of septate hyphae,  $5$  to  $15 \mu\text{m}$  wide having cross walls at every  $100$  to  $150 \mu\text{m}$  distance; clamp connections present but rare.
- History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 127

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Agaricus Procerus in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 567 ml |
| Strong Alcohol                            | 468 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol* ; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**AGNUS CASTUS**

(Agn. cast.)

- Botanical name** : *Vitex agnus-castus* Linn. **Family**: Verbenaceae
- Synonym** : *Vitex verticillata* Linn.
- Common names** : *English*: Chaste tree; *French*: Gattilier commun; *German*: Keusch-lamm.
- Description** : A deciduous, aromatic shrub or tree, branches obtusely quadrangular, tomentose, passing into a wide panicle. Leaves opposite, petiolate and digitally-5, rarely 7 foliate, leaflets mostly unequal, central one largest, lower most pair smallest, the three largest petiolulate, the 2 or 4 smallest usually sessile, leaflet dark green on upper side and grey in lower surface. Flowers sub sessile, forming long spiked verticillaster, bracts minute or absent; calyx tomentose, truncate, campanulate, teeth triangular, obtuse, 3 time shorter than the tube; corolla small, 2 lipped, tube short, stamen 4, didynamous, style filiform, stigma shortly 2 fid, lilac. Fruit a drup, purple in colour. Odour strong, aromatic.
- Distribution** : Southern Europe, shores of the Mediterranean, South of France and Greece on sandy spots and the base of rocks. It is also cultivated in Indian gardens.
- Part used** : Fruit.
- Macroscopical** : Fruit a drupe, subglobose, purple in colour, hard, spherical, obtuse, half covered with calyx, about 3 mm in diameter, 4 locular.
- Microscopical** : Fruit: in transverse section circular in outline, usually 4 locular, each bearing an exalbuminous seed. Epicarp either single layered cuticularized cells or a zone of 5 to 9 layers of thick walled cells with cellular inclusions. Mesocarp consists of 5 to 22 layers of thick-walled isodiametric to oval parenchyma, cells arranged tangentially in the upper half while radially in the lower half and containing conducting elements. Endocarp contains 4 to 15 layers of stone cells, having branched sclereids towards the periphery and macrosclereids in the inner zone extending around seeds along the septa. The inner most single layer of the endocarp consists of thin walled tangentially elongated cells with cellular inclusions. Septa consisted of thick-walled isodiametric to oval parenchyma.

Seed: oval in outline and consisted of single layered seed coat of lignified cells, followed by 4 to 9 layers of large tabular parenchymatous cells and cotyledons. Each cotyledon consists of single layered epidermis of oval storage parenchyma enclosing few conducting elements.

- Identification** : (a) Colour Test: Take the chloroform extract of Mother Tincture and dissolve in *acetic anhydride* followed by addition of a drop of *sulphuric acid* by the side of the test tube, a browning form.
- (b) Carry out TLC of concentrated Mother Tincture using *toluene* : *ethyl acetate* (95:5 v/v) as mobile phase and 1% vanillin in *sulphuric acid* as spray reagent. Five spots appear at  $R_f$  0.25, 0.39, 0.51, 0.82 and 0.92 on heating at 105°C.

**History and authority** : Proved by Hahnemann, Allen, T. F., *Encyclop. of Mat. Med.*, 1874, **1**, 127.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Agnus Castus in coarse powder* 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand milliliters of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**AGROSTEMMA GITHAGO**

(Agr. git.)

- Botanical name** : *Agrostemma githago* Linn. **Family:** Caryophyllaceae
- Synonym** : *Lychnis githago* Scop.
- Common name** : *English:* Corn Cockle.
- Description** : An annual herb with dichotomous stem, up to 1 m high, thinly pubescent with swelling at nodes. Leaves opposite, entire, 5 to 10 cm long, fringed with long hair, linear to lanceolate, without petiole and without stipules. Flowers blue or purple, solitary, terminal on long slender pedicels. Calyx 5, tubular, coriaceous, ovoid; corolla 5, pink to purple. Fruit a capsule, 14 to 15 mm long, ovoid, oblong with seeds, angular with convex faces, purplish black, covered with concentric rings of small warts.
- Distribution** : Europe, as a weed in wheat fields.
- Part used** : Seed.
- Macroscopical** : Seed black-brown, ovoid, reniform, albuminous, pointed at apex, marked with conspicuous pointed tubercles in concentric rings; tubercles beset with numerous glandular microhairs. A thick cross section shows a large milky white endosperm occupying major part of the seed. Cotyledons two, yellowish.
- Microscopical** : Transection shows testa having single layer of epidermis consisting of thick-walled papillose cell (tubercles), containing brown inclusions at the base and beset with numerous unicellular glandular microhairs. In surface view, each epidermal cell of the testa highly sinuous, 60 to 100 × 20 to 24 µm, beset with numerous microhairs and contains numerous finger-like projections.
- Tegmen 1 to 2 layered, followed by tangentially elongated parenchymatous cells and radially elongated parenchyma of endosperm; tegmen parenchymatous cells are 60 to 100 × 20 to 40 µm, containing conspicuous pittings on their walls.
- Endosperm large, parenchymatous, occupying  $\frac{3}{4}$  part in the middle of the seed. Cotyledons 2, thin, parenchymatous; each cotyledon consists of a single layer of epidermis, 3 or 4 vascular strands in the center and a palisade parenchyma on the dorsoconcave side.

**Identification** : (1) TLC of methanolic extract on silica gel ‘G’ plate, using solvent system *ether : toluene* (80 : 20 v/v) as mobile phase, one spot appear at  $R_f$  0.25 (pink) under UV light.

(2) Carry out TLC of 50% alcoholic extract on silica gel ‘G’ using solvent system *chloroform : acetone* (4:1 v/v) as mobile phase and 30% *chlorosulphonic acid* as spraying reagent. On heating at 110° three spots appear at  $R_f$  0.14 (yellow brown in visible and light blue in UV light); 0.45 (green in visible and reddish yellow in UV light) and 0.5 (grey blue in visible and yellow brown in UV light).

**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1976, **5**, 281; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 48.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

<i>Agrostemma Githago</i> in <i>coarse powder</i>	100 g
Purified Water	500 ml
Strong Alcohol	537 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, four parts Purified Water and five parts *Strong Alcohol* ; 3x and higher with *Dispensing Alcohol*.

**Caution** : Not to be dispensed below 3x.

**ALCOHOL FORTIS – STRONG ALCOHOL**  
(Alc.)

C<sub>2</sub>H<sub>5</sub>OH

Mol. wt.: 46.07

- Description** : A clear, colourless, mobile, volatile liquid; odour, characteristic and spirituous; taste, burning. It is miscible with water forming clear, colourless solution, miscible with *acetone*, *ether* and *chloroform*, in all proportions. It boils at about 78° but volatilises even at a low temperature and is readily inflammable, burning with a blue smokeless flame. It is commonly obtained by the distillation of fermented liquids containing carbohydrates or by synthesis. It contains not less than 94.7 percent v/v or 92.0 percent w/w and not more than 95.2 percent v/v or 92.7 percent w/w of C<sub>2</sub>H<sub>5</sub>OH.
- Identification** : (1) To about 10 ml of a 0.5 percent v/v solution in *water* add 2 ml of a 4 percent w/v solution of *sodium hydroxide* and then slowly add about 4 ml of solution of *iodine*; the odour of *iodoform* develops and a yellow precipitate is produced.
- (2) Refractive index  $[\alpha]_{20}^D$  1.3637 to 1.3639
- (3) Specific gravity 25° 0.8104 to 0.8075
- Test for steroid** : Carry out TLC method for steroid as per appendix, HPI Vol. IX. No violet coloured spot appears.
- Acidity or alkalinity** : 20 ml requires not more than 0.2 ml of N/10 *sodium hydroxide* to give a pink colour with *phenolphthalein* solution or not more than 0.1 ml of N/10 *hydrochloric acid* to give a red colour with *methyl red solution*.
- Aldehyde** : To 10 ml add 5 ml of solution of *sodium hydroxide*, shake and allow to stand for five minutes; no yellow colour is produced.
- Ketones** : To 1 ml add 3 ml of *water* and 10 ml of solution of *mercuric sulphate* and heat in a boiling water-bath; no precipitate is produced in 3 minutes.
- Fusel oil and allied Impurities** : Allow 25 ml to evaporate spontaneously in a porcelain dish protected from dust until surface of the dish is barely moist; no foreign odour is perceptible and on the addition of 1 ml of *sulphuric acid* no red or brown colour is produced.

- Oily or resinous substances** : Dilute 5 ml to 100 ml with *water* in a cylinder; the solution remains clear when examined against a black Background.
- Non-volatile matter** : When evaporated and dried at 105°, leaves not more than 0.005 percent of residue.
- Preparation** : Used as a vehicle.  
*Strong Alcohol* is diluted with Purified Water to produce *Dispensing / Dilute Alcohol*.
- Dispensing Alcohol** : 90.0 percent (limit 88.0 to 92.0 percent v/v) (Rectified spirit or 60.0 percent spirit/ alcohol).
- Dilute Alcohol** : 60 percent (limit 58.0 to 62.0 percent v/v) Specific gravity (20°/20°) 0.9139 to 0.9169.



## Original Monograph Appeared in HPI Vol. I

**AMBRA GRISEA**

(Ambra. gris.)

- Zoological name** : *Physeter catodon* Linn.   **Order:** Cetacea   **Family:** Physeteridae
- Synonym** : *Physeter macrocephalus* Linn.
- Common names** : *English:* Sperm whale, Ambergris; *French:* Amber gris; *German:* Graue ambra.
- Description** : A morbid secretion mass of intestine or liver or biliary origin and also found among the excreta of the animal. Found as solid, spongy, round balls, occasionally bears parrot's beak shaped horn-like projections on the surface; weighing from 50 to 200 pounds; greenish brown to black externally, with black and yellowish-red streaks and whitish specks internally; fractured surfaces honey yellow to orange-yellow when fresh; under ultra-violet light (365 nm) internal surface shows yellowish, brick-red or orange fluorescence sections show concentric layers of different colours; surface dull, sticky, fat or wax like and greasy to touch; though friable it is rubbed to powder with difficulty; softens like wax by the warmth of the hands and inflammable, its consistency becomes ointment-like at 60° and becomes liquid if heated in boiling water; the substance can be kneaded and cut when warm. Soluble in *alcohol*, *ether* and in fatty and volatile oils. Specific gravity ranging from 0.780 to 0.926, gets volatilised at 100°. Almost tasteless and with aromatic odour. Three major compounds isolated from it are ambrein (hydrocortisone), epicoprostanol and coprostanone.
- Distribution** : Eastern coast of Japan, on the shores of the Pacific and Indian Oceans; most esteemed ones found from Madagascar to Sumatra. Found floating on the seawater and often thrown upon the coast.
- Identification** : (1) Concentrate Mother Tincture to remove *alcohol* and extract it with *chloroform*; evaporate the chloroform extract to dryness. To the residue add *acetic anhydride* and concentrated *sulphuric acid*. A violet colour is produced.
- (2) To 1 ml Mother Tincture add one drop of *furfural*. Pour this mixture on 1 ml *sulphuric acid*. A violet ring or violet red colour is appeared.
- (3) Carry out TLC of the Mother Tincture on silica gel G coated plate; use *toluene* : *isopropyl ether* (4:1 v/v) as solvent system and examine plate under UV light; two spots appear at  $R_f$  0.35 (greenish blue) and 0.70 (yellow).

**History and authority** : Proved by Hahnemann; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1876, **1**, 238; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 74.

- Preparation** : (a) Trituration 1x Drug strength 1/10  
 Ambra Grisea in *coarse powder* 100 g  
 Saccharum Lactis 900 g  
 to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method HPI. 6x may be converted to liquid 8x, HPI. 9x and higher with *Dispensing Alcohol*.
- (c) Mother Tincture  $\phi$  Drug strength 1/100  
 Ambra Grisea in *coarse powder* 10 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand millilitres of the Mother Tincture.
- (d) Potencies: 3x and higher with *Dispensing Alcohol*.

**AMMI MAJUS**

(*Ammi. maj.*)

- Botanical name** : *Ammi majus* Linn. **Family**: Apiaceae (Umbelliferae)
- Common names** : *English*: May-weed, Bishop's weed, Greater Ammi.
- Description** : An erect, branching annual herb, with stem sub-glaucous, glabrous, terete, 90 to 150 cm high. Leaves oblong, petiolate, 6 to 20 cm long (excluding petiole), pinnately divided, acutely serrate, lower ones lanceolate, upper ones many cleft, linear. Flowers white, in loose compound umbels, umbels 5 to 10 cm wide, rays nearly filiform, 2 to 5 cm long, umbel-lets numerous, involucre bracts about as long as the pedicels. Fruit a cremocarp, oblong, 1.5 to 2.0 mm long and 1 mm or less broad.
- Distribution** : Introduced into India. Grown in Jammu, Dehra Dun and Delhi.
- Part used** : Whole plant.
- Microscopical** : Stem: Transverse section shows outline with ridges; epidermis single layered of radially elongated cells covered with thick rough cuticle, interrupted by stomata; hypodermis collenchymatous at ridges and chlorenchymatous at furrows; cortex very small, parenchymatous. Vascular bundles conjoint, collateral, present opposite the ridges, arranged in a ring, united to each other by interfascicular sclerenchyma thus forming a continuous cylinder of xylem, which is surrounded by phloem; pith large, parenchymatous and hollow at centre, secretory canals present in cortex and pith.
- Leaf: Lamina shows an epidermis of single layer of tangentially elongated cells, covered thick cuticle, anticlinal walls of lower epidermal cells appear striated in surface view; stomata diacytic present on both surfaces; mesophyll differentiated into 2-layers of palisade and 4 to 5 layers of spongy parenchyma, traces of vascular bundles present scattered in mesophyll.
- Leaf: Mid rib prominently projects on both the sides and shows single layered papillose epidermis; collenchymatous band present below both the epidermis forming projecting ridges; a single meristele in the center embedded in parenchymatous ground tissue, with xylem towards upper epidermis and phloem towards lower epidermis; an oil cavity present below the phloem.

Root: Transverse section shows an outermost layer of cork, followed by a phellogen of thin-walled, 2 to 3 layered cells; a phelloderm of few layers of tangentially elongated, thin-walled cells. Stele a cylinder of phloem and xylem; rays 2 to 3 seriate, thick-walled, pitted cells; pith absent; secretory canals present above the phloem.

Fruit: In transverse section, the mericarp an almost regular pentagon and the seed orthospermous; five vascular strands and six vittae present and on the outer side of each vittae a group of radiating club-shaped cells present which form a conspicuous secondary ridge.

**Identification** : Dilute 25 ml of Mother Tincture with *water* and evaporate to one third of its volume. Extract with *chloroform* thrice and then dry on anhydrous *sodium sulphate* and concentrate on a water bath to 1 ml. Carry out TLC of the chloroform extract on Silica Gel G using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light ten spots appear at  $R_f$  0.35 (yellow), 0.45 (yellow), 0.52 (blue), 0.63 (red), 0.76 (blue), 0.79 (blue), 0.84 (violet), 0.88 (blue), 0.95 (yellow) and 0.97 (red).

**History and authority** : Frederik Schroyens, *Blue Print for a year New Repertory Synthesis*, 1993, 53.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Ammi Majus* in moderately *coarse powder* 100 g  
Purified Water 400 ml  
Strong Alcohol 635 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## Original Monograph Appeared in HPI Vol. VII

## AMMI VISNAGA

(Ammi vis.)

- Botanical name** : *Ammi visnaga* Lam. **Family**: Apiaceae (Umbelliferae)
- Synonyms** : *Ammi dialatatum* St. Lag.; *Daucus visnaga* Linn.; *Apium visnaga* Grantz.
- Common names** : *English*: Visnaga, Khelle, Khilla, Tooth pickammi; *French*: Herbe aux cure dents; *German*: Zahnstocherkraut.
- Description** : A herbaceous, stout, aromatic annual plant, 1.0 to 1.5 m high. Leaves ovate in outline, fan-shaped, tripinnatisect into linear, divaricate lobes. Inflorescence compound umbel, dense, having numerous stiff rays arising from a dilated disc, 4 to 6 cm long, spreading in flowers. Bracts of the involucre long, filiform, tripartite, at length deflexed. Flower small, white; carpel with 5 filiform equal ribs, carpophore free, 2 parted; fruiting pedicel thick. Fruit a cremocarp. Flowers from March to April.
- Distribution** : Indigenous to Egypt, specially found in Nile Delta, the Fayoum, the Mediterranean and the Near East. Cultivated widely in South America.
- Part used** : Fruit.
- Macroscopical** : Fruit Small, ovoid, laterally compressed, with thick ribs, greenish brown and split into mericarps. Each mericarp about 0.8 to 1.2 mm wide, 0.8 to 1.0 mm thick and 2.0 to 2.5 mm long and surmounted by a pyramidal stylopod bearing at its apex a reflexed style, about 0.5 mm long. Mericarp plano-convex and ovoid-lanceolate in outline, greenish brown and glabrous, with 5 yellowish primary ridges between which 4 inconspicuous brown secondary ridges present. Odour faint, aromatic; taste slightly bitter.
- Microscopical** : Mericarp in transection regular pentagon in outline and seed is orthospermous. Mericarp with 5 primary and 4 inconspicuous secondary ridges, no emergences, no trichomes; there are 5 vascular strands and 6 vittae, on the outer side of each vittae a group of radiating club shaped cells present which cause a slight elevation above the surface of each vittae, thus forming inconspicuous secondary ridges on the outer surface of the mericarp; in primary ridges on the outer side of each vascular strand a large lacuna present which distinguishes it from *Ammi majus*.

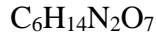
- Identification** : (a) Take 500 mg powdered drug in a test tube, add 4 ml of *methanol*, shake vigorously for 1 minute and filter. Add 0.2 ml *sulphuric acid* to the clear filtrate. A light lemon yellow colour is produced (muddy greenish yellow colour is produced in case of *Ammi majus*).
- (b) Carry out TLC of Mother Tincture on silica gel 'G' plate using *ethyl acetate* as mobile phase. Examine the plate under 254 nm and 365 nm ultra violet light. Under 254 nm two violet spots appear at  $R_f$  0.68 (comparable with khellin) and 0.64 (comparable with visnagin). Under 365 nm an orangish violet spot appears at  $R_f$  0.64 (comparable with khellin) (*Ammi majus* does not show these spots under long and short wave length of UV light).

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 146.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                      |        |
|--------------------------------------|--------|
| Ammi Visnaga in <i>coarse powder</i> | 100 g  |
| Purified Water                       | 400 ml |
| Strong Alcohol                       | 640 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol* ; 3x and higher with *Dispensing Alcohol*.

**AMMONIUM CITRICUM**

(Amm. cit.)



**Mol. wt.:** 226.19

**Common names** : *English:* Diammonium citrate; *French:* Citrate d' ammonium.

**Description** : White granules or crystals or a crystalline powder, with an acid reaction, soluble in water and slightly soluble in alcohol.

**Reaction** : pH of 0.1 M solution in purified water is 4.3.

**Identification** : (i) Heat 0.5 g with 2 ml *sodium hydroxide solution*; ammonia is evolved, which is recognisable by its odour and by its reaction on moist red litmus paper which turns blue.

(ii) To 1 ml neutral solution of the substance add 2 ml solution of *calcium chloride*; no precipitate is produced. Boil the solution; a white precipitate soluble in 6 M *acetic acid* is produced.

**History and authority** : *Homoeopathic Pharmacopoeia of United States*, 1989, 114.

**Preparation** : (a) Mother Solution Drug strength 1/10  
 Ammonium Citricum 100 g  
 Purified Water in sufficient quantity  
 to make one thousand millilitres of the Mother Solution.

(b) Potencies: 2x to contain one part of Mother Solution and nine parts *Dilute Alcohol*. 3x and higher with *Dispensing Alcohol*.

**AMMONIUM VALERIANICUM**

(Amm. val.)

$\text{NH}_4\text{C}_5\text{H}_9\text{O}_2$

**Mol. wt.:** 119.16

**Common names** : *English:* Ammonium valerate; *French:* Valerianate d' ammonium; *German:* Ammonium valerat.

**Description** : Snow white or colourless, quadrangular plates, emitting the odour of *valerianic acid* and having a sharp, sweet taste. Very soluble in *water* and in *alcohol*, also soluble in *ether*. Its aqueous solution is neutral, but by evaporation it turns to acid through the loss of *ammonia*; it is decomposed by alkalies, producing *ammonia*. By treating its solution with strong acids, *oily valerianic acid* is separated, which floats on the surface of the liquid. Submitted to heat, the greatest part volatilises without decomposition, but a small part through the loss of *ammonia* is converted into an acid salt before vaporisation. It is obtained by saturating *valerianic acid* with gaseous *ammonia*.

**Melting point** : 108°.

**Identification** : Heat a few mg of the substance with 2 ml of *sodium hydroxide* solution; *ammonia* is evolved, which is recognized by its odour and by turning moist red litmus paper to blue.

**History and authority** : *Homoeopathic Pharmacopoeia of United States*, 1989, 119.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/100  
 Ammonium Valerianicum 10 g  
*Dispensing Alcohol* in sufficient quantity  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

(c) Trituration 1x Drug strength 1/10  
 Ammonium Valerianicum 100 g  
 Saccharum Lactis 900 g  
 to make one thousand grammes of the Trituration.

(d) Potencies: 2x and higher to be Triturated in accordance with the method, HPI. 6x may be converted to liquid 8x, HPI. 9x and higher with *Dispensing Alcohol*.

**Caution** : Keep in well closed container.



**ANGELICA ARCHANGELICA**

(Angel. ar.)

- Botanical name** : *Angelica archangelica* Linn.      **Family**: Apiaceae (Umbelliferae)
- Synonym** : *Archangelica officinalis* Hoffm.
- Common names** : *English*: Garden Angelica; *French*: Racine d' Angelique, Racine du St. Esprit; *German*: Angelikawurzel, Erzengelwurzel.
- Description** : A tall, stout, perennial herb, stem hollow, usually green, striate, pubescent towards base. Leaves 3-pinnate with long, stout, hollow reddish-purple median stalk, up to 90 cm in length with clasping base; leaflets bright green, 1.5 to 8 cm long, obliquely ovate to lanceolate, finely dentate, somewhat decurrent; petioles laterally compressed, deeply channeled on upper side, dilated and sheathing at base. Inflorescence: compound umbels, terminal and axillary, 3 to 15 cm in diameter; peduncles glabrous; bracts 0 or few, caducous; bracteoles usually 6 to 10, setaceous, as long as the pedicels, persistent. Flowers small, greenish- white or green; calyx teeth 0; petals 5, lanceolate, recurved; stamens 5; carpels flat with 2 broad marginal wings and 3 dorsal ridges, protandrous. Fruit a cremocarp, greenish-white or green, ovate, dorsally compressed with very prominent ribs, commissure broad, peduncles glabrous, wings of fruit corky.
- Distribution** : Himalayas in India, Europe, New Zealand, Siberia, eastwards to central Asia and Greenland.
- Part used** : Root.
- Macroscopical** : Main root-stock short, thick, spindle shaped, up to 5 cm in diameter and bears a circle of long, descending adventitious roots, also 5 to 10 mm in diameter; main root stock dark or greyish brown on outside, finely grooved, while adventitious roots appear reddish brown and longitudinally grooved; internally whitish and spongy showing shining resinous spots in cross section; roots frequently twisted and braided together. Fracture short and smooth; odour aromatic; taste sweetish, pungent and bitter.
- Microscopical** : In transection more or less circular in outline. Cork 5 or 6 layers of radially elongated, brown coloured cells; phelloderm 3 or 4 layers of brown content containing cells; cortex parenchymatous, outer cortex containing a few air spaces and secretory canals containing brownish contents and surrounded by epithelial cells present in a circle while such canals lying scattered in the inner cortex; endodermis and pericycle not prominent; phloem scanty, in a ring; xylem diarch, wood porous, bears multiseriate rays.

**Identification** : (1) Take 1 ml of Mother Tincture in a test tube and keep the test tube under ultra-violet light, a greenish blue fluorescence appears.

(2) Take 1 ml of Mother Tincture and add 1 ml of *Fehling's reagent*. Heat to boiling, a yellow-red precipitate is obtained.

**History and authority** : *German Homoeopathic Pharmacopoeia*, 1990, 161.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Angelica Archangelica in *coarse powder* 100 g  
 Purified Water 650 ml  
 Strong Alcohol 450 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x in *Dilute Alcohol* and 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**ARALIA RACEMOSA**

(Aral. rec.)

- Botanical name** : *Aralia racemosa* Linn. **Family**: Araliaceae
- Common names** : *English*: American Spikenard; *French*: Nard americain; *German*: Amerikanische Narde.
- Description** : An aromatic, deciduous herb, stout, perennial, 1 to 2 m high, with stem ligneously herbaceous, smooth, bifurcating, much branched and devoid of prickles. Root large, thick, whitish internally. Leaves few, very large, odd-pinnately compound; leaflets ovate-cordate, doubly serrate, acuminate, slightly downy, glabrous beneath. Inflorescence umbel, numerous, in elongated puberulose large panicle. Flowers small, greenish-yellow, monoeciously polygamous or perfect, appearing in July; calyx-lobes minute, persistent, petals 5, minute; stamens 5; styles 5, united at base only. Fruit a berry like drupe, globular, dark purplish to reddish brown, aromatic, baccate.
- Distribution** : Rocky wood in North America.
- Part used** : Root.
- Macroscopical** : Roots large, thick, about 25 mm at the base, pale brown and wrinkled, with fracture short and whitish. In transverse section showing yellow resinous cells in cortical region; readily peels off the ligneous layer surrounding the main bulk of the root, the central portion somewhat dense, dotted with scattered bundles of woody fibres, surrounded by 1 mm thick ligneous sheath.
- Microscopical** : Root in transection shows a phellum of 7 to 9 layers; a hypodermis of 4 to 5 layers of tangentially elongated cells; a wide parenchymatous cortex containing several resin and oil ducts, rosette crystals of calcium oxalate, sometimes starch grains; a wide phloem; 2 to 4 seriate parenchymatous rays radiating through phloem into the cortex; cambium 2 to 3 layered; xylem with abundant wood fibres; pith absent.
- Identification** : (a) Carry out TLC of chloroform extract on silica gel 'G' plate using *chloroform* : *methanol* (9 : 1 v/v) as mobile phase and *antimony trichloride* solution as spray reagent. Four spots appear at  $R_f$  0.29 (blue), 0.49, 0.59 (both red) and 0.91 (blue).
- (b) TLC of chloroform layer (obtained after making the aqueous extract alkaline with *ammonia* and then extracted with *chloroform*) gives one spot at  $R_f$  0.68 (brown) in *methanol* : *ammonia* (100 : 1.5) with Dragendorff's reagent.

**History and authority** : Introduced by Jones; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **10**, 323; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 150.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Aralia Racemosa in *coarse powder* 100 g  
Purified Water 150 ml  
Strong Alcohol 870 ml  
to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

## Original Monograph Appeared in HPI Vol. VII

## ARECA CATECHU

(Areca c.)

- Botanical name** : *Areca catechu* Linn. **Family**: Arecaceae (Palmae)
- Common names** : *Hindi*: Supari; *English*: Betel Nut; *French*: Noix d arce; *German*: Arekanusse, Betelnuse.
- Description** : A tall slender palm like tree with a smooth whitish stem, reaching a height of 12 to 30 m; trunk about 50 cm in circumference, surmounted by a crown of pinnate leaves, each leaf 1.2 to 1.8 m in length, of which upper pinnae confluent; the lower portion of the petiole expended into a broad tough, sheath-like structure. Inflorescence a spadix encased in a spathe and comprises of a much-branched rachis, bearing both male and female flowers. Male flowers smaller in size, naked, numerous, sessile, each with 6 sagitate stamens; female flowers much larger, solitary or 2 to 3 together at or near the base of each branch of the spadix, sepals 3; petals 3; staminodes 6, connate; stigmas 3, short, triangular. Fruit a nut, pericarp (65 percent) hard, fibrous and the kernal (35 percent) about 2.5 to 3.8 cm in diameter and greyish brown.
- Distribution** : India, cultivated in Bengal and Asam along the coastal regions of Maharashtra, Kerala, Tamil Nadu, Karnataka and Assam.
- Part used** : Nut.
- Macroscopical** : Seeds rounded-conical, up to 3.5 cm in length, 3 cm in diameter, externally weak reddish-brown to light yellowish-brown, marked with a network of paler lines, frequently showing portions of the silvery endocarp and adhering fibres of the mesocarp adherent at the base. Seed hard, the cut surface showing a marbled appearances from alternating dark brown and whitish tissues (ruminate endosperms); odour slight; taste astringent.
- Microscopical** : Powder: weak reddish-brown to light brown; numerous fragments of endosperm with porous cellulose walls; fragments of brown perisperms with thin walls; fragments of the seed coat with irregularly thickened stone cells; few trachea; few aleurone grains from 5 to 40µm in diameter and oil globules; no starch.
- History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 70.

- Preparation** : (a) Trituration 1X Drug strength 1/10
- |                                       |       |
|---------------------------------------|-------|
| Areca Catechu in <i>coarse powder</i> | 100 g |
| Saccharum Lactis                      | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be Triturated in accordance with the method, HPI; 6x may be converted to liquid 8x, HPI. 9x and higher with *Dispensing Alcohol*.

**ARGEMONE MEXICANA**

(Arge. mex.)

**Botanical name** : *Argemone mexicana* Linn. **Family:** Papaveraceae

**Common names** : *Hindi:* Bharbund, Shialkanta; *English:* Yellow thistle, Prickly poppy, Mexican poppy.

**Description** : An annual herb, up to 1.0 m in height with prickly spreading branches and yellowish latex. Leaves alternate, prickly, sessile, exstipulate, simple, variegated pale green, thistle-like, 10 to 20 cm long, half amplexicauline, incised to form large prickly lobes, which may also get incised to form smaller lobes, variegated, pale green. Flowers yellow, solitary, axillary or terminal, pedicellate, bracteate, hermaphrodite, closely subtended by upper leaves; sepals 3, prickly; petals 6 (3+3), polypetalous; stamens indefinite, free in several whorls; ovary pentacarpellary, stigma 5. Fruit a capsule, 2 to 3.8 cm long, elliptical or oblong, prickly. Seeds blackish-brown, round and yielding poisonous oil.

**Distribution** : South America. In India common as a weed.

**Part used** : Whole plant.

**Microscopical** : Leaf: Midrib, more pronounced towards lower surface than upper surface and in transection shows both the upper and the lower epidermis single layered, made up of barrel-shaped cells, covered with cuticle; vascular bundles usually 3, the central one biggest, flanked by 2 smaller bundles, one on each side; laticifers with yellow content present in phloem tissue.

Lamina: in transection shows dorsiventral structure with mesophyll differentiated into usually double layered or occasionally single layer of palisade and loosely arranged spongy parenchyma tissue; small vascular traces having spirally thickened vessels, surrounded by bundle sheath; anomocytic stomata with prominent substomatal chambers present more frequently on lower epidermis; spines on the lower surface and margins.

Stem: in transection circular in outline; epidermis single layered of barrel shaped cells, covered with cuticle; followed by 2 to 3 layers of compactly arranged small chlorenchymatous cells; a parenchymatous cortex of isodiametric loosely arranged cells; vascular bundles in a ring, conjoint, collateral, open and capped by patches of sclerenchyma cells; pith broad, parenchymatous; rays 2 to 3 cells broad.

**History and authority** : *Homoeopathic Pharmacopoeia of United States*, 1964, 687.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Argemone Mexicana, moist magma containing solids 100 g and plant moisture 233 ml	333 g
Purified Water	167 ml
Strong Alcohol	635 ml

to make one thousand millilitres of Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol* ; 3x and higher with *Dispensing Alcohol*.



**ARTEMISIA VULGARIS**

(Art. vul.)

- Botanical name** : *Artemisia vulgaris* Linn.      **Family**: Asteraceae (Compositae)
- Synonym** : *Artemisia heterophyllus* Nutt.
- Common names** : *Hindi*: Nagadouna; *English*: Mug wort; *French*: Couronne de saint jear; *German*: Beifuss.
- Description** : A perennial, aromatic, 0.6 to 2.4 m high, shrub like herb with creeping roots. Stem furrowed and paniculately branched. Lower leaves petioled, 5 to 10 cm long, ovate, 1 to 2 pinnatifid with stipule-like lobes at the base, deeply pinnatisect; the lobes entire, toothed or again pinnatisect, pubescent above, white tomentose beneath; upper leaves smaller, 3-fid or entire, lanceolate. Inflorescence sub-secund, spike like, sub-erect or horizontal paniced racemes. Heads 3 to 4 mm long, ovoid or sub-globose, solitary or 2 to 3 together, sessile or very shortly pedicelled. Outer flower female, very slender; inner hermaphrodite, fertile; involucral bracts villous with scarious margin, the outer ones smaller, ovate, acute and inner ones oblong, obtuse, sometimes almost membranous. Fruit an achene, oblong- ellipsoid and minute.
- Distribution** : Common in mountainous region of India up to 2000 m. Also found in Europe, Canada and United States.
- Part used** : Root.
- Microscopical** : Young root in transection shows 2 to 3 layers of cork followed by a wide zone of cortex of thin walled parenchyma, containing secretory canals just above the endodermis; endodermis single layer of barrel-shaped cell with casperion strips; phloem with scattered group of phloem fibres, phloem parenchyma, companion cells and multiseriate parenchymatous phloem rays; xylem large, thick-walled xylem parenchyma interrupted by wedges of medullary rays; medullary rays multiseriate parenchymatous, becoming broader in phloem region. Anomalous mutilayered inter xylary cork developed in secondary phloem. Pith small, thick-walled.
- Old root shows 4 to 6 layered, thin-walled, brown coloured cork; cortex parenchymatous, thin-walled, outer cortex contain yellow coloured contents; phloem having parenchyma, seive tubes, companion cells; scattered groups of fibres surrounded by sheath of

cambial tissue and multi-layered thin walled inter xylary tissue present on inner side of secondary phloem which is an anomalous structure. Xylem large, vessels radially arranged, a few of them filled with secretion, xylem parenchyma thick-walled, interrupted by the wedges of medullary rays; rays same as in young root; pith very small and solid.

- Identification** : (1) To 2 ml of Mother Tincture, add a few drops of 2,4-dinitrophenylhydrazine solution, yellowish red colour develops.
- (2) Carry out TLC of Mother Tincture using *chloroform : methanol* (9:1 v/v) as mobile phase; five spots appear at  $R_f$  0.07, 0.30, 0.42, 0.60 and 0.77 under UV light.

**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 558.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Artemisia Vulgaris	100 g
Purified Water	333 ml
Strong Alcohol	694 ml

to make one thousand milliliters of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol* ; 3x and higher with *Dispensing Alcohol*.

**ARUNDO DONAX**

(Arun. don.)

- Botanical name** : *Arundo donax* Linn. **Family:** Poaceae (Gramineae)
- Synonym** : *Arundo mauritaniaca* Desf.
- Common names** : *Hindi:* Baranal; *English:* Giant Reed; *French:* Roseau de Mauritanic.
- Description** : A tall, robust, erect, branched, perennial, cane-like grass, up to 4 m in height and 1 to 4 cm in diameter. Stem hollow, many-noded, with internodes varying in length from 12 to 30 cm, outer tissue siliceous, very hard, brittle with a smooth, glossy surface that turns pale golden when mature. Rhizomes almost bulbous, creeping, thick, forming knotty masses. Leaves 2-ranked, linear-lanceolate, with persistent leaf sheaths, 30 to 60 × 2.5 cm. Inflorescence a large, erect, terminal panicle, 30 to 60 cm long, plumose, with silky hairs, cream-coloured or brown, spikelets 8 to 15 cm long, usually 2-flowered, sometimes up to 7 flowers. Involucral glumes glabrous; floral ones long-hairy on back in the lower half. Fruit oblong.
- Distribution** : Cultivated in India.
- Part used** : Whole plant.
- Microscopical** : The transverse section of sheathing leaf base shows: abaxially, a single layered epidermis of rough thick-walled cells, interrupted by stomata and differentiated into long and short celled, parenchymatous tissue followed by 1 to 2 layers of sclerenchyma at the intercostal region and 3 to 5 layers at the veins; adaxially, a smooth epidermis consists of tangentially elongated cells, interrupted by stomata and followed by 2 to 3 layers of sclerenchyma only at the veins; mesophyll parenchymatous with large intercellular cavities or air spaces, situated between girder like bands of parenchymatous cells between the adjacent air cavities. One vascular bundle situated above each of the air cavities and one below the abaxial surface in the upper part of each parenchymatous band between air cavities; each vascular bundle contains phloem abaxially and xylem adaxially, encapped on both the sides by a well developed sclerenchyma sheath; metaxylem and protoxylem distinct only in large vascular bundles, small vascular bundles show distinct phloem and xylem.

Culm or stem: in transverse section almost circular in outline; shows a single layer of epidermis of small rectangular thick-walled cells, few cells of which containing deposition of silica; followed by a few layers of cortical parenchyma, ground tissue wide, containing scattered vascular bundles; small vascular bundles lying towards the periphery, embedded in a compactly arranged scleranchymatous tissue; large vascular bundles scattered, present below smaller ones in the inner region of the ground tissue; individual vascular bundle collateral and have well developed phloem outside xylem, xylem usually represented by two large metaxylem vessels and an adjacent cavity; each bundle completely surrounded by sclerenchymatous sheath; pith hollow.

**History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 594; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 202.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Arundo Donax in *coarse powder* 100 g  
                   Purified Water 333 ml  
                   Strong Alcohol 700 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ASCLEPIAS CURASSAVICA**

(Ascl. cur.)

- Botanical name** : *Asclepias curassavica* Linn. **Family**: Asclepiadaceae
- Common names** : *Hindi*: Kakatundi, Bankapas; *English*: Kurki, Blood flower; *French*: Ipeca batard des Antilles.
- Description** : An erect or much-branched perennial herb. Stem branched from the base, glabrous except young parts, covered with short hairs. Leaves 7 to 15 cm × 1.5 to 3.0 cm, thin, membranous, petiolate, oblong-lanceolate, acute at base, acute or acuminate at apex, glabrous or hairy on the veins beneath; petiole 1 to 2 cm long. Flowers orange-red in many flowered, shortly peduncled, cymes; pedicels pubescent, 1.5 to 2 cm long; calyx-lobes 5, lanceolate, subacute, 0.3 to 0.35 cm long, with a gland between the lobes in the sinus; corolla 5, red, reflexed, lobes lanceolate, obtuse, 0.8 cm long; stamens 5, stipitate, each with a bright orange staminal corona and pollinia, adjacent pollinia uniting and forming a staminal tube; stigma 5 angled. Fruit a follicle, 6 cm long. Seeds 0.6 to 0.65 cm × 0.4 cm with thickened margin, coma (tuft of hairs) 2 to 2.5 cm long.
- Distribution** : Native to tropical America; naturalised in many parts of India and grown as an ornamental plant.
- Part used** : Whole plant.
- Microscopical** : Leaf: Lamina exhibits a dorsiventral structure; transection shows epidermis single layered, made of polygonal cells, covered on both surface by thick striated cuticle; stomata on both surface, mostly anomocytic, sometimes paracytic; trichomes both glandular and non-glandular. In lamina mesophyll differentiated into 1 to 2 layers of palisade and 4 to 6 layers of loosely arranged spongy parenchyma traversed by lateral bundles. Rosette crystals of calcium oxalate distributed throughout mesophyll.
- Mid rib exhibits a prominent buldge on ventral side, epidermis single layered covered with thick striated cuticle; trichomes both glandular and non-glandular; a collenchymatous hypodermis, 4 to 5 layered, a discontinuous palisade over mid rib region; an arc of stele with xylem in the center and phloem on both the sides. Laticifers and rosette crystals of calcium oxalate scattered throughout the ground tissue and phloem.

Petiole: in transverse section shows, a single layered epidermis of thick walled, cubical cells covered with thick cuticle; trichomes few; 2 to 4 celled long; 4 to 5 layered collenchymatous hypodermis present, meristele crescent shaped consists of xylem in the center and phloem on its both sides; laticifers and rosette aggregates of calcium oxalate distributed in ground tissue and phloem.

Stem: in transverse section either quadrangular or circular in outline and shows epidermis single layered covered with thick cuticle; collenchymatous hypodermis 1 to 2 layered; a broad cortex differentiated into an outer zone of few layers of small, chlorenchyma followed by a zone of large parenchyma; a broad zone of pericycle consisting of interrupted groups of fibres; stele consisting of a continuous cylinder of xylem traversed by medullary rays, surrounded by phloem; parenchymatous pith at the center; laticifers distributed both in phloem and cortex; starch grains and rosette aggregates of calcium oxalate scattered in pith, cortex and phloem.

Root: transverse section shows a peeling off cork and 2 to 4 layers of thin-walled radially elongated cork cells below it; a phellogen of 1 to 2 layers of thin-walled cells; a broad zone of parenchymatous cortex, containing starch grains and rosette aggregates of calcium-oxalate; a distinct endodermis; pericycle of an interrupted ring or band of stone cells; xylem surrounded by phloem; pith absent; laticifers present both in phloem and cortex.

**Identification** : Dilute 25 ml of Mother Tincture with *water* and evaporate to one third of its volume. Extract with *chloroform* thrice and then dry it on anhydrous *sodium sulphate* and concentrate on a water bath to 1 ml. Carry out TLC of chloroform extract on Silica Gel ‘G’ using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light six spots appear at  $R_f$  0.56 (red), 0.66 (blue), 0.74 (red), 0.85 (blue), 0.91 (blue) and 0.98 (red).

**History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis*, 1993, 55; *Homoeopathic Pharmacopoeia of United States, Revision Series*, December 1989, 261.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Asclepias Curassavica in *coarse powder* 100 g  
                   Purified Water 390 ml  
                   Strong Alcohol 650 ml  
                   to make one thousand millilitres of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ASIMINA TRILOBA**

(Asim. tri.)

- Botanical name** : *Asimina triloba* (L.) Dunal **Family:** Annonaceae
- Synonyms** : *Asimina campaniflora* Spach; *Asimina glabra* Hort. ex Koch; *Annona triloba* Linn.
- Common names** : *English:* Common pawpaw; *French:* Assimnier; *German:* Dreilappige asimine.
- Description** : A small tree, 3 to 10 m in height with branches and leaves first clothed with rusty down, later becoming glabrous. Leaves thin, smooth, entire, cuneate, ovate-oblong, 15 to 25 cm long, abruptly short-acuminate, gradually tapering to the base into 5 to 10 mm long petiole. Flower solitary, axillary, lurid purple, arising from branches of preceding year, 3 to 4 cm wide; petals broadly ovate, outwardly curved, inner petals ovate, nearly erect. Fruit a pulpy pod, yellowish brown, ovoid-oblong and rounded at the summit, about 7.5 cm long and 2.5 cm in diameter, fragrance sweet, containing about 8 seeds and covered externally with a tough hard coat; coat smooth, light brown externally, wrinkled internally and enclosing a white kernel and seeds, kernel being compressed and deeply fissured on both sides, slightly bitter and sweet; leaving faint persistent sensation of sickness.
- Distribution** : South States of U.S., New York, West to Michigan, Kansas. Also cultivated in India and Africa.
- Part used** : Ripe seed.
- Macroscopical** : Seeds varying in shape, flat, ovoid to somewhat reniform, sometimes circular, with a depression along the center of each flat surface and frequently a ridge in place of fissure, 2 to 2.5 cm long.
- Microscopical** : Seeds in transection oval in outline with brown seed coat and ruminated endosperm. Testa multiplicative, consists of outer most layer of cuticularised yellowish-brown, radially elongated epidermal cells; mesophyll divided into outer and inner zones; outer zone consists of many layers of longitudinal fibres and inner zone consists of many layers of oblique and transverse fibres; fibres lignified and pitted. Tegmen not distinguished. Endosperm shows rumination of endosperm as transverse folds of segments which formed from inner layers of testa and also contains thin-walled tegmen cells; occasional thick walled oil-containing cells and fibres present.



- Identification** : 1. Take 1 ml of alcoholic extract, acidify with a few drops of 10% *hydrochloric acid*, add a few drops of *Mayer's reagent*, brown precipitate is formed.
2. Spot the chloroform extract of drug on silica gel 'G' coated plate, evaporate it and spray with *Dragendorff's reagent*, yellowish brown colour is developed.

**History and authority** : Introduced and proved by George Bute and Edward. H.; Hering, C., *Guiding symptoms*, 1879, **2**, 228; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **1**, 598.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Asimina Triloba in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.

**AVERRHOA CARAMBOLA**

(Aver. car.)

- Botanical name** : Averrhoa carambola Linn. **Family:** Averrhoaceae
- Common names** : *Hindi:* Kamarak; *English:* Cambola tree, Star-fruit; *French:* Carambolier.
- Description** : An ornamental tree, 7.5 to 10 m high, with close drooping branches. Leaves irritable to touch, alternate, imparipinnate, leaflets subopposite, 3.8 to 6.3 by 2 to 3.2 cm, ovate or ovate-lanceolate, acuminate, entire, glabrous or pubescent above, glaucous beneath, with base oblique; petiolules short and stout. Flowers white or purple, in short axillary racemes. Calyx 5, 3 to 4 mm long, glabrous; corolla 5, campanulate, more than twice as long as the sepals, oblong-ovate, variegated white and purple. Stamens 10, of which 5 are shorter and without anthers, sometimes 1 or 2 shorter stamens also bear anthers; filaments dilated at the base. Fruit a berry, oblong, acutely 3 to 5, angled, greenish yellow, pulp acidic. Seeds arillate.
- Distribution** : Cultivated throughout hotter parts of India.
- Part used** : Fruit.
- Macroscopical** : Fruits 4 to 7.5 cm long, ovoid, oblong or ellipsoid, distinctly star-shaped in cross section, acutely angled, 3 to 5 ribbed, greenish yellow when ripe, seeds 8 to 10,  $6 \times 5 \times 2.5$  mm, arillate, yellow or light brown, shining, thin, much compressed, with firm but apparently largely unligified coat. Odour somewhat between that of sorrel and green gooseberry; taste strongly acid.
- Microscopical** : Fruit: Transverse section shows pericarp consisting of exocarp, mesocarp and endocarp. Exocarp composed of a single layer of epidermis covered with thin cuticle and subepidermal collenchyma; a fleshy mesocarp, differentiated into outer layers of thin walled succulent cells consisting of vascular bundles and inner layers of small, spongy parenchyma; endocarp consists of thin walled unligified fibres and 2 to 3 layers of thick-walled, pigmented cells (multilayered inner epidermis); secretory cells scattered throughout pericarp.

Seed: Transection shows: testa consists of an outer epidermis of palisade like mucilaginous, shortly elongated cells covered with cuticle; a zone of 3 to 4 layers of mesophyll of thick-walled, tangentially elongated, lacunate parenchyma cells containing starch grains; a layer of endotesta consisting of thick walled crystal bearing cells followed by 1 to 2 layers of stone cells, tegmen crushed. Endosperm consist of thin-walled cells with flat cotyledons.

**Identification** : Evaporate 20 ml of the Mother Tincture on the water bath to remove *alcohol*, make it alkaline with *ammonia solution* and extract with *chloroform*. Carry out TLC of the chloroform extract on silica gel 'G' using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light three spots appear at  $R_f$  0.58 (light blue), 0.68 (dark blue), 0.79 (light blue). On spraying with *antimony chloride* three spots appear at  $R_f$  0.31, 0.50, 0.87 (all violet).

**History and authority** : *Homoeo rays*, 13 (12), 1989, S. Sureka.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Averrhoa Carambola <i>coarse powder</i>	100 g
Purified Water	400 ml
Strong Alcohol	630 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## Original Monograph Appeared in HPI Vol. I

**BAPTISIA TINCTORIA**

(Bapt. tin.)

- Botanical name** : *Baptisia tinctoria* R. Br.      **Family**: Fabaceae (Leguminosae)
- Synonym** : *Sophora tinctoria* Linn.
- Common names** : *English*: Wild indigo; *French*: Indigo sauvago; *German*: Baptisie.
- Description** : An erect, bushy, perennial herb, glabrous or somewhat glaucous, much branched, up to 1.5 m in height. Leaves petiolate, petiole up to 3 mm long, palmately-compound, trifoliolate, leaflet cuneate-obovate, obtuse, about 1.5 cm long, nearly or almost sessile; stipules very small and caducous. Inflorescence raceme. Flowers bright yellow, about 1.25 cm long; calyx 2 lipped, lower lip 1 to 2 mm long; petals 5, vexillum slightly exceeding in size the lateral petals and keel; stamens 10. Fruit a pod, sub-globose or ovoid, 1.25 cm or less long, with slender beak.
- Distribution** : Found from southern New England and New York westward to Minnesota and south of Florida.
- Part used** : Root Bark.
- Macroscopical** : Fleshy, up to 4 cm in thickness, usually cut into elongated cylindrical pieces, more or less transversely warty and marked by stem scars; outer surface dark brown, usually longitudinally wrinkled; thicker pieces covered with soft corky layer. Fracture tough and fractured surface whitish.
- Microscopical** : Transection shows 4 to 6 layers of thick-walled, rectangular, flattened cork cells; a narrow secondary cortex having 2 to 3 layers of parenchyma containing starch grains; endodermis and pericycle disorganised; phloem considerably wide, consisting of phloem parenchyma and patches of fibres.
- Identification** : (1) To 1 ml of Mother Tincture, add a pinch of magnesium powder and two drops of *Hydrochloric Acid*, a pink colour develops.
- (2) Carry out TLC of chloroform extract of Mother Tincture using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase. Four spots appear at  $R_f$  0.04 (red), 0.14 (blue), 0.57 (blue) and 0.71 (blue). On spraying with Dragendorff's reagent four pink spots appears at  $R_f$  0.04, 0.37, 0.43 and 0.57.

**History and authority** : Proved by Thompson; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **2**, 31; **10**, 372.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Baptisia Tinctoria in *coarse powder* 100 g  
Purified Water 333 ml  
Strong Alcohol 700 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## Original Monograph Appeared in HPI Vol. I

**BELLIS PERENNIS**

(Bel. per.)

**Botanical name** : *Bellis perennis* Linn. **Family**: Asteraceae (Compositae)**Synonyms** : *Bellis alpina* Hegetschw.; *B. hortensis* Mill.; *B. hybrida* Tenore; *B. integrifolia* DC.; *B. scaposa* Gilib.**Common names** : *English*: Daisy; *French*: La paquerette; *German*: Maslieben.**Description** : A perennial herb, up to 10 cm high. Leaves fleshy, forming a basal tuft, spatulate or obovate, 2.5 to 5.0 cm long, narrowed into margined petioles, slightly toothed, pubescent; midrib broad. Inflorescence capitulum. Heads solitary, 2.5 to 5 cm across on hairy peduncles; involucral bracts oblong, obtuse hairy; rays numerous, linear, white, wholly or partly reddish and often incurved or relaxed or quilled. Root stock short, fibrous, stout. Taste intense pungent, slightly acidic, which develops 2 to 3 minutes after chewing on sides of the upper half of the tongue and the palate.**Distribution** : Britain; Cultivated in India.**Part used** : Whole plant.**Microscopical** : Leaf: shows mesophyll characteristic of an isobilateral leaf; epidermis single layered covered with multicellular uniseriate trichomes and anomocytic stomata. Midrib consisting of conjoint, collateral vascular bundles, covered on both sides by thick walled parenchyma, ground tissue chlorenchymatous.

Stem: in transection shows oval outline; single layered epidermis of radially elongated tabular cells, thickened on upper tangential walls; a cortex of 16 to 20 layers of parenchyma; endodermis one layered, parenchymatous vascular bundles conjoint, collateral, open, in a ring, separated from each other by oval, isodiametric parenchymatous cells. Xylem consists of fibres and vessels; small accessory identical vascular bundles present scattered in cortex and surrounded by 1 to 2 layers of parenchyma.

Root: in transection shows circular outline and consists of single layered epidermis; a wide parenchymatous cortex; endodermis single layered with cells having thickenings on both dorsal and ventral aspects; pericycle single layered of large parenchyma ; stele triarch , 2 to 3 layered secondary phloem over the xylary bundles present



**Identification** : Carry out TLC of the Mother Tincture on silica gel ‘G’ plate by using *ethyl acetate : formic acid : water* (8 : 1 : 1 v/v) as mobile phase. Under UV light at long wavelength two spots at  $R_f$  0.79 and 0.94 (both red) appear.

**History and authority** : Proved by Thomas; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 2, 128.

**Preparation** : (a) Mother Tincture  $\phi$ , Drug strength 1/10

Bellis Perennis in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	683 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**BETA VULGARIS**

(Beta. vul.)

- Botanical name** : *Beta vulgaris* Linn. **Family:** Chenopodiaceae
- Common names** : *Hindi:* Chukandar; *French:* Bette; *German:* Beisskohl, Bete.
- Description** : An erect biennial herb, 30 to 50 cm high, with red, swollen, napiform root, a short crown of stem and a rosette of radical leaves. Radical leaves long petioled, ovate-oblong with a cordate base and undulate margins; cauline leaves sessile or short petioled, linear, oblong-lanceolate, obtuse or acute. Flowers 2 to 3, in a cluster or solitary, on a long slender, leafy or leafless branched panicle. Perianth 5, green, oblong, hooded at top, with a tuberculate base in fruit; stamens 5; stigma 2 to 3.
- Distribution** : India, Western Asia, Europe and Africa.
- Part used** : Root.
- Macroscopical** : Thick, napiform, 4 to 8 cm in diameter, blood red with radical leaves; in transection bearing 4 concentric rings of vascular bundles. Taste sweet.
- Microscopical** : Cork 2 to 3 layered, ground tissue parenchymatous containing 4 to 10 concentric rings of vascular bundles. Vascular bundles conjoint, collateral and open, arranged in a ring separated by broad parenchymatous zone; central region also contains a ring of conjoint, collateral, open vascular bundles, each with 1 or 2 linearly arranged rows of xylem elements below the cambium; pith absent.
- Identification** : (1) Carry out TLC of 30 percent alcoholic extract on silica gel 'G' using *petroleum ether* (40° to 60°): *solvent ether* (85:15 v/v) as mobile phase. On spraying with *antimony trichloride reagent* one spot at  $R_f$  0.22 appears.
- (2) Carry out TLC on silica gel 'G' using *n-butanol* : *acetic acid* : *water* (4:1:5 v/v) as mobile phase. Under UV light one blue spot appears at  $R_f$  0.28.
- (3) Carry out TLC on silica gel 'G' using *alcohol* : *water* (9 : 1 v/v) as mobile phase. Under UV light one grey spot appears at  $R_f$  0.60.
- History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 122.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Beta Vulgaris, moist magma containing solids 100 g and plant moisture 700 ml | 800 g  |
| Strong Alcohol   | 350 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts *Strong Alcohol* and six parts of Purified Water; 3x and higher with *Dispensing Alcohol*.

**BETAINUM MURIATICUM**

(Betain. M.)

C<sub>5</sub>H<sub>11</sub>NO<sub>2</sub>.HCl

**Mol. wt.:** 153.61

**Common names** : *English:* Acidol Lycine hydrochloride; *French:* Chlorhydrate de Betaine; *German:* Betainchlorid.

**Description** : Monoclinic crystals, manufactured from Liquors of beet root. It is a constituent of the beet root and crystallizes from *alcohol* solution. Soluble in *water*, slightly soluble in *alcohol* and practically insoluble in *chloroform* and *ether*.

**Melting range** : 227° to 228°C (with decomposition).

**History and authority** : Mentioned in *Homoeopathic Pharmacopoeia of United States*, December 1989.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/100  
 Betainum Muriaticum 10 g  
*Dispensing Alcohol* in sufficient quantity  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 3x and higher with *Dispensing Alcohol*.

(c) Trituration 2x Drug strength 1/100  
 Betainum Muriaticum 10 g  
 Saccharum Lactis 990 g  
 to make one thousand grammes of the Trituration.

(d) Potencies: 3x and higher to be triturated in accordance with the method, HPI and 6x may be converted to liquid 8x, HPI. 9x and higher with *Dispensing Alcohol*.

**BOLETUS LARICIS**

(Bole. lar.)

- Botanical name** : *Boletus laricis* Jacq. **Family:** Boletaceae
- Synonyms** : *Polyporus officinalis* (Vill.) Fr.; *Boletus laricinus* Berk; *Suillus aeruginascus* (Geir.) Shell.
- Common names** : *English:* Larch boletus, White agaric.
- Description** : Basidiocarp or fruit body soft, fleshy and putrescent. Cap about 6.0 to 7.6 cm broad, dingy white or greyish white, fleshy, broadly convex on nearly plane, covered with a viscid, dirty- yellowish on brownish gluten, sometimes squamose with brown or blackish easily movable scales; cap flesh white or whitish and soft. Hymenophore, consisting of tubes, usually separating readily from context. Tubes short, adnate or slightly decurrent, whitish when young, becoming darker and brown (sepia-brown) with age, extending downwards on the stem towards the ring and forming a low network there. Stem short, 3.0 to 5.0 cm long, 0.5 to 1.27 cm in thickness, solid, greyish or brownish and sub-orbiculate below. Ring slight, spores brown.
- It is edible; grows always near or under larches.
- Distribution** : United States and Europe.
- Part used** : Dried fungus.
- Microscopical** : Tube mouth large, angular, sub compound i.e. divided into smaller mouths. Spores brown, oblong, 10.0 to 12.7 × 4.0 to 5.0 um.
- History and authority** : Proved by Burt; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **2**, 188; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 290.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Boletus Laricis  | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with method, HPI, 6x may be converted to 8x, HPI; 9x and higher with *Dispensing Alcohol*.

**BOLETUS SATANUS**

(Bole. sat.)

- Botanical name** : *Boletus satanus* Lenz **Family:** Boletaceae
- Common name** : *English:* Devil's Boletus.
- Description** : A calcareous soil dwelling poisonous fungus with basidiocarp (fruit body) having a central stipe (stem) and handsomely coloured, smooth, large pileus (cap.). Cap about 15 cm wide, convex to flattened, at first with inrolled margin and becoming very thick fleshed and firm, greyish-olive. When young the cap rests on the globular stem rather like a priest's cap; the skin of cap at first dirty white, becoming pale-grey to olive grey and when old faded yellow, always tinged with green. It has a velvet sheen, soft touch, do not peel and sticky in wet weather. Hymenium consists of a large number of blood red pores and fine long, yellow to green tubes. Cap easily separated from tubes. Stem short, about 7.5 cm in height, central, very swollen (up to 10 cm in diameter), lemon-yellow above, red below and covered with a fine network of blood-red veins. Flesh white, firm but spongy and soft when old; flesh including pores turns blue when bruised. Young ones taste quite pleasant (nutty); odour unpleasant even in young specimen.
- Distribution** : America, Europe including England.
- Part used** : Whole fungus.
- Microscopical** : Tubes of hymenium up to 3 mm long, lightly adnate to free, easily get detached from flesh to cap, turn grey blue when bruised. Pores at first yellow to yellowish green, narrow, rounded, soon become carmine to purple red to blood red. Spore dust olive green; individual spore olive yellow, smooth, fusiform to spindle shaped, 11 to 16  $\mu\text{m}$   $\times$  4.5 to 6.5  $\mu\text{m}$  in size.
- Identification** : 1. To 2 ml of the alcoholic extract, add 2 drops of *iodine solution*. A red ppt is formed.
2. Evaporate 10 ml of alcoholic extract to dryness. Extract the residue with ether, reject the extract and dissolve the residue in methanol. Carry out TLC of methanolic extract on silica gel 'G' plate using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase. With *Dragendorff's reagent* one red spot appear at  $R_f$  0.23.
- History and authority** : Proved by Lenz; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 2, 190.

- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Boletus Satanus  | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be Triturated in accordance with the method HPI, 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**BRYONIA ALBA**

(Bry. alba)

- Botanical name** : *Bryonia alba* Linn. **Family:** Cucurbitaceae
- Synonym** : *Bryonia dioica* Bieb.
- Common names** : *English:* Black-berried bryony; *French:* Couleuvre; *German:* Zaurube.
- Description** : A perennial, climbing herbaceous vine with a spindle-shaped fusiform-branched root. Leaves alternate, cordate, five-lobed, rough, bright green in colour. Flowers small, greenish-yellow, monoecious; in axillary racemes; the male flowers being on long peduncles and the female flowers larger than the male. Calyx 5, fused; corolla 5, divided in the middle; stamens 5; styles smooth, not hairy. Fruit a pepo, globular, black and about 6 mm in diameter.
- Distribution** : Middle and south of Europe.
- Part used** : Root.
- Macroscopical** : Root appears in the form of circular or elliptical slices in commerce, from 1.5 to 10 cm in diameter and up to 15 mm in thickness, with edges light grey or yellowish-orange to moderate, showing a thin bark and broad wood, the latter exhibiting a thin cortex and several concentric zones of collateral fibro-vascular bundles; fracture short and mealy; whitish internally, odour characteristic but faint, taste bitter and nauseous
- Microscopical** : Root in transection shows wide zone of cork, having 7 to 20 layers of radially elongated yellowish cells, cork cambium 4 to 6 layered; secondary cortex thin parenchymatous, containing profuse starch grains; wood broad, containing several concentric zones of collateral fibro-vascular bundles; pith absent.
- Powdered drug: weak yellowish-orange to yellow; fragments of parenchyma tissue with numerous starch grains, both simple and 2 to 6 compound, starch grains with a central hilum or with a central cleft; fragments of broad trachea, reticulate or with bordered pith; large yellow cork fragments. Powder turns brown and then red-purple with addition of Sulphuric acid.



- Identification** : (i) To 1 ml of Mother Tincture, acidified with *Hydrochloric acid*, add a few drops of Mayer’s reagent, a yellow precipitate develops.
- (ii) To 1 ml of the *β-naphthol* solution in chloroform, add 1 ml water extract of the drug, a violet ring is appeared at the junction of two layers.
- (iii) Carry out TLC of chloroform extract of Mother Tincture on silica gel ‘G’ plate:
- (a) using *chloroform : methanol* (9:1 v/v) as mobile phase, four spots appear under UV light at  $R_f$  0.28, 0.48, 0.82 and 0.93.
- (b) using *n-butanol : acetic acid : water* (4:1:1 v/v) as mobile phase, three spots appear under UV light at  $R_f$  0.45 (yellow), 0.55 (blue) and 0.60 (blue).

**History and authority** : Proved by Hahnemann; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **2**, 249. Hering, C., *Guiding Symptoms*, 1879, **3**, 9.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                      |        |
|--------------------------------------|--------|
| Bryonia Alba in <i>coarse powder</i> | 100 g  |
| Purified Water                       | 400 ml |
| Strong Alcohol                       | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x with *dilute alcohol*, 4x and higher with *Dispensing Alcohol*.

**BUFO SAHYTIENSIS**

(Bufo. sah.)

**Zoological name** : *Bufo sahytiensis* **Family:** Bufonidae

**Common name** : *English:* Brazilian Toad.

**Description** : Head flat, triangular and broad, parotid with a strong osseous edge, commencing at the tip of the muzzle, there from it stretching towards the inner angle of the eye around his organ and finally terminating behind the lids. The eyes and tympanic wall very large. Trunk very large along with the well developed parotids; parotid prominently enormous and rhomboidal where from it secretes and pushes out a large quantity of poison, covered on each side of the dorsal spine with two irregular rows of large elliptical or conical bladders. The anterior extremities do not reach to the end of the trunk while posterior extremities reach beyond the muzzle by the length of the fourth toe. Toes rather flattened, first toe longer than the second. Colour varies, back portion containing brown spots while abdomen bears yellow dots.

**Distribution** : South America, specially in swamps and Marshy Lands.

**Part used** : Saliva to be collected after irritating the animal.

**Macroscopical** : Bigger than common variety *Bufo rana*. Parotidglands, which secretes poison, rhomboidal and comparatively larger; bears dark brown spots on back and light yellow spots on abdomen.

**History and authority** : Proved by Mure; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 321; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **2**, 318.

**Preparation** : (a) Trituration 3x Drug strength 1/1000

Bufo Schytiensis dry venom 1 g

Saccharum Lactis 999 g

to make one thousand grammes of the Trituration.

(b) Potencies: 4x and higher to be triturated in accordance with the method, HPI, 6x may be converted to liquid 8x, HPI, 9x and higher with *Dispensing Alcohol*.

(c) Mother Solution 3x	Drug strength 1/1000
Bufo Schytiensis dry venom	1 g
Glycerin	999 ml

to make one thousand millilitres of the Mother Solution.

(d) Potencies: 4x and higher with *Dispensing Alcohol*.

**Caution** : Not to be dispensed below 6x.

Original Monograph Appeared in HPI Vol. VI

**CANNA**  
(Canna)

- Botanical name** : *Canna flaccida* Salisb. **Family**: Cannaceae
- Synonyms** : *Canna glauca* Walt.; *Canna angustifolia* Walt.
- Common names** : *English*: Wild plantain; *French*: Salisier; *German*: Blumenrohr.
- Description** : Large perennial herb, up to 2 m in height; stem green, glabrous, very leafy below. Leaves cauline, large, foliaceous, ovate-lanceolate to narrowly elliptic, acute, pinnately veined with prominent midrib, green, petiole long and sheathing the stem. Inflorescence simple raceme, lax. Flower large, showy, bisexual, irregular, yellow to yellow orange, subtended by small bract, pedicel short; sepals lanceolate or oblong, acuminate, about 2.5 cm long, green, persistent; petals broadly linear-lanceolate to ovate, reflexed, about 7.5 cm long, connate at base forming a tube like structure; staminodia 3, ovate, sulphur-yellow colour, 5 to 7.5 cm long and about 4 cm broad; carpel 1, petaloid, ovary inferior, trilocular. Fruit a capsule, very warty.
- Distribution** : Brazil and other South American countries.
- Part used** : Leaf.
- Microscopical** : Transection of lamina shows dorsiventral type of tissue arrangement; cuticle thin; single layer of epidermis, epidermal cells contain crystals singly or in stacks; stomata with a pair of narrow lateral subsidiary cells, abundant on lower surface, infrequent on upper surface; hypodermis present on each surface consisting of colourless, thin walled, conspicuous and bigger cells. Mesophyll differentiated into a palisade layer below upper epidermis and loose spongy parenchyma.

Midrib prominently projected towards lower surface. In the ground tissue characteristic stellate prosenchymatous tissue present like petiole and occasional cells contain rod-shaped and rhomboidal crystals; in vascular bundle phloem surrounds xylem and thick sclerenchyma caps on both upper and lower sides which extended almost up to epidermis on both the sides; an adaxial band of chlorenchyma present.

Petiole transection shows single layer of epidermis, occasional stomata present, 2 to 3 celled sub-epidermal layers below which a single layer of chlorenchyma present. Air canals arranged in a single arc; each canal traversed by multiseriate diaphragms at long intervals and contains loose irregular stellate aerenchyma (prosenchyma) and shows a net like appearance. Main vascular bundles arranged in a single row; each vascular bundle has xylem surrounded by phloem and each bundle enclosed by fibrous bundle sheath; fibrous strands present near vascular bundles; occasional rod shaped and rhomboidal crystals present in ground tissue.

**Identification** : Evaporate 20 ml of Mother Tincture on a water bath to dryness. Extract it with *petroleum ether*, dissolve the residue in *methanol*. Carry out TLC of *methanolic* extract using *n-butanol : acetic Acid : water* (4:1:1 v/v) as mobile phase and *aluminium trichloride* as spray reagent; three spots at  $R_f$  0.70 (yellow), 0.75 (greenish) and 0.92 (blue) appear under UV light.

**History and authority** : Introduced by Mure; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 2, 447.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Canna in *coarse powder* 100 g  
                   Purified Water 300 ml  
                   Strong Alcohol 730 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**CARDUUS MARIANUS**

(Card. mar.)

- Botanical name** : *Silybum marianum* Gaertn.      **Family**: Asteraceae (Compositae)
- Synonym** : *Carduus marianus* Linn.
- Common names** : *Hindi*: Badaward; *English*: Blessed thistle; *French*: Chardon Marie; *German*: Frauendistel.
- Description** : An erect, thistle-like herb, up to 1.3 m high, biennial, deciduous and glabrous. Leaves large pinnately lobed, less so upwards, up to 40 cm long and nearly half as wide, undulate, conspicuously white dotted above, spiny-margined, petiolate below, becoming sessile and conspicuously auriculate-clasping above. Heads 4 to 7 cm, across, solitary, terminal, nodding; involucre broadly sub-globose, involucre bracts leathery, with a spine 1 to 2 cm long or the outer mucronate. Flowers rose-purple, all bisexual, corolla tube slender, the limb 5-cleft to middle or base; achenes glabrous, 6 mm long, spotted brown; pappus shining white.
- Distribution** : Punjab, Northwest Himalayas, Jammu and Kashmir, southern Europe and Great Britain.
- Part used** : Seed.
- Macroscopical** : Apical portion cup-shaped, compressed encloses a large knob-like style base, compressed, oblong-lanceolate, dark brownish-black, with white collar, 7 × 3 × 2 mm; pappus deciduous; outer seed-coat thin and swelled on boiling.
- Microscopical** : Transection shows, outer seed coat consisting of a single layer of epidermal cells followed by a single layer of elongated palisade like cells and 5 to 7 layers of thin-walled angular parenchyma cells; inner seed coat consist of 3 to 5 layers of very thick-walled, elongated sclerenchyma and 5 to 7 layers of thin-walled, round parenchyma; in between seed coat and cotyledon a few layers of unorganized and compressed parenchymatous tissue cells present in a somewhat wavy manner; cotyledon heart shaped in structure and consists of an outer layer of thin-walled, barred shaped epidermal cells and inner core of angular parenchymatous cells containing starch grains.

- Identification** : (a) Colour Test: To 1 ml of Mother Tincture, add a pinch of *magnesium powder* and a few drops of *hydrochloric acid*; pink colour develops.
- (b) (i) Carryout TLC of Mother Tincture using *chloroform: methanol* (9 : 1 v/v) as mobile phase and *methanolic sulphuric acid* as spray reagent. Five spots appear at  $R_f$  0.20, 0.24, 0.40, 0.50 and 0.60.
- (ii) Evaporate 20 ml Mother Tincture on water-bath to remove *alcohol* and extract the aqueous part with 3×20 ml *chloroform*. Concentrate the aqueous layer and carryout Co-TLC with standard *sylibine* using *chloroform : methanol* (9:1 v/v) as mobile phase and *methanolic sulphuric acid* for spray. Spot corresponding to standard *sylibine* appears.

**History and authority** : Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, 2, 635.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| <i>Carduus Marianus</i> in moderately coarse powder | 100 g  |
| Purified Water                                      | 250 ml |
| Strong Alcohol                                      | 780 ml |
- to make one thousand millilitres of the Mother Tinctures.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CATHARANTHUS ROSEUS**

(Cath. ros.)

**Botanical name** : *Catharanthus roseus* Linn. **Family:** Apocynaceae

**Synonyms** : *Vinca rosea* Linn.; *Lochnera rosea* Linn. Reichb.

**Common names** : *Hindi:* Sadabahar, Sada suhagan; *English:* Red periwinkle; *French:* Periwinkle de Madagascar.

**Description** : An erect, much branched, annual or perennial herb or undershrub, succulent when young, ligneous and tough afterwards. Leaves oblong, elliptic, acute-rounded or mucronate at apex, glossy, slightly foetid. Flowers fragrant, white to pinkish purple, in terminal or axillary cymose clusters, pedicellate, hermaphrodite, complete, actinomorphic, hypogynous. Calyx 5, polysepalous, 5 to 7 mm long, green, glandular, segments narrowly lanceolate; corolla 5, gamopetalous, salver shaped, throat of corolla hairy, forming a corona like structure; stamens 5, alternating the petals, included in corolla tube, epipetalous; gynoecium bicarpellary, syncarpous. Fruit a pair of elongated follicles, 1.5 to 3.5 cm long, hairy, many seeded; seeds oblong, minute, about 2 mm long, 1 mm broad, black, longitudinally muricate.

**Distribution** : Commonly grown in gardens throughout India.

**Part used** : Whole plant.

**Microscopical** : Leaf: Dorsiventral transection shows upper epidermis of polygonal cells; stomata anomocytic, present on both surfaces but numerous on the lower epidermis; lower epidermal cells slightly sinuous; a smooth cuticle on both surfaces; dorsiventral, mesophyll differentiated into 1 to 2 layers of palisade and 6 to 8 layers of spongy parenchyma, palisade discontinuous on the mid rib; in mid rib epidermis is followed by collenchyma; meristele a shallow arc of bicollateral vascular bundles, ground tissue of isodiametric chlorenchyma tissue.

Stem: transverse section exhibits a single layered epidermis covered with cuticle; a wide parenchymatous cortex; pericycle of isolated groups of fibres; xylem in the form of a continuous cylinder, traversed by narrow 1 to 5 cells wide rays, with lignified pitted walls; intraxylary phloem in the form of patches at the margin of pith; pith small, parenchymatous; starch grains and laticiferous cells present in both cortex and pith.



Root: transverse section shows a cork of 4 to 5 layers of light yellowish, thin-walled cells; a cork cambium of thin-walled compressed cells; phelloderm of 1 to 2 layers of tangentially elongated, thin-walled cells; a cortex of 5 to 7 layers of thin-walled parenchyma, filled with starch grains; xylem in the form of slightly accentric solid cylinder surrounded by phloem and traversed by narrow, 1 to 2 cell wide rays with simple pits; few laticiferous cells present in cortex.

**Identification** : Evaporate 20 ml of the Mother Tincture on a water bath to remove *alcohol*, make it alkaline with *ammonia* solution and extract with *chloroform*. Carry out TLC of the chloroform extract on Silica Gel ‘G’, using *chloroform* : *methanol* (9 : 1 v/v) as a mobile phase. Under UV light seven spots appear at  $R_f$  0.33, 0.43, 0.51, 0.74 and 0.84 (both blue); 0.61 and 0.94 (All red). On spraying with solution of *antimony trichloride reagent* six spots appear at  $R_f$  0.48, 0.80 (both violet) and 0.63, 0.70, 0.88, 0.93 (all brown).

**History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis*, 1990, 90.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Catharanthus Roseus in moderately  
                   *coarse powder* 100 g  
                   Purified Water 300 ml  
                   Strong Alcohol 725 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.





**CICHORIUM INTYBUS**

(Cich. int.)

- Botanical name** : *Cichorium intybus* Linn.      **Family**: Asteraceae (Compositae)
- Common names** : *Hindi*: Hinduba, Kasni; *English*: Chicory, Succory.
- Description** : An erect, perennial, hispid herb, extending 30 to 100 cm, with a fleshy tap root up to 75 cm in length. Stem angular or grooved, with branches touch, rigid, spreading. Bark whitish with brownish dots or stained brownish all over with dried exuded latex, latex white. Leaves broadly oblong, oblanceolate, crowded at the base forming a rosette; arranged spirally on the stem, lower leaves radical, large, spreading, 7.5 to 15.0 cm long, thickly covered with hairs, pinnatifid, with lateral segments or lobes at right angles and the terminal lobe largest; upper leaves cordate, amplexicaul, smaller, undivided or lobed. Inflorescence a terminal or axillary capitulum, ligulate, sessile or on short stalk; involucre bracts in two whorls, an outer whorl of 5 to 8 ovate reflexed bracts and inner whorl of 8 erect elongated bracts; bracts ciliate with bristles having glandular hairs. Flowers 5-toothed, blue fading to white, very occasionally rose-pink, tubular at the base only and up to 3 times the length of the involucre, glandular hairs on under surface; stamens 5, syngeneis, usually blue; pistils blue with stigma curving outside, ovary inferior, whitish 1 to 2 mm. Fruit an achene, smooth, 5-angled, pale brown to black, 2 to 3 mm long, crowned with a ring of 0.2 mm long pappus scales.
- Distribution** : India, found wild in fields in winter; cultivated in Bihar, Punjab, Himachal Pradesh, Assam, Maharashtra, Gujara, Tamil Nadu, Orissa andhra Pradesh and Kerela.
- Part used** : Root.
- Macroscopical** : Roots swollen, cylindrical or somewhat flattened, longitudinally wrinkled, crowned with remains of stem and leaf bases, dirty brownish-yellow outside, white within, with thin bark. In dried form, it shows loose reticulate white layers surrounding a radiate central woody column. Taste mucilaginous and bitter.
- Microscopical** : Transection shows outer most region of cork of tangentially elongated suberised cells with content and a narrow phelloderm; a central radiate xylem occupying more than half of the root, appears more or less stellate with broad medullary rays. Xylem vessels radially arranged, solitary or in small groups; radiating patches of laticifers present. Crystals of inulin present in phloem parenchyma.

**Identification** : Evaporate 20 ml of alcoholic extract to remove *alcohol*. Extract the aqueous part 3 times by using 20 ml of *chloroform* each time. Carry out TLC of chloroform layer after concentration on silica gel ‘G’ plate using *chloroform : methanol* (9:1 v/v) as mobile phase. On spraying with *antimony trichloride reagent* in chloroform, four violet spots develops at  $R_f$  0.42, 0.51, 0.71 and 0.84.

**History and authority** : Clarke, J.H., *A. Dict. of Pract. Mat. Med.*, 1900, **1**, 511; *Homoeopathic Pharmacopoeia of United States*, 1981, 191.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Cichorium Intybus, moist magma containing solids 100 g and plant moisture 200 ml	300 g
Purified Water	200 ml
Strong Alcohol	637 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CICUTA MACULATA**

(Cicu. mac.)

- Botanical name** : *Cicuta maculata* Linn. **Family:** Apiaceae (Umbelliferae)
- Common names** : *English:* American water Hemlock, Cowbane, Musquash; *French:* Cigue d' Amerique; *German:* Amerikanische wasserchierling.
- Description** : A perennial herb, up to 2 m in height. Leaves pinnately compound with long petiole, upper leaves smaller, reduced to trifoliate shape or even simple, lower leaves 2 to 3 times pinnate, leaflets varying from linear to ovate-lanceolate, usually 3 to 10 cm long, sharply or coarsely serrate or nearly entire in case of upper leaves. Inflorescence large compound umbel, 5 to 12 cm wide. Flowers white, small. Fruit a cremocarp with large oil tubes, ovoid to ellipsoidal, 2 to 4 mm long, with prominent pale brown ribs and dark brown furrow. Plant violently poisonous.
- Distribution** : Grows throughout northern America, specially in eastern USA and Canada, south to Missouri and west to Taxes.
- Part used** : Root.
- Macroscopical** : Short erect bulbous rhizome has many cross partitions closely approximated as can be observed by cutting through the center, around its base smaller roots like sweet potatoes present; odour of roots parsnip-like.
- Microscopical** : Transection of mature root shows numerous centric bundles, having central xylem, arranged in 2 or 3 concentric rings.
- History and authority** : Proved by Charles; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, 3, 281; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, 1, 511.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/100  
                   Cicuta Maculata in *coarse powder* 10 g  
                   Purified Water 500 ml  
                   Strong Alcohol 537 ml  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.
- Caution** : Poisonous, Not to be dispensed below 3x.

Original Monograph Appeared in HPI Vol. I

**CINA**  
(Cina)

- Botanical name** : *Artemisia maritima* Linn.      **Family:** Asteraceae (Compositae)
- Synonym** : *Artemisia cina* Berg.
- Common names** : *Hindi:* Kirmala; *English:* Wormseed, Sea worm wood seed; *French:* Graine de Zedoaria; *German:* Zittersaame Wurmsaame
- Description** : A strongly aromatic, evergreen, perennial under shrub with clusters of spreading to erect, partly woody stem, up to 60 cm high, grey or white downy. Leaf: lower leaves 2-pinnate with very narrow blunt segments, white wooly on both sides, withering at flowering; upper leaves similar but smaller and short stalked. Flower heads about 2 to 3 mm in diameter, ovoid, sessile, in long leafy branched inflorescence. Florets yellow, yellowish-orange and pale brown.
- Distribution** : In temperate region, western Himalayas.
- Part used** : Flower head.
- Macroscopical** : Flower heads greenish-yellow, turning brown on drying; 1.5 to 4 mm long, elongated-ovoid, somewhat angular, shining and slightly hairy, with a few fragments of leaves and stalks always admixed; involucre consists of 14 to 20, most commonly 16, imbricated, ovate or lanceolate bracts, each having a distinct keel and bearing on the dorsal surface numerous, glistening, asteraceous, glandular trichomes and a very few cottony blonde hairs. Bracts enclose 3 to 5 tubular hermaphrodite florets, about 1 mm long and 0.5 mm wide and bear many glandular scales; stamens 5, anthers spadiciform; ovary inferior, 0.5 mm long and only half as wide.
- Microscopical** : Powdered drug shows: bracts covered with numerous dumbbell shaped, elliptical, two-celled asteraceous glandular hairs with unicellular stalks; very few cottony, unicellular hairs; corolla fragments with apices papillose but characteristically without any trichomes, with asteraceous trichomes on main body. Asteraceous glandular trichomes also occurring on the outer surface of the corolla and ovary. Pollen sacs have elongated endothelial cells that are strengthened by delicate U-shaped transversely thickened strips; pollen grains spherical, about 20 to 25 µm in diameter with 3 germinal furrows and 3 slit shaped pores, surface of the exine very finely granular, but without spines. Leaf fragments with asteraceous

trichomes; at the base of ovary fragments a single layer of brachysclereid-like cells present and delicate mucous ribs present on ovarian walls. Santonin free varieties can be distinguished by presence of apical and marginal hairs on bracts and corolla and covering unicellular, elongated hairs in leaves.

- Identification** : Colour test: (i) To 1 ml of Mother Tincture, add a drop of *alcoholic potassium hydroxide* solution, a red colour is produced.
- (ii) To 2 ml of Mother Tincture, add a drop of *alcoholic hydroxylamine hydrochloride* solution followed by the addition of a few drops of *alcoholic ferric chloride* solution, a bluish green colour is produced.
- (iii) Carry out TLC of chloroform extract of the Mother Tincture, using *chloroform : methanol (9 : 1 v/v)* as mobile phase. In *iodine* vapour, four spots appear at  $R_f$  0.33, 0.44, 0.51 and 0.83. Spot of  $R_f$  0.83 corresponds with *santonin*.

**History and authority** : Proved by Hahnemann; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **3**, 307. Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 520.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Cina in *moderately coarse powder* 100 g  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- (c) Trituration 1x Drug strength 1/10  
                   Cina 100 g  
                   Saccharum Lactis 900 g  
                   to make one thousand grammes of the Trituration.
- (d) Potencies: 2x and higher to be Triturated in accordance the with method, HPI; 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.



**COLCHICINUM**  
(Colchic.)

$C_{22}H_{26}NO_6$

**Mol. wt.:** 399.21

**Common names** : *English:* Colchicine; *French:* Colchicine.

**Description** : It is the major alkaloid obtained from corm, flower and seed of *Colchicum autumnale* Linn. (Family: Liliaceae). Isolated compound occurs in yellow flakes or whitish-yellow amorphous powder. Melting point 142.5°. Odour hay-like. Taste bitter, darkens on exposure to light. Soluble in *water, alcohol, chloroform*. Very slightly soluble in *ether*, insoluble in *petroleum ether*. Extremely poisonous.

**Identification** : (1) Darkens on exposure to light owing to formation of oxydicolchicine.  
(2) Aqueous solution is neutral to litmus.  
(3) Dissolved 1 mg in 0.2 ml in *sulphuric acid*, a yellow colour is produced which on addition of 0.05 ml of *nitric acid* produces a greenish blue colour, which changes sky blue to red and yellow.  
(4) Add *nitric acid* to colchicine powder, a dull violet colour produced which changes into greenish and eventually to yellow.

$\lambda$  max : 0.001 % in *ethanol*, max at 243 nm and 350 nm.

**Specific optical rotation** : Between  $-230^\circ$  and  $-250^\circ$  determined at  $20^\circ$  in 0.5 % w/v aqueous solution.

**History and authority** : Proved by Schroff; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1876, 3, 448. Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, 1, 562.

**Preparation** : (a) Trituration 2X Drug strength 1/100  
Colchicinum 10 g  
Saccharum Lactis 990 g  
to make one thousand grammes of the Trituration.  
(b) Potencies: 3x and higher to be triturated in accordance with the method, HPI; 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.

- (c) Mother Tincture 2X Drug strength 1/100  
Colchicinum 10 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.

(d) Potencies: 3x and higher with *Dispensing Alcohol*.

**Caution**

: Highly poisonous, not to be dispensed below 6x and should be kept in dark place.

Original Monograph Appeared in HPI Vol. I

**COLCHICUM AUTUMNALE**

(Colch. at.)

- Botanical name** : *Colchicum autumnale* Linn. **Family:** Liliaceae
- Synonyms** : *Colchicum multiflorum* Brot; *C. patens* Schultz.
- Common names** : *English:* Meadow saffron; *French:* Colchique; *German:* Herbstzeitlose.
- Description** : An annual herb, with an underground corm; appears leafless during flowering and leaves appears during ripening of fruit. Leaves 3 to 5, linear, oblong-lanceolate, 25×5 cm, dark green, glabrous, often 30 cm long. Flowers 1 to 4, solitary, reddish-lilac in colour, with a long-ventral perianth-tube surrounded by a spathe, pedunculate. Perianths 6, veined, stamens 6. Fruit a capsule, 2.5 to 3.8 cm, 3-valved. Seeds numerous. Leaves and fruits poisonous. Flowers in autumn.
- Distribution** : Europe, USA; cultivated in India in temperate Himalayas.
- Part used** : Corm.
- Macroscopical** : Fresh corm bluntly conical and flattened on one side, 3.5 to 4 cm high, 2.5 to 3 cm wide and about 2 cm thick, shallowly depressed near the base and at the summit of the corm remnant of last seasons flowering stem present; running from the apex to the base on the corm surface; vascular bundles seen as faint lines; scars of fibrous root present at the base. Internally it is firm, white and fleshy. Odour disagreeable, when cut exudes a bitter, white, milky juice.

In commerce, available as 2 to 5 mm thick and about 3 mm wide, sub-reniform to oval slices; surface of the edges of the slice dark brown, transversely cut surface appears white, ground tissue bearing scattered vascular bundles appearing as greenish dots; pieces from the apex and base of the corm subconical and plano-convex respectively. Fracture short and starchy; with no characteristic odour when dry; taste bitter. When treated with 20% hydrochloric acid or sulphuric acid transverse surface assumes yellow colour due to presence of colchicine.

**Microscopical** : Transection of corm shows epidermis consisting of rectangular to polygonal, tubular cells, 40 to 90 µm in width, brown, indistinctly pitted, moderately thick and slightly wavy walls, bears occasional stomata that are circular in outline; ground tissue parenchymatous containing abundant starch grains; starch grains simple, more usually compound with 2 to 7 components, hilum central and often with a radiate split, grains 3 to 28 µm in diameter; vascular bundles collateral, numerous, scattered in the ground tissue, run longitudinally through the corm, each bundle being surrounded by a single cell thick sheath; vessels narrow, with spiral and annular thickening.

**Identification** : Extract 2 g of powdered drug with 10 ml dilute *hydrochloric acid* for 10 minutes on a water bath. Filter and extract with *chloroform* (2×20 ml), after making alkaline with *ammonia* solution. Evaporate chloroform layer and add 0.2 ml *sulphuric acid* in a beaker; a yellow colour is produced; add a few drops of *nitric acid*. The colour changes to greenish-blue and then reddish and finally yellow or almost colourless; add excess of 5N *sodium hydroxide*, the colour changes to red.

**History and authority** : Proved by Stoerck; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 3, 448.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Colchicum Autumnale, moist magma containing solids 100 g and plant moisture 233 ml	333 g
Purified Water	267 ml
Strong Alcohol	537 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CRESOL**

(Cresol)

 $C_7H_8O$ **Mol. wt.:** 108.13

**Description** : Colourless, yellowish, brownish-yellow or pinkish liquid, becomes darker with age and on exposure to light, odour *phenolic*; poisonous. Mixture of three isomeric *Cresols* in which m-isomer predominates; obtained from coal tar, usually contains a few percentage of *phenol*. Sparingly soluble in *water*, miscible with *alcohol*, *benzene*, *ether*, *glycerol*, *petroleum ether*. Also soluble in solution of fixed alkali *hydroxides*. Contains not less than 95 % w/w of  $C_7H_8O$  with reference to the substance dried over silica gel.

**Acidity** : A 2.0 % w / v solution is neutral to *bromocresol purple* solution

**Distillation** : Not more than 2 % v / v distills below 188° and not less than 80 % v/v distills between 195° and 205°

**Wt. per ml** : 1.029 to 1.044 g.

**Hydrocarbons** : Place 50 ml in 500 ml round bottomed flask, add 150 ml of 5 M *sodium hydroxide* and 30 ml of *water* and mix thoroughly. Connect the flask to a splash bulb and air condenser about 60 cm long, with the end of the air condenser fitting closely into the neck of cylindrical graduated portion about the stopcock. Fill the graduated portion of the separating funnel with *water*. Distill rapidly until 75 ml of distillate has been collected, cooling the separating funnel in running *water* if necessary. Allow the separating funnel to stand in a vertical position until separation is complete and draw off the aqueous liquid into a trituration flask for use in the test for volatile bases.

Allow the separating funnel to stand for a few minutes, measure the volume of *hydrocarbon* oil in the graduated portion and warm, if necessary, to keep the oil in the liquid state.

Subtract the volume of volatile bases in the hydrocarbon oil. Not more than 0.15 % v/v of *hydrocarbon* oil is present.

**Volatile base** : To the aqueous liquid reserved in the test for *hydrocarbons* add any aqueous liquid still remaining in the separating funnel and neutralise, if necessary with 0.1 M *hydrochloric acid* using *phenolphthalein solution* as indicator.

Titrate with 1 M *hydrochloric acid* using *methyl orange solution* as indicator. Wash the oil from separating funnel into the titration flask with water and again titrate with 1 M *hydrochloric acid*. From the volume of additional 1 M *hydrochloric acid* calculate the proportion

of volatile bases in the *hydrocarbon oil*. From the total volume of 0.1 M *hydrochloric acid* used in both titration calculate the proportion of volatile bases in the substance being examined each ml of 0.1 M *hydrochloric acid* being taken as equivalent to 0.080 value of volatile bases. Not more than 0.15 % v / v of volatile bases is present.

**Hydrocarbons and volatile bases** : The sum of the contents of hydrocarbon oil, volatile bases, as determined in the tests for hydrocarbons and for volatile bases, does not exceed 0.25% v/v.

**Sulphur Compound** : Place 20 ml in a small conical flask and over the mouth of the flask fix a piece of filter paper moistened with a 10% w/v solution of *lead (II) acetate*. Heat the flask on a water-bath for 5 minutes. Not more than light yellow colour is produced on the filter paper.

**Non-volatile matter** : When evaporated on a water-bath and dried at 105° leaves not more than 0.1 % w/v of residue.

**Identification** : Shake 0.5 ml with 300 ml of *water* and filter. The filtrate complies with following tests:

(i) To 5 ml add 0.5 ml *ferric chloride* solution – A transient blue colour is produced.

(ii) To 5 ml add 1 ml *bromine water* – A pale yellow flocculent precipitate is produced

**Assay** : To 40 g of *Cresol* in a liter flask add 120 ml of *water* and 10 drops of *methyl orange*, make acidic with *sulphuric acid* and steam distil until all milkiness in the distillate has disappeared. Stop the cooling of the condenser and distil until steam issues from the end of the condenser. Re-cool and continue distillation for 5 minutes. For each 100 ml of distillate add 20 g of *sodium chloride* and shake with 100 ml of *light petroleum ether*, separate and repeat the extraction with two portions of 50 ml. of *light petroleum ether*. Evaporate the solvent, dry for 40 minutes at 100° and weigh the residue. It should be not less than 37.5 g.

**History and authority** : Julian O. A., *Materia Medica of New Homoeopathic Remedies*, 195.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Cresol 100 ml  
                   Strong Alcohol in sufficient quantity  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

**Storage** : To be stored in well closed amber coloured container.

**CUPHEA VISCOSISSIMA**

(Cuph. vis.)

- Botanical name** : *Cuphea viscosissima* Jacq. **Family**: Lythraceae
- Synonyms** : *Cuphea petiolata* (L.) Koehne; *Lythrum cuphea* Linn.; *Lythrum petiolatum* Linn.; *Lythrum melonicum* Linn.
- Common name** : *English*: Blue waxweed.
- Description** : An annual herb, erect, sparingly branched, 15 to 60 cm tall, very viscid, hairy throughout. Leaves long petioled, ovate-lanceolate, 2 to 5 cm long. Flowers solitary or paired in the upper axils, short pediceled; calyx nearly 1 cm long, viscid with a short, blunt spur at the base, teeth minute; petals red-purple, clawed, about 8 mm long, two larger than the other four; stamens 12, filaments villous. Fruit a capsule with few seeds.
- Distribution** : USA to Brazil and Jamaica.
- Part used** : Whole plant.
- Microscopical** : Leaf: in transection shows single layer of epidermis with thin cuticle, papillose midrib region; stomata anomocytic, more frequent on lower side; three types of trichomes present (a) non glandular, unicellular and thick-walled, (b) shaggy, multicellular with glandular base and (c) shaggy with multicellular stalk and glandular head. Mesophyll differentiated into single layer of palisade and spongy parenchyma; midrib with prominent bulge towards the lower surface. In midribs epidermis followed by single layer of collenchyma on both sides; meristele arc shaped, containing xylem and phloem; ground tissue parenchymatous, containing rosette of *calcium oxalate* crystals.
- Stem: in transection almost circular in outline and shows epidermis single layered with thin cuticle and glandular and non-glandular trichomes like leaf; hypodermis a single layered of collenchymatous, cortex parenchymatous, containing rosette of *calcium oxalate* crystals; pericycle a discontinuous layer of fibres followed by 2 or 3 layers of thin-walled inner cork, small zone of phloem; xylem large, tracheary elements arranged in a continuous ring; Interxylary phloem also present; pith parenchymatous, having crystals of *calcium oxalate*.
- Root: in transection shows 3 or 4 layers of thin- walled phellem, 1 or 2 layered phellogen and one layer of phelloderm; phloem narrow with phloem parenchyma, sieve tubes and companion cells; wood large, porous, in a continuous ring; interxylary phloem also present; pith small, parenchymatous.

**History and authority** : Introduced by Roth; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 632.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Cuphea Viscosissima in *coarse powder* 100 g  
Purified Water 300 ml  
Strong Alcohol 730 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*



**CUPRESSUS AUSTRALIS**

(Cupre. au.)

- Botanical name** : *Cupressus sempervirens* Linn. **Family:** Cupressaceae
- Synonyms** : *Cupressus sempervirens* Linn.; *C. australis* Low; *C. fastigiata* DC.; *C. pyramidalis* Targ-Tozz.
- Common names** : *Hindi:* Sara, Saras and Saru; *English:* Cypress; *French:* Cypress; *German:* Zipressenbaum.
- Description** : A tall, cylindrical, evergreen, monoecious tree with narrowly pyramidal crown, attain height about 30 m in India and up to 45 m in Mediterranean Countries; stem fluted, reddish grey, bark with shallow vertical fissure; branches and their tips erect, often at right angle to the stem, sometimes ascending, not whorled, branchlets deep green, very slender; leaves ovate, oblong, closely appears in whorl of 3 to 4, glandular. Male cone terminal, rounded to obvoid; female cone green, globular and often in pair on thick lateral branchlets or young main stem; mature cones 2 to 3 mm wide, with hard woody scales that open to release seeds. Seeds angled, compressed and narrowly winged, wings about 1 mm wide.
- Distribution** : North Persia, Syria, Asia Minor, Mediterranean countries, cultivated in North West India.
- Part used** : Leafy twigs and unripe cones.
- Macroscopical** : Leaf: in young plant needle like, in whorls of 3 or 4, spreading with basal portion; decurrent on the internodes of the branches and lies free but closely appressed so that branches not rough to touch, yellowish green in colour.  
  
Cone: Immature male cones terminal, round to ovoid. Immature female cones green, globular, often grouped in pair of three, lateral branchlets on young main stem, consists of about 10 fleshy scales, opposite in the form of cross, 2 to 3 mm long, with many ovules at the base of each scale.
- Microscopical** : Leaf: Epidermis thick-walled, stomata found on adaxial surface only (epistomatic) and not in any arrangement; hypodermis single layered, well developed and uniformly distributed; mesophyll differentiated into many layered palisade, placed predominantly on the abaxial side also at places on the adaxial side, especially at the mid rib; resin ducts present at the mid rib region at the abaxial side; endodermis not much developed, single vascular bundle present at the center of the leaf, transfusion tissue placed lateral to the vascular bundles forming wing like structure.

**History and authority** : Proved by Jenner; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1876, **10**, 500; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 632.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Cupressus Australis in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.

**Storage** : Store in an airtight container.

**CYDONIA VULGARIS**

(Cydo. vul.)

- Botanical name** : *Cydonia oblonga* Mill. **Family:** Rosaceae
- Synonyms** : *Cydonia vulgaris* Pers.; *Pyrus cydonia* Linn.
- Common names** : *English:* Quince; *French:* Cognassier.
- Description** : A small tree or shrub, up to 4.5 m high, rarely up to 7.5 m high, branches slender, spineless. Leaves deciduous, alternate, petiolate, stipulate, entire, oval or oblong, rounded or slightly cordate at the base, acute, villous-pubescent beneath, 5 to 10 cm long. Flowers terminal on short leafy branchlets, white or light pink, about 5 cm across; petals 5; stamens numerous; styles 5, free, ovary 5 celled, each cell with many ovules. Fruit a pome, 5 celled, many seeded.
- Distribution** : Indigenous to Iran; cultivated throughout central Europe and other warm countries.
- Part used** : Fruit.
- Macroscopical** : Fruit resembles a pear, containing five loculi, each containing about 20 seeds closely packed in two vertical rows; seeds coated with mucilage and remains firmly adhere together, ovoid and flattened, 5 to 10 mm long, 2 to 5 mm wide and about 2 mm thick, acute ridge on one side, while strongly arched rounded on the other side, hilum a minute pale spot and chalazal end obtuse; rapha a paler line extending from hilum along the acute ridge to the chalaza. Testa mahgoni-brown in colour. Taste of kernel resembles bitter almond; seed coat mucilaginous.
- Microscopical** : Seed in transection shows testa with an outer epidermis of radially elongated palisade cells, having fairly thick mucilaginous outer walls, followed by 4 layers of lignified pigmented cells and few layers of crushed cells; tegmen composed of outer layers of crushed cells followed by inner 2 layers having thin brown walls. Endosperm 4 to 5 cells thick, encloses cotyledons made up of packed parenchymatous tissue.
- History and authority** : Boericke, W., *Met. Med. with Repertory*, 1927, 210.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Cydonia Vulgaris in <i>coarse powder</i> | 100 g  |
| Purified Water                           | 665 ml |
| Strong Alcohol                           | 360 ml |
- to make one thousand millilitres of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CYNARA SCOLYMUS**

(Cyn. sco.)

**Botanical name** : *Cynara scolymus* Linn. **Family**: Asteraceae (Compositae)

**Common names** : *Hindi*: Hathichak, Hathichoke; *English*: Globe Artichoke.

**Description** : A thistle-like perennial herb, usually 1 to 2 m high, with tuberous roots. Leaves very wide, glabrous above, greenish tomentose below, up to 80 cm long, with basal leaves sessile, pinnatisect-lobed; lobes mucronate; stem leaves pinnatifid or entire. Inflorescence capitulum. Flowers purple, subtended by 4 to 5 rows of fleshy, thick, oval, broad involucre bracts, thickened at base, purplish-greenish in colour, flat, triangular, spiny above. Flowers all tubular, hermaphrodite, not ligulate, with 5-parted lilac corolla.

**Distribution** : Cultivated throughout India.

**Part used** : Whole plant.

**Microscopical** : Involucre bract in transverse section shows upper epidermis consisting of single layer of rectangular, slightly radially elongated cells with beaded walls and covered by striated cuticle; 3 to 4 layers of chlorenchymatous hypodermis followed by several layers of sclerenchyma, containing small, collateral vascular bundles; mesophyll consists of rounded, spongy parenchyma with granular contents and contain large, collateral vascular bundles; below it chains of cells with large intercellular spaces (articulated cells); lower epidermis similar to upper epidermis; secretory cells with contents present in the mesophyll and phloem.

**History and authority** : Proved by Luis G.; *Homoeopathic Pharmacopoeia of United States*, 1964, 695.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Cynara Scolymus containing  
solids 100 g and plant moisture 210 ml 310 g

Strong Alcohol 725 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**CYTISUS LABURNUM**

(Cyti. lab.)

- Botanical name** : *Cytisus laburnum* Linn.                      **Family**: Fabaceae (Leguminosae)
- Synonyms** : *Laburnum vulgare* Griseb.; *L. anagyroids* Med.
- Common names** : *English*: Yellow laburnum, Golden chain.
- Description** : Large shrub or small tree, up to 6 m high, erector spreading branches, branchlets appressed-pubescent, greyish green. Leaves compound, stipulate, long-petioled, in older stems, densely packed in rosette-like clusters on short shoots while on younger shoots occur single and alternately at longer intervals; leaflets elliptic or elliptic-ovate, usually obtuse and mucronulate, glaucous-green and appressed silky pubescent beneath when young. Inflorescence raceme, 10 to 30 cm long, bears 10 to 50, usually 30 flowers, initially erect, later drooping downwardly in a carving arch. Flowers bright golden yellow. Fruit a pod, appressed-pubescent, about 5 cm long. Seeds black.
- Distribution** : Native of South Europe.
- Part used** : Flowers and young leaves.
- Macroscopical** : Leaf: petiolate, petiole 20 to 70 mm long, occasionally up to 120 mm long; leaflets about 30 to 80 mm long and 15 to 40 mm wide, elliptic to ovate, with stalks 1 to 3 mm long, middle leaflet slightly larger than the other two, entire, rounded at the apex, two small subulate stipules present, up to 10 mm long which soon drop off. Odour slightly herby when crushed.
- Flower: up to 20 mm long, pedicel 10 to 14 mm long; calyx 3 to 5 mm long, connate, bell-shaped, with an appressed indumentum, normally terminates in an upper lip with 2 short teeth and a slightly longer lower lip that frequently has 3 short not very distinct teeth; corolla typical papilionaceous with broadly elliptical standard up to 20 mm long, broadly emerginate, brown at the base with striped markings; wings 2, clawed, 15 to 20 mm long and obovate; keel up to 15 mm long and distinctly convex; stamens 10, fused at the base into a closed tube and remains free and upward-curving toward top, anther single, orange yellow; ovary 10 mm long, surrounded by stamen-tube, stigma extended beyond anthers.
- Identification** : To 1 ml of Mother Tincture, add 5 ml of purified water, 0.5 ml of dilute hydrochloric acid and 0.5 ml of potassium iodobismuthate solution. After sometime an orange precipitate is produced.



**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **5**, 429.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Cytisus Laburnum, moist magma containing  
solids 100 g and plant moisture 400 ml 500 g

Strong Alcohol 635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## DELPHININUM

(Delphin.)

$C_{33}H_{45}NO_9$

Mol. Wt: 599.70

- Common name** : *English*: Delphinine.
- Description** : A toxic alkaloid, crystalline colourless, orthorhombic, six sided plates (crystallised from *alcohol*). Practically insoluble in *water*, but soluble in *alcohol*, *ether* and *chloroform*.
- Melting range** : 198° to 200°, followed by decomposition.
- Identification** : (1) Optical rotation  $[\alpha]_D^{25} + 25^\circ$  in EtOH and exhibits mutarotation in *ethanolic* solution.
- (2) When heated in *methanol*, *acetic acid* is liberated with formation of *methyl benzoyldelphonine* (melting range 173° to 175°).
- (3) Treatment with *nitrous acid* at 100°, furnishes nitroso derivatives, melting range 240° to 241°, main product being *hydroxydelphinine*, melting range 180° to 182°.
- (4) On hydrolysis, it gives *benzoic acid*, *acetic acid* and amorphous parent *amino alcohol*. (Delphonine).
- (5) With *sodium nitrite* in *acetic acid* at 100° gives nitroso derivatives, which lacks in *N-methyl* groups.
- History and authority** : Proved by Schroff; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, 4, 70.
- Preparation** : (a) Trituration 1x Drug strength 1/10
- |                  |       |
|------------------|-------|
| Delphininum      | 100 g |
| Saccharum Lactis | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be triturated in accordance with the method, HPI; 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.
- Caution** : Not to be dispensed below 3x. To be stored in dark and cool place.

**DRABA VERNA**

(Drab. ver.)

- Botanical name** : *Draba verna* Linn. **Family**: Brassicaceae (Cruciferae)
- Synonyms** : *Erophila vulgaris* DC.; *E. verna* E. Mey.
- Common names** : *English*: Whitlow grass; *German*: Hungerblumchen.
- Description** : An annual herb found in winter, with crowded basal rosette of leaves; leaves oblanceolate to spatulate or obovate-oblong, 1 to 2 cm long, pubescent somewhat toothed. Flowers white, 2 to 3 mm across, occurring in racemes over scapes; raceme becomes elongate and lax in fruiting. Scapes several, leafless, very slender, 10 to 15 cm long. Sepals 4, 1 to 2 mm long; petals 4, bifid nearly to the middle, 1.5 to 2.5 mm long; stamens 6, stigma nearly sessile. Fruit a silicula, narrowly to broadly elliptic, usually 4 to 10 mm long, 2 to 3.5 mm wide, glabrous, pedicel of fruit 13 to 25 mm long.
- Distribution** : Native of Europe, introduced in North America.
- Part used** : Whole plant.
- Microscopical** : Leaf in transection shows presence of myrosin cells or idioblasts in both mesophyll and vascular bundles; both forked (only once forked) and simple unicellular hairs. Petiole containing a single principal bundle accompanied by subsidiary strands in the wing. Stem shows presence of myrosin cells or idioblasts in pericycle; xylem consisting of a closed cylinder, containing evenly distributed vessels; rays reduced or absent.
- Root shows presence of a few layers of thick-walled cells immediately outside the endodermis.
- History and authority** : Mentioned in the *Homoeopathic Pharmacopoeia of the United States (Revision service)*, 1991, 3046.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |                                     |        |
|-------------------------------------|--------|
| Draba Verna in <i>coarse powder</i> | 100 g  |
| Purified Water                      | 567 ml |
| Strong Alcohol                      | 470 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**DROSERA ROTUNDIFOLIA**

(Dros. rot.)

- Botanical name** : *Drosera rotundifolia* Linn. **Family**: Droseraceae
- Synonym** : *Drosera sepentrionalis* Stokes.
- Common names** : *English*: Roundleaved sundew; *French*: Rosee du soleil; *German*: Sonnenthau.
- Description** : A glandular-pubescent insectivorous herb with tufted, red, basal leaves spreading on the ground; upper surface of leaves clothed with glandular sensitive hairs which secrete gelatinous fluid that entraps insects, lamina up to 6 mm long, orbicular or nearly so, 6 to 12 mm broad; petiole elongated, gradually narrowed, 1.5 to 5 cm long, flat. Inflorescence scape, glabrous, slender, 3 to 25 flowered. Flowers shining in sun, pentamerous; sepals obtuse; petals white or reddish, oblong shining with metallic luster. Fruit a capsule, scarcely exceeding the sepals; seed spindle shaped, testa loose, finely longitudinally striated.
- Distribution** : Europe, North America and Asia including India.
- Part used** : Whole plant.
- Microscopical** : Transverse section of lamina shows a single layer of epidermis, an undifferentiated mesophyll, poorly developed vascular bundles, glandular hairs with multicellular stalk and large oval heads on margins and upper surface. Stomata actinocytic, each surrounded by a circle of radiating cells.
- Stem in transverse section shows ruptured epidermis; cortex 4 to 6 cells wide, having highly thick-walled lignified cells; vascular bundles in a ring.
- Powdered drug contains tracheids with reticulate thickenings; actinocytic stomata; thick-walled secretory ducts; sinuous secretory cells having large lumen; oval, elongated parenchyma cells; brown, thick walled, lignified rectangular, elliptic cells. Glandular hairs having large multicellular stalks, traversed by secretory ducts, spiral vessels and glandular heads.

**Identification** : Evaporate 20 ml of 60% alcoholic extract to remove *alcohol*, extract the aqueous part with 3×20 ml *chloroform*, concentrate the chloroform layer. Carry out TLC of chloroform extract on Silica Gel ‘G’ using *toluene* : *ethyl acetate* : *anhydrous formic acid* (5:4:1 v/w), four spots appear in UV light at  $R_f$  0.40 (blue), 0.75 (blue), 0.85 (bright green) and 0.90 (bright red). On spraying with ammonia solution two spots appear at  $R_f$  0.60 (yellow) and 0.90 (violet).

**History and authority** : Proved by Hahnemann; Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **4**, 170.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Drosera Rotundifolia in <i>coarse powder</i>	100 g
Purified Water	400 ml
Strong Alcohol	635 ml

to make one thousand millilitres of the Mother Tincture

(b) Potencies: 2x to contain one part of the Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ECHINACEA PURPUREA**

(Echi. pur.)

**Botanical name** : *Echinacea purpurea* (Linn.) Moench.

**Family:** Asteraceae (Compositae)

**Synonyms** : *Rudbeckia purpurea* Linn.; *Brauneria purpurea* Britt.

**Common names** : *English:* Black Sampson, Purple coneflower.

**Description** : A stout, coarse, perennial herb with tapering, cylindrical, slightly spiral and fibrous root. Stem erect, long, 0.3 to 1.5 m high, slender, stout, generally smooth. Leaves dark green, alternate, rough, often serrate and 7 to 20 cm long; lower leaves broadly ovate, 5-nerved, long petioled, while the upper leaves narrow, lanceolate with short winged petiole or sessile. Flower heads solitary, 10 to 15 cm in diameter, involucral bracts numerous, ciliate, lanceolate or linear, partially with fine stiff hairs on the outside, arranged in three rows; the disc initially flat, 1.5 to 3.5 cm wide and elongating into cone after flowering; paleae numerous, stiff, orange - red, often glossy; ray florets 10 to 20, sterile, reddish purple, 2.5 to 5.5 cm long, 2-toothed at the apex, spreading or drooping; tabular disc florets fertile, hermaphrodite, dark red or purplish brown with paleae projecting beyond them. Fruit an achene, short, thick 4-sided, having a short-toothed crown.

**Distribution** : U.S.A. and central Europe.

**Part used** : Whole plant.

**Microscopy** : Leaf: Transection shows single layer of epidermis with sinuous cells; stomata anomocytic, present on both surfaces; trichomes both glandular and non- glandular types: glandular trichomes with single celled head & small stalk; non-glandular again of two types: (a) small 2 to 4 celled, present only on midrib and (b) uniseriate multicellular (4 to 6 celled) with small basal cell. Mesophyll differentiate spongy parenchyma; midrib consists of 2 to 3 layered collenchyma below into two layers of palisade and 4 to 5 layered the epidermis; merisetel arc-shaped having phloem towards the lower side and xylem towards the upper side; lateral vascular bundles, conjoint, collateral, encapped by sclerenchymatous sheath; ground tissue parenchymatous; prismatic crystals of calcium oxalate scattered throughout the mesophyll.

Petiole: Transection shows triangular outline with two small lateral wings; single layer of epidermis, followed by 2 to 3 layered collenchymatous hypodermis; collenchyma also present in marginal end of lateral wings; ground tissue large, thin-walled, parenchymatous; vascular bundles present in an arc, each encapped by thick-walled sclerenchymatous tissue.

Stem: Circular, wavy in outline; single layer of epidermis followed by 2 to 3 layered chlorenchymatous hypodermis; cortex parenchymatous 10 to 12 layered, having cortical vascular bundles; endodermis not distinguished; vascular bundles collateral, conjoint, open, encapped by sclerenchymatous cells and arranged in a ring. Pith large, parenchymatous.

**History and authority** : Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 694; *HPUS*, 1991.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Echinacea Purpurea in *coarse powder* 100 g  
 Purified Water 430 ml  
 Strong Alcohol 580 ml  
 to make one thousand milliliters of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ECLIPTA ALBA**

**Botanical name** : *Eclipta alba* (Linn.) Hassk.      **Family:** Asteraceae (Compositae)

**Synonym** : *Eclipta prostrata* (Linn.) L.

**Common names** : *Hindi:* Bhangra, Bhringraj; *English:* Trailing Eclipta.

**Description** : An erect or prostrate, slender, branched annual, rooting at nodes; stem and branches strigose having appressed white hairs. Leaves opposite, sessile, oblong-lanceolate, 2.5 to 10 cm long, variable in breadth, subentire, serrate, acute or subacute, sparsely strigose with appressed hair on both surfaces, base tapering. Flower-heads white, 6 to 8 mm in diameter, solitary or in pairs on unequal axillary peduncles. Involucral bracts 8, (4 large + 4 small), outer larger, ovate, obtuse or acute, herbaceous, strigose with appressed white hairs, large bracts alternating with smaller ones. Ray florets ligulate, ligule small, spreading, scarcely as long as bracts, not toothed, white; disk-florets tubular, corolla often 4-toothed. Pappus none, except occasionally very minute teeth on the top of achenes. Fruit an achene, narrowly oblong, compressed and with narrow wing, tipped with ribbed pappus teeth and covered with wart emergences. The plant flowers and fruits from August to November.

**Distribution** : Throughout India in shady moist places, up to 1700 m on hills.

**Part used** : Whole plant.

**Microscopical** : Leaf: dorsiventral and shows presence of single layer of epidermis, having anomocytic stomata on both the surfaces, abundant on the lower surface; stomatal index 20 to 22.5 on upper and 23 to 26 for lower surface; cuticle thin; non-glandular trichomes present on both the surfaces, trichomes uniseriate, stiff, mostly 3-celled, occasionally 4 to 5 celled, warty, wide at the base, middle cell longest and uppermost cell small, pointed. Mesophyll differentiated into single layer of palisade and 5 to 6 layers of chlorenchymatous spongy parenchyma. Palisade ratio 3.8 to 4.5. Midrib pronounced on lower surface having 3 to 5 vascular bundles, central bundle largest, conjoint, collateral, consisting of xylem on ventral surface and phloem on dorsal surface; ground tissue around vascular bundles parenchymatous with hypodermis collenchymatous.

Stem: in transverse section circular in outline and consists of a layer of epidermis of barrel-shaped cells and bearing stomata, covered with thin cuticle; trichomes non-glandular, stiff, mostly 2 to 3 celled, uniseriate, occasionally 4 to 5 celled, warty, having middle



cells longest, uppermost cell small, pointed; cork when present poorly developed and consists of thin-walled rectangular cells; ground tissue differentiated into an outer collenchymatous hypodermis and an inner parenchymatous cortex with air spaces; endodermis distinct, wavy, single-layered; pericycle represented by crescent-shaped patches of sclerenchyma; stele a polyarch-siphonostele; vascular bundles varying in size, arranged in a ring, conjoint, collateral, endarch, open and separated by rays; pith wide, composed of large, thin-walled parenchyma.

Root: transverse section shows single layer of epidermis (epiblema) of thin-walled parenchyma from which arise unicellular root hairs; cortex broad, parenchymatous enclosing large air spaces, each air space separated from other by a septum formed of a single row of cells; endodermis distinct; pericycle of a single layer of thin-walled cells; vascular bundles radial, tetrarch, protoxylem exarch; secondary growth normal showing complete cylinder of xylem and phloem; pith of thin walled parenchyma cells in young root, but inconspicuous after secondary growth.

**History and authority** : Elias, P., *Text book of Pharmacy for Students and Beginners*, 207.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Eclipta Alba in *coarse powder* 100 g  
                   Purified Water 283 ml  
                   Strong Alcohol 754 ml  
                   to make one thousand millilitres of Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ELAEIS GUINENSIS**

(Ela. guin.)

**Botanical name** : *Elaeis guinensis* Jacq. **Family:** Arecaceae (Palmae)

**Common names** : *English:* African oil palm; *French:* Palmier à huile; *German:* Afrikanische oelpalme, Guineische oelpalme, Oelpalme.

**Description** : An erect, unbranched, monoecious tree, usually about 6 to 15 m high sometimes reaching up to 25 m; usually 20 to 30 cm in diameter, about 1 m just above the ground, annulate, bearing the remains of the old leaves when young. Leaves green in adult tree, 20 to 40 forming a terminal crown, up to 5 m long; leaflets 100 to 160 pairs, lanceolate-linear, those in the middle of the leaf about 60 to 120 cm long and 45 to 60 cm wide, those on the lower portion about 50 to 70 cm long and 1.7 to 2.5 cm wide, central nerve very strong, especially at base, green on both surface. Petiole robust, up to 1.2 m long, 10 to 20 cm broad, suddenly broadens at the base, convex and often white-tomentose below, yellowish green, spiny on the margin, spines 50 to 60 pairs. Inflorescence spadix, interfoliar, arising below the terminal bud, sometimes 6 to 8 at one time, male and female flowers arising in the separate inflorescence, the male ones always preceding the female ones by several weeks or even months; peduncle robust, compressed, up to 20 cm long and up to 5 cm broad; spathe 10 to 30 cm long, 6 to 7.5 cm broad, coriaceous, floccose-tomentose on the outer surface. In male spadix flowering part forming an almost ovoid mass, 15 to 25 cm long and 12 to 18 cm broad, with many branches bearing densely imbricate flowers; branches brown, cylindrical, somewhat flattened by mutual compression, 10 to 15 cm long. Flower very numerous, densely arranged in 20 longitudinal lines at least in the upper part; sepals 3, free at the base, oblong, obtuse, greyish, scarios; petals just like sepals; stamen 6, filament short, united at the base, anther sagittate; ovary rudimentary, like a protuberance. In female spadix peduncle shorter than in male, inflorescence mass also more massive than male ones, sometimes more spherical though slightly compressed, 15 to 35 cm long, 10 to 15 cm broad; branches about 100 to 150, each bearing 6 to 40 flowers, usually 8 to 12. Female flower larger than the male flower; bract 1, whitish-yellow or greenish, lanceolate-subulate, about 3 mm long and terminated by a spine that comes out of the flower; bracteoles small, ovate or ovate-oblong, shorter than the sepals; sepals 3, oblong, 10 to 15 mm long, scarios, sub-obtuse and often lacinate at the top; petiole 3, like sepals, sometimes slightly longer; ovary ovoid-cylindrical, 6 mm long, unilocular (exceptionally 2 to 3 locular); style whitish, about 3 mm long, stigma usually 3 rarely 4, ovule one in each chamber.

Fruiting spadix 10 to 40 cm long and 10 to 35 cm broad; terminal spines of branches and bract becomes longer during ripening of fruit. Fruit a drupe, plum size.

**Distribution** : Indigenous to West Africa, cultivated extensively in Malaya, Indonesia particularly in Sumatra. Introduced in India and found in Botanical Gardens at Calcutta, Bombay, Poona, Baroda, Bangalore and Travancore.

**Part used** : Ripe fruit.

**Macroscopical** : Fruit sessile, enclosed in dry perianth, ovoid, attenuate and then suddenly truncate at the apex, dry style often persistent, red becomes orange or vermilion red, or sometimes black in the upper half and whitish yellow in the lower half; size almost a plum like; seed occupying the whole cavity of the endocarp; embryo opposite a pore of endocarp.

**Microscopical** : In transection exocarp shows a single layer of epidermis with thick outer and radial walls. Outer mesocarp made up of 4 to 5 layers of loosely arranged, small, thin walled parenchyma; inner mesocarp consists of several layers of loosely arranged, yellowish, thin-walled, large, isodiametric parenchymatous cells, some cells of which contain raphides of calcium oxalate. Vascular bundles present in inner mesocarp, conjoint, collateral, having xylem toward the fruit center capped by phloem and enclosed by massive fibre sheath; small bundles present in the periphery of pericarp consist of only fibres; cells containing more or less spherical silica bodies adjacent to fibres present. Endocarp smaller than mesocarp, consisting of thick walled elongated, yellowish sclereids with branching pore canals and dark brown content. Seed consist of spermoderm (seed coat) of compactly arranged, brown, thick walled parenchyma followed by white, fleshy endosperm made up of thick-walled, polygonal cells containing oil droplets and aleurone grains.

**History and authority** : Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 694.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Elaeis Guinensis 100 g  
 Strong Alcohol in sufficient quantity  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. II

**EMBELIA RIBES**

(Embe. rib.)

- Botanical name** : *Embelia ribes* Burm. f. **Family:** Myrsinaceae
- Common names** : *Hindi:* Beberang, Birang.
- Description** : A large scandent shrub with branches, long, slender, flexible, terete, with long internodes; bark with prominent lenticels. Leaves 5 to 9 cm × 2 to 4 cm, coriaceous, elliptic or elliptic-lanceolate, obtusely acuminate, entire with base rounded, glabrous, shining above, paler to somewhat silvery beneath, with minute reddish sunken glands all over the laminar surface; petiole glabrous, up to 16 mm long. Inflorescence terminal, paniced raceme. Flowers small, numerous, pentamerous; bracts minute; sepals 5, free, connate and persistent; petals 5, free, 4 mm long, greenish-yellow, elliptic, sub-obtuse; stamens 5, shorter than petals; ovary ovoid, style cylindric, stigma capitate. Fruit a drupe, globose, smooth, succulent, black when ripe.
- Distribution** : Throughout India.
- Part used** : Fruit.
- Macroscopical** : Fruit spherical, about 4 mm in diameter, varying in colour from red to nearly black, warty, shortly pedicellate, with a persistent calyx; pericarp brittle and encloses a reddish seed covered with a thin membrane, on removal of which the seed appears bearing light spots; seed depressed at the base and has a horny and slightly ruminated endosperm.
- Microscopical** : Pericarp or fruit coat consists of four zones: an epicarp, an outer mesocarp, an inner mesocarp and an endocarp. Epicarp 1-layered, made up of small distinct cells with wrinkled cuticle; the outer mesocarp parenchymatous with intercellular spaces; the inner mesocarp consists of 3 to 7 layers of brachy-sclereids; endocarp consisting of a single layer of palisade-like sclereids, vascular bundles irregularly distributed in the inner mesocarp; seed coat papery, testa and tegmen almost fused; testa consists of 2 or 3 layers of thin-walled cells filled with brownish contents; tegmen 3 or 4 layered of thick-walled cells, filled with brownish contents; endosperm consists of polygonal, thick-walled cells, containing brownish contents; followed by 4 to 6 layers of tangentially elongated cells and a central parenchymatous zone containing globose oil cavity and scattered oil droplets.

**Identification** : Evaporate 20 ml of 60% alcoholic extract of the drug on a water bath to remove *alcohol*. Extract the remaining part with 3×20 ml *chloroform*. Concentrate it to 2 ml and carryout TLC of chloroform extract on silica gel ‘G’ plate using *chloroform : methanol* (9:1 v/v) as mobile phase. With *antimony trichloride reagent*, two dark grey spots appear at  $R_f$  0.64 and 0.91.

**History and authority** : Proved by Ghose; Ghose, S.C. *Drugs of Hindoosthan*, 1965, 150.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Embelia Ribes in <i>coarse powder</i>	100 g
Purified Water	400 ml
Strong Alcohol	635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**FABIANA IMBRICATA**

(Fab. imb.)

- Botanical name** : *Fabiana imbricata* Ruiz. & Pav. **Family**: Solanaceae
- Common names** : *English*: Pichi Pichi, Fabiana.
- Description** : An ornamental, half hardy, heath-like, evergreen shrub, up to 2.5 m high and with small branches, up to 30 mm long and densely covered with scaly leaves in tight spirals. Leaves small, scaly, resin coated 1.5 to 3.5 mm long, sessile, entire, extended into vaguely spur-like structures at the base and keeled on the outer edges, bluish, alternate, ovate, imbricate, smooth and entire. Flowers solitary, terminal, white, bell shaped. Calyx small, bell shaped, 5-toothed, 1.8 to 2.2 mm long, with pointed teeth 0.3 to 1 mm long; corolla tubular, bell shaped with a short reflexed limb and 5-lobed averted margin; stamens 5, 2 of them attached to the corolla tube and longer than other 3, up to 11 mm long, anther yellow; carpel almost as long as longer stamens, style long and stigma capitate. Fruit a capsule, oblong, 2-valved. Seeds few, sub-globular. Taste aromatic, bitter and terbinthinate; smell camphor and mint like. Flowers in June.
- Distribution** : Peru, Chile, Bolivia, Argentina, cultivated in southern California.
- Part used** : Leafy twig.
- Microscopical** : Stem: In transection shows single layer of epidermis made of rectangular cells having straight walls. Cuticle with rough longitudinal striations. Cork arises in the epidermis or sub-epidermis; wood vessels usually solitary; fibres with bordered pits present mostly on radial sides. Transverse section of leaf shows, single layer of epidermis made of rectangular to almost square cells, with sinuate to slightly undulated anticlinal walls, which bear nodular thickenings and thick periclinal walls. Stomata anisocytic, with 3 or 4 subsidiary cells present on projections. Palisade parenchyma 1 to 3 layers, loosely arranged, present on both upper and lower surfaces; spongy parenchyma few layered, loosely arranged, occasionally bears crystals of calcium oxalate. Glandular hairs present on both stem and leaf, having short or long stalk and with spherical multi-cellular heads.
- History and authority** : Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, **3**, 812; Boericke, W., *Mat. Med. and Repertory*, 1927, 89. *German Homoeopathic Pharmacopoeia*, 2000.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Fabiana Imbricata in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 333 ml |
| Strong Alcohol                            | 700 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. III

**FUCUS VESICULOSUS**

(Fucus v.)

- Botanical name** : *Fucus vesiculosus* Linn. **Family:** Fucaceae
- Common names** : *English:* Bladder wrack; *French:* Fucus vesiculeux; *German:* Blasentang.
- Description** : A perennial sea alga; frond or thallus, up to 1 m long, individual branch with distinct midrib; coarse, light yellow or brownish green, mucilaginous, slimy to touch and almost as discoid, woody, durable as leather, extremities develop from the base of stalk, frond ribbon shaped and strapped at the base, rest flat and leaf like, wavy, many times divided, often dichotomously divided, having very broad compressed mid rib, margin entire. Presence of vesicles gives a wavy form to the entire margin. Air vesicles (which keep it floating), spherical, usually in pair, one on either side of the mid rib. Reproductive organs sited at the tips of the thallus.
- Distribution** : Shores of the United Kingdom, north Atlantic ocean, north Pacific Coast of America.
- Part used** : Whole plant.
- Macroscopical** : When quite dry it is hard, brittle, becomes soft and cartilaginous when moist. Some terminations are thickened due to presence of reproductive organs; verrucose at the thickened end of the thallus owing to the presence of numerous conceptacles. Odour characteristics of seaweed, taste saline and nauseatic.
- Microscopical** : Transverse section shows a central spongy pith, surrounded by an outer cortex of chlorenchyma, containing cells covered with a protective epidermal layer; near the tip of the branches small raised pustules like structure present which enclose reproductive cavities called conceptacles.
- Identification** : Evaporate 20 ml Mother Tincture on a water bath to remove alcohol. Extract the aqueous layer with 3×20 ml chloroform. Concentrate the chloroform layer to 2 ml and carryout TLC on silica gel 'G' plate using *chloroform : methanol* (9:1 v/v) as mobile phase. Spray with *antimony trichloride* reagent and heat the plate at 105° for 15 minutes. Three spots appear at R<sub>f</sub> 0.48, 0.66 and 0.92 (all brownish- violet).
- History and authority** : Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **4**, 69; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 792.



- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Fucus Vesiculosus in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 400 ml |
| Strong Alcohol                            | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

## GALPHIMIA GLAUCA

(Galph. gl.)

- Botanical name** : *Galphimia glauca* Cav. **Family:** Malpighiaceae
- Synonym** : *Thryallis glauca* (Poir.) Kuntze.
- Description** : A woody, perennial plant. Leaves opposite, small, slightly glaucous, with margins entire, petiolate, glandular at the base of the blade. Flowers in composite racemose inflorescence, zygomorphic, bracteate, bractiolate golden - yellow to yellowish-brown. Calyx 5, without glands, slightly light coloured on margins, apex slightly reflexed; corolla 5, almost cordate, toothed, clawed, spreading, with margins finely fringed, tinged red at least on the inner side; stamens 10, with filaments reddish-brown; carpels occasionally reddish-violet; bracts linear - lanceolate, red; bracteoles 2, reddish-brown. Fruit a capsule, 3-parted, without winged.
- Distribution** : Native of Mexico to Panama and naturalized in West Indies.
- Parts used** : Dried Leaves and blossoms.
- Microscopical** : Leaf transection shows mesophyll differentiated into a single layer of palisade and a few layers of rounded or flat loosely-arranged spongy parenchyma; upper epidermal cells rectangular, sinuous and pitted; lower epidermal cells papillose with indentations of variable heights; stomata anomocytic.
- Sepals upper epidermal cells in surface view axially elongated, polygonal with straight walls; lower epidermal cells sinuous; mesophyll cells having numerous clusters of *calcium oxalate* crystals; cuticle on both surfaces with fine longitudinal striations.
- Petals upper epidermal cells almost isodiametric, slightly papillose; lower epidermal cells scarcely papillose; cuticle on both surfaces, finely striated; occasionally T-shaped, reddish-brown hairs, smooth, up to 500 µm long and 48 µm wide, having unequal arms found on sepals and axial parts of inflorescence.
- Identification** : (1) To 1.0 g of the coarsely powdered drug, add 10 ml of *ethanol* and stir for 2 hours at room temperature and filter (solution A).
- (2) To 1 ml of solution A, add 50 mg of *magnesium* filing and 1 ml of *hydrochloric acid*. A dark red colour is produced.

(3) To 0.2 ml of solution A, add 10 ml of *water* and 0.1 ml of *ferric chloride* solution. Bluish black turbidity is produced.

(4) To 1 ml of solution A, add 0.1 ml of *lead acetate* solution. A yellow coloured precipitate is produced.

**History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 4<sup>th</sup> Supplement, 1985.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Galphimia Glauca* in *coarse powder* 100 g  
 Purified Water 400 ml  
 Strong Alcohol 685 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. III

**GRINDELIA ROBUSTA**

(Grind. ro.)

- Botanical name** : *Grindelia camporum* Green.      **Family**: Asteraceae (Compositae)
- Synonym** : *Grindelia robusta* Nutt.
- Common names** : *English*: Gum Plant, Wild Sunflower; *French*: Grindelia; *German*: Grindelienkraut.
- Description** : A perennial, branched herb, 40 to 120 cm high; stem erect, smooth, stout, round to slightly grooved, up to 2 mm in diameter, pithy inside and pale to dark straw or brownish green on the outside, glabrous. Leaves rigid, broadly oblong-spathulate. Flower heads usually solitary on lateral branches at the top. Fruit an achene, 1-toothed or broadened at the summit.
- Distribution** : South western USA.
- Part used** : Leaves and flowering tops.
- Macroscopical** : Leaves rigid, pale green, alternate, 3 to 6 cm long, oblong-spathulate with serrate margin and acute apex, brittle, sessile or amplexicaul with a glabrous, minutely dotted surface. Capitula up to 2 cm in diameter, yellow, hard and resinous with four or five rows of lanceolate-acuminate, imbricate, recurved bracts, within this a single row of yellow, ligulate ray florets which are female and a central group of tabular, disc florets present; each of the ovaries or compressed fruits biauriculate at the summit and crowned by a pappus, consisting of one or two stiff, thick bristles. Marginal female ray florets are about 12 to 17 mm long with short tubular base, usually darker in colour and dark yellow, pointed, 3 mm long ligule. All parts are more or less covered with resin, especially the capitule. Odour slight, taste balsamic.
- Microscopical** : Leaf: Lamina in transection shows single layer of epidermis; stomata anomocytic present on both surfaces; trichomes are glandular and non-glandular. Glandular trichomes sessile, multicellular and deeply embedded in epidermal cells (peltate glands); non-glandular trichomes are of two types: (a) simple, uniseriate, multicellular, up to 5-celled, thick-walled (b) unicellular, broadly conical, pointed and thick-walled. Mesophyll differentiated into 2 layers of palisade and 4 to 5 layers of spongy parenchyma; midrib contains 1 to 2 layers of collenchyma below the epidermis; ground tissue parenchymatous; meristele conjoint, collateral; rosette crystals of calcium oxalate present throughout the parenchyma.

Flower: Involucral bracts show anomocytic stomata and glandular trichomes like leaf. In surface view upper epidermis shows rounded or rectangular or slightly spindle shaped epidermal cells with cuticular striations and lower epidermal cells axillary, elongated, rectangular or slightly spindle-shaped mesophyll, contain a few rosette crystals of calcium oxalate.

The brownish yellow tubular disc florets 5 to 6 mm long, narrow at the base and opening up into narrow funnel; at the transition from funnel-shaped to tubular part of corolla, the epidermal cells on the inside contains prismatic crystals of calcium oxalate; the cells beneath the outer epidermis all the way down to the base contain rosette crystals of calcium oxalate. Anthers with a slight tail at the base; the endothelial cells of the free part show numerous, short thickenings on the cell walls; the free filaments inserted quite deeply in the tubular part of the corolla; pollen grains spherical, 35 to 45 µm in size with three germinal pores; pistil bears two stigma, characteristically show drumstick like papillae; ovary inferior, unilocular, more or less flattened, obovate, with rounded upper end showing a depression.

**History and authority** : Proved and introduced by Bundy and Hale; Hering, C., *Guiding Symptoms*, 1879, **5**, 485; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 849.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Grindelia Robusta in *coarse powder* 100 g  
 Purified Water 150 ml  
 Strong Alcohol 877 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**HAMAMELIS VIRGINICA**

(Ham. Virg.)

- Botanical name** : *Hamamelis virginiana* Linn. **Family**: Hamamelidaceae
- Synonyms** : *Hamamelis androgyna* Walt.; *H. corylifolia* Moench.; *H. macrophylla* Pursh.
- Common names** : *English*: Witch hazel; *French*: Hamamelish; *German*: Zamberhasel.
- Description** : A shrub, up to 5 m in height, with scurfy or glabrous branches. Leaves broadly obovate or obovate-oblong, obtuse, wavy, unequal, base cordate green, glabrous or stellate-pubescent beneath especially on veins, with several rounded teeth (crenate). Inflorescence axillary clusters, short pediceled. Flowers tetramerous; sepals 4, linear, dull yellowish-brown within; petals 4, linear, long-strapped, spreading, up to 2 cm, bright yellow or suffused with red colour; stamens 4, opposite the sepals, much shorter than sepals, alternating with 4 small scale- like staminodia; style 2, short; ovule suspended in each cell. Fruit a capsule, ovoid or thickly ellipsoid, up to 1 to 5 cm long, pubescent, hypanthium often bearing the persistent sepals.
- Distribution** : Commonly found in U.S.A. and Canada, distributed in tropical and eastern Asia.
- Part used** : Bark of twig and root.
- Macroscopical** : Twig bark: channelled, fissured and scaly, pinkish brown, sometimes covered with an ash grey smooth cork, which in older pieces becomes darker in colour; inner surface pale reddish-pink and finely striated longitudinally. A smooth transversely cut surface shows a dark narrow cortex and pale tangential lines of pericyclic sclereids. Fracture, short in cork and cortex, fibrous and laminated in phloem. Taste astringent and slightly bitter.
- Microscopical** : Twig bark in transection shows a zone of multilayered cork of thin walled cells; a wide parenchymatous cortex cells, containing occasional prismatic crystals of calcium oxalate; a band of pericycle formed of 5 or 6 layers of evenly thickened sclereids and fibres; a wide phloem made up of alternating bands of small group of crystal-fibres and phloem parenchyma.

**Identification** : Carry out TLC of *chloroform* extract using *chloroform : methanol* (95:5 v/v) as mobile phase. Under UV light, five spots appear at  $R_f$  0.35 (red), 0.57 (violet), 0.86 (red), 0.91 (violet) and 0.96 (red).

**History and authority** : Introduced by Preston; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **4**, 528; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 866.

**Preparation** : (a) Mother Tincture Drug strength 1/10

Hamamelis Virginica in <i>coarse powder</i>	100 g
Purified Water	400 ml
Strong Alcohol	635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water, six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HEPATIC A TRILOBA**

(Hep. Tri.)

- Botanical name** : *Anemone hepatica* Linn. **Family:** Ranunculaceae
- Synonyms** : *Hepatica triloba* Choix; *Hepatica hepatica* Karsten; *Anemone triloba* Hort.
- Common names** : *English:* Early anemone; *French:* Herb de hepatique; *German:* Edelleberkraut.
- Description** : An evergreen, low, perennial herb, with rhizomatous root stock, giving rise to numerous, thready roots from its under surface. Leaves radical, broad with three broad ovate or obtuse lobes, about 5 cm long and broad, leathery, smooth and dark green above, notched at the base, petioles long attached at the base on the undersurface of leaf. Flowers blue, purplish or nearly white, solitary, terminal, borne on long, hairy, circinate scapes with three small calyx like involucre. Calyx 5 to 10; blue, purplish or white; corolla none; stamens numerous; staminodia none.
- Distribution** : USA, east and north east to Atlantic; occurs widely in temperate regions.
- Part used** : Whole plant.
- Microscopical** : Leaf: isobilateral, covered with two types of trichomes: (a) long and unicellular, (b) stellate; stomata anomocytic, present on both surfaces, stomatal index for upper epidermis 7.69 to 10.00, while for lower epidermis 9.00 to 27.27; epidermal cells highly sinuous; vein islet number 3 to 4 per sq. mm; vein termination number 6 to 10 per sq.mm. Transverse section shows epidermis of elongated, dumbel-shaped cells, covered with a thin cuticle, followed by an undifferentiated spongy mesophyll of elongated chlorenchymatous cells; in midrib a single vascular bundle present, consisting of xylem above and phloem below, epidermis on both sides followed by of 3 or 4 layers of sclerenchyma.
- Root: in transverse section shows an outer layer of brown, squarish or tabular cells, followed by a layer of exodermis of radially elongated, large parenchymatous cells; a wide parenchymatous cortex, cells sinuous; an endodermis of polygonal cells; an ill-defined layer of pericylic cells; a diarc stele; phloem in two bundles.



Rhizome: in transection shows a single layer of tangentially elongated epidermal cells, followed by a wide zone of cortical parenchyma, having conjoint, collateral vascular bundles more or less in a ring, each bundle capped with a patch of lignified cells above the phloem; a central stellar region containing a ring of phloem capped above at places by patches of sclerenchyma; a central xylem followed by a large pith.

**Identification** : Evaporate 20 ml of 60% alcoholic extract of the drug to remove the *alcohol* and extract with *chloroform*. Carry out TLC with chloroform extract on silica gel G using *chloroform : ethyl acetate* (9:1) as mobile phase. Six pinkish spots appear under UV light at  $R_f$  0.09, 0.16, 0.25, 0.45, 0.69 and 0.90. On spraying with *antimony trichloride reagent* and heating the plate at 100° for 15 minutes, it shows six brown spots at  $R_f$  0.09, 0.16, 0.25, 0.35, 0.90, 0.94.

**History and authority** : Proved and introduced by Kimball; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **4**, 588; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1900, **1**, 902.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Hepatica Triloba in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	683 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

Original Monograph Appeared in HPI Vol. I

**HYDRASTIS CANADENSIS**

(Hydr. can.)

- Botanical name** : *Hydrastis canadensis* Linn. **Family**: Ranunculaceae
- Synonym** : *Warnera canadensis* Mill.
- Common names** : *English*: Golden seal, Eye balm; *French*: Sceaudo`or; *German*: Canadesche gelbwurzel.
- Description** : A hardy deciduous, perennial herb, having a thick, knotted, horizontal bright yellow rhizome up to 2 cm thick with slender roots. Stem up to 50 cm high, erect, pubescent, bearing one basal leaf and two cauline leaves near the summit. Lamina broadly cordate-rotund, 5-lobed and palmately 5-nerved, at anthesis 3 to 10 cm wide, continues growth and eventually becomes up to 25 cm wide, lobes incised, doubly serrate, short-acuminate, lower ones petioled, upper ones sessile. Flowers solitary, small, terminal, erect, peduncle pubescent, up to 15 mm wide; sepals 3, petal-like, greenish-white, falling when flower opens; petals none; stamen numerous, filament, 5 to 8 mm long; ovules in a pair in each ovary. Fruit a berry, in a head of 8 to 12 small, fleshy, oblong, crimson berries, tipped with persistent styles and containing one or two hard, black, shining seeds. It flowers in April and fruits ripe in July, appear like Raspberry but not edible.
- Distribution** : Canada and USA.
- Part used** : Rhizome.
- Macroscopical** : Irregular, tortuous and sub-cylindrical, up to 6 cm long and 3 to 10 mm thick; surface yellow, becomes yellowish brown and dark with age, markedly rough due to the presence of numerous remain of the slender, wiry roots on all parts of rhizome and numerous stem bases and scale leaves on the upper surface which leave cup-like scars; fractures short, clean, resinuous; smoothed transverse surface dark yellow to yellowish-brown, bark extends about one-third of the radius, a ring of about 12 to 20 narrow, bright yellow xylem bundles separated by fairly wide madullary rays and surrounding a pith which occupies about one-third of the diameter of the rhizome. Odour characteristic and taste bitter; when chewed it colours saliva yellow.

**Microscopical** : Rhizome: cork thin walled, brown in colour, 4 to 5 layered, phelloderm 5 to 6 layers of tangentially elongated parenchymatous cells, cortex consists of large polygonal, thin-walled cells having numerous starch grains and amorphous yellow contents, cambium 2 to 3 layers of thin-walled meristematic cells; stele a cylinder of 10 to 20, radially elongated open, collateral, fibro vascular bundles which are separated by multi seriate, 25 to 30 cells wide, parenchymatous medullary rays, containing starch grains; phloem scanty; xylem contains lignified vessels of wide lumen, these vessels may be single in radial rows, group of sclerenchymatous fibres and xylem parenchyma.

Root: transection shows single layer of exodermis, covered with remnants of rhizodermis; cortex parenchymatous consists of polygonal thin-walled cells having starch grains; endodermis single layer of tangentially elongated cells; stele tetra or pentarch.

- Identification** :
1. Evaporate 20 ml of 60% alcoholic extract on a water bath to remove *alcohol*. Extract it with 2×20 ml of *chloroform*. Evaporate the chloroform layer and carry out followings tests:
    - (i) Dissolve the residue (about 0.1 g), add a few drops of *sulphuric acid*, a yellow colour is produced which becomes purple on heating.
    - (ii) Place a little on a drop of *nitric acid*; a reddish yellow colour is produced.
    - (iii) Dissolve about 0.1 g in 10 ml of *dilute sulphuric acid* and add a few drops of *potassium permagnate* solution, a blue fluorescence is produced.
  2. Evaporate 20 ml of 60% alcoholic extract on a water bath to remove *alcohol*. Extract with 2×20 ml of *chloroform*, concentrate the chloroform layers to 5 ml and carry out TLC on silica gel 'G' using *methanol : ammonia* (100 : 1.5 v/v) as mobile phase. With *Dragendorff's reagent*, three spots appeared at  $R_f$  0.15, 0.75 and 0.90 (orange colour).
  3. To 1 ml of 60% alcohol extract, add a few drops of *Mayer's reagent*, a yellow coloured precipitate is appeared.

**History and authority** : Allen, T.F., *Encyclop. of Pure Mat. Med.*, 1874, **4**, 613.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Hydrastis Canadensis in <i>coarse powder</i> | 100 g  |
| Purified Water                               | 400 ml |
| Strong Alcohol                               | 635 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**HYGROPHILLA SPINOSA**

(Hygro. sp.)

**Botanical name** : *Asteracantha longifolia* Nees. **Family:** Acanthaceae

**Synonym** : *Hygrophilla spinosa* T. Anders.

**Common name** : *Hindi:* Talmakhana.

**Description** : A stout herb, 60 to 150 cm high, unbranched, sub quadrangular, with long hairs below each thick node. Leaves sparsely hispid on both surface, in whorls of 6 at a node, outer 2 leaves of the whorl being comparatively bigger, oblong-lanceolate or oblanceolate, sessile or with ill-defined petiole, each of the 6 leaves having a sharp, 2.5 to 4.5 cm long, yellow spine in its axil. Flowers in a whorl of 8 (in 4 pairs) at each node, with leaf-like, lanceolate, hairy bracts upto 2 cm long; bracteoles linear-lanceolate, with margins hyaline at the lower part. Calyx 4-partite, upper sepal broader than other 3, linear-lanceolate; corolla 4, purple-blue, widely 2 lipped; tube abruptly swollen at the top; lips sub-equal, the upper lip 2 fid with oblong truncate lobes, the lower lip with 2 entire crest-like longitudinal folds on the palate, deeply 3-lobed, the lobes oblong or slightly obovate, rounded or truncate; stamens 4, 2 large, 2 short, in pairs of one short and one long filament limited at the base; style slightly pubescent, filiform. Fruit a capsule, upto 1.6 cm long; linear oblong, pointed, 4 to 8 seeded.

**Distribution** : India, Srilanka and South Africa.

**Part used** : Whole plant.

**Microscopical** : Leaf: dorsiventral; midrib depressed on the upper side, protruding on the lower side and exhibiting 2 layers of collenchyma beneath both the upper and lower epidermis; stele with a central arc-shaped vascular bundle capped by a distinct layer of thick walled cells towards lower surface and flanked on each side by a small bundle. Lamina shows mesophyll differentiated into 2 to 3 layers of palisade and a spongy parenchyma; trichomes both uniseriate, multicellular and peltate glandular type; stomata caryophyllaceous (diacytic), present on both the epidermis; elongated cylindrical cystoliths present under epidermal cells on both the sides.

Stem: in transection *circular in outline* and shows epidermis single-layered, covered with cuticle; hypodermis 3 to 4 layered, collenchymatous; cortex aerenchymatous with large air spaces; four large vascular bundles placed one in each of the angles of the *rectangular pith*; small new vascular bundles present between bundles.

Root: in transection circular in outline and shows a single layer of epidermis covered with a cuticle, 2 or 3 layers of collenchymatous hypodermis, followed by an aerenchymatous cortex with large air spaces, traversed by strands of parenchyma; a pericycle and a prominent endodermis; phloem and xylem in continuous rings; pith small and parenchymatous.

**History and authority** : Ghose, S.C., *Drugs of Hindoosthan*, 1965, 192.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Hygrophylla Spinosa, moist magma containing 280 g  
 solids 100 g and plant moisture 180 ml  
 Purified Water 200 ml  
 Strong Alcohol 640 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**IRIS GERMANICA**

(Iris ger.)

- Botanical name** : *Iris germanica* Linn. **Family:** Iridaceae
- Common names** : *Hindi:* Keore-ka-mul; *English:* Orris; *French:* Fleur-do-lis; *German:* Vellchenwurzel.
- Description** : A rhizomatous perennial herb, up to 1 m high, stem usually bearing a 2-fid terminal head, with one branch short and other long, each bearing a single flower. Leaves 30 to 45 cm, equitant, broad, sword shaped, glaucous. Flowers violet or blue, nearly sessile, in spathe with spathe valves tinged purple, thin dry membranous in upper halves. Perianth 6 clawed, 7 to 10 cm across, the outer segments broadly ovate, recurved, violet or blue with yellow, white and brown veins at the base, the medium line with brilliant yellow, long-beard; the inner segments erect, arching, smaller, light violet or blue, stamens 3, opposite the outer perianth segments, anthers extrose; ovary 3 angled; style divided distally into three petaloid branches arching over the stamens, each branch two lobed at the tip; stigma plate like inserted at the base of lobes. Fruit a capsule trigonous, 4 to 7 cm long, infrequently produced.
- Distribution** : Cultivated in India in Kashmir.
- Part used** : Rhizome.
- Macroscopical** : Occurs as entire or broken pieces, 5 to 10 cm in length and 2.5 to 4 cm in width, pale, cream or yellowish brown, round or dorsiventrally flattened and constricted at intervals bearing one or two short lateral branches at the apex. Each of the internode corresponds to an year's growth of the rhizome; branches arise from the buds after the rhizome has flowered; the undersurface is beset with large, fibrous adventitious roots while the outer surface is annulated and there are traces of leaves or marks of leaf-trace bundles. Fresh rhizomes odourless and acrid, but during long process of drying loose acidity and develop characteristic aromatic odour.
- Microscopical** : Rhizome: transverse section shows a zone of 10 to 14 layers of rectangular, thin walled suberised cork cells; followed by a cortex of starch bearing thick-walled parenchyma cells with intercellular spaces containing scattered long, solitary or twin prisms of calcium oxalate crystals; an endodermis of rounded starch-bearing cells; a large central stellar region bearing starch grains and calcium oxalate crystals and leptocentric vascular bundles scattered throughout, but frequently occurring near the endodermis.

Root: Transverse section shows an exodermis of few layers of suberized, oval or rounded, thick-walled cells; a broad cortex, the outer half consisting of plates (strip) made up of small parenchyma enclosing large intercellular cavities between them, the inner half of the cortex consisting of thin-walled parenchyma cells; endodermis distinct with U-shaped thickenings; stele polyarch, consisting of 8 to 13 radial bundles of xylem alternating with phloem embedded in parenchymatous conjunctive tissue; pith of thick-walled parenchyma cells.

**History and authority** : Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1876, **5**, 147; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, **2**, 47.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Iris Germanica in <i>coarse powder</i>	100 g
Purified Water	300 ml
Strong Alcohol	730 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



## JEQUIRITY

(Jequir)

- Botanical name** : *Abrus precatorius* Linn.      **Family**: Fabaceae (Leguminosae)
- Synonyms** : *A. maculatus* Noronha; *A. miner* Desv.; *A. pauciflorus* Desv.; *A. squamulosus* E. Mey.
- Common names** : *Hindi*: Ghungchi, Rati; *English*: Indian Liquorice.
- Description** : A deciduous, creeping or climbing woody vine, stem about 1.2 cm in diameter; branches slender, flexible and tough. Leaves 5 to 10 cm long, paripinnate with rachis extending beyond the last pair of leaflets as a soft bristle; leaflets 10 to 20 pairs, opposite, increasing slightly in size from the base onwards, 7.5 to 23 mm by 3.6 to 6 mm, linear or linear-oblong, thinly membranous, entire, rounded at both ends, glabrous above when mature, thinly adpressed, silky beneath. Inflorescence one sided, usually leaf-bearing, axillary, pedunculate raceme, 5 to 10 cm long. Flowers papilionaceous, red, pink or white, 1.0 to 1.25 cm long, clustered on tubercles arranged along the rachis of raceme. Fruit a pod, 2.5 to 4.5 by 1.0 to 1.25 cm, turgid, thinly pubescent having a sharp deflexed beak and 3 to 6 seeds.
- Part used** : Seed.
- Macroscopical** : Seed bright scarlet red with a black spot at the hilum, ovoid, about 8.0 mm long; texture smooth and polished.
- Microscopical** : Seed in transection shows a single layer of radially elongated palisade like macroscleroids, followed by 7 to 9 layers of sinuous, compactly arranged thick-walled, pitted sub-epidermal cells; 4 to 5 layers of thin walled, variously shaped parenchymatous cells; sub-epidermal thick-walled and thin-walled cells are filled with black or red pigments in black and red regions of the seed coat consisting of up to 2 layers of thick walled pitted sclerenchyma and a few layers of thick-walled cells having yellowish contents. Endosperm consisting of large thick-walled cells, filled with oil globules and bundles of tracheary elements; a pair of cotyledons. Raphides of calcium oxalate scattered.
- History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 358; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1902, 269.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Jequirity in *coarse powder* 100 g  
Strong Alcohol in sufficient quantity  
to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x and higher with *Dispensing Alcohol*.
- Caution** : Not to be dispensed below 3x.

Original Monograph Appeared in HPI Vol. V

**JUNCUS EFFUSUS**

(Junc. e.)

- Botanical name** : *Juncus effusus* Linn. **Family:** Juncaceae
- Synonym** : *Juncus communis* E. Mey.
- Common names** : *English:* Common rush, Soft rush, Matting rush; *French:* Jonc commune; *German:* Simse.
- Description** : A perennial, densely tufted, cylindrical grass- like herb, usually forming densely matted tufts with short, creeping and stout root stock which gives rise to aerial stem. Stem including culm 60 to 90 cm high, terete, finely striate, leafless except a few brown or pale leafy sheathing scales present at the base; nodes absent. Scape erect, cylindrical with spongy pith, bearing short leaflets on involucrel leaves at the base. Inflorescence lax or pendulous panicle protruding from the side of scape as densely crowded compact globular head of about 1.25 cm in diameter or forming a loose, very unequally branched panicle. Flowers many, greenish, subtended by 2 small, opposite, ovate, scarious bracteoles. Perianth segments subequal and subulate, lanceolate, acuminate, coriaceous, usually greenish or pale brownish; stamen 3, alternating with the perianth, anther as long as filament. Fruit a capsule, oblong or ovoid, trigonous, truncate, pale brown and shining. Seeds numerous, minute, without tail, normally oblong, testa pale brown and striate.
- Distribution** : North temperate and arctic zone. In India found in Sikkim and Himalayas (6,000 to 10,000 ft.) and Khasi (5,000-5,500 ft.) and Aka Hills, in wet and marshy lands.
- Part used** : Root stock and root.
- Microscopical** : Root stock: Transection shows single layer of epidermis; cortex differentiated into an outer region composed of thin-walled parenchyma; middle part composed of air cavities, separated by thin diaphragm of compressed thin-walled parenchyma and inner most region of rounded thin-walled parenchyma. Endodermis well developed, made of thick-walled cells; vascular bundles scattered throughout the central part of ground tissue, fibrous layer of bundle sheath present around each vascular bundle.



**LESPEDEZA CAPITATA**

(Les. cap.)

**Botanical name** : *Lespedeza capitata* Michx.      **Family:** Fabaceae (Leguminosae)

**Common names** : *English:* Bush clover; *German:* Buschklee.

**Description** : A shrub-like perennial herb, stems usually erect, 6 to 15 cm in height, simple or branched above, sparsely to densely villous. Leaves alternate, trifoliolate, petioles 2 to 5 mm long, shorter than the stalk of the terminal leaflet; leaflets obovate-oblong, oblong, oblong-lanceolate, narrowly elliptic or linear-oblong, up to 4.5 cm long and 1.8 cm wide, mucronate to acute, glabrous to sericeous above, thinly to densely sericeous or velutinous beneath. Inflorescence a densely crowded, subglobose or short ovoid spike or a compound panicle. Flowers yellowish-white, often purple-dotted, 8 to 12 mm long. Calyx 6, aposepalous, villous, 6 to 10 mm long; corolla papilionaceous, wings exceeding keel; stamens 9 + 1. Fruit a legume, oval to elliptic, indehiscent, one-seeded, pubescent, about 2 mm long.

**Distribution** : North America. Cultivated in Europe.

**Part used** : Whole plant.

**Identification** : (1) Mother Tincture when examined under UV light (365 nm) it exhibits pinkish-brown fluorescence. On addition of a few drops of *alcoholic aluminium chloride* solution, an intense green fluorescence produced.

(2) To 1 ml of Mother Tincture, add one piece of magnesium foil and 1 ml of *hydrochloric acid*, a red colour produced.

(3) To 1 ml of Mother Tincture, add 1 ml of *hydrochloric acid* and few crystals of resorcinol, boil, a red colour produced.

**History and authority** : *Homoeopathic Pharmacopoeia of United States (Revision Series)*, 2001, 5450.

**Preparation** : (a) Mother Tincture  $\phi$       Drug strength 1/10

Lespedeza Capitata in <i>coarse powder</i>	100 g
Purified Water	350 ml
Strong Alcohol	687 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LESPEDEZA SIEBOLDII**

(Les. sieb.)

- Botanical name** : *Lespedeza sieboldii* Miq. **Family:** Fabaccae
- Synonyms** : *Desmodium penduliflorum* Oudem; *Lespedeza racemosa* Dipp.; *L. formosa* Koehne.
- Description** : Perennial herb (shrub in warm regions) producing strong, wiry branches from the crown. Stem angled, reddish or brown, with apical region hairy. Leaves 3-foliolate, stipulate, leaflets elliptical-oblong, pointed, dull above and light coloured and hairy beneath; petiole shorter than blade. Flowers rose-purple, bracteate, bracts 2, in drooping long, racemes but paniced at the top of the plant. Calyx 4; corolla papillionaceous; stamens 9 + 1. Fruit a pod, 1 to 1.25 cm long, pubescent.
- Distribution** : Japan and England.
- Part used** : Aerial parts.
- Microscopical** : Leaf shows paracytic stomata; presence of idioblasts; vascular bundles arranged in ‘U’ shape.
- Identification** : (1) To 1 ml of the 60% alcoholic extract, add 2 ml of dilute *hydrochloric acid*; a pinkish precipitate is produced immediately.
- (2) To 1 ml of the 60% alcoholic extract, add 50 mg of magnesium filings and 1 ml of *hydrochloric acid*; a red colour is produced.
- (3) To 1 ml of the 60% alcoholic extract, add 5 ml of *water* and 0.1 ml *lead acetate* solution; a voluminous pinkish precipitate is produced.
- (4) Evaporate 0.2 ml of 60% alcoholic extract, add 0.5 ml of 1% solution (w/v) of *vanillin* in *hydrochloric acid*, an orange red colour is produced.
- History and authority** : Mentioned in *German Homoeopathic Pharmacopoeia*, 1990, 607.
- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Lespedeza Sieboldii in <i>coarse powder</i> | 100 g  |
| Purified Water                              | 350 ml |
| Strong Alcohol                              | 687 ml |
- to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Caution** : Protected from light.

Original Monograph Appeared in HPI Vol. V

**LILIUM TIGRINUM**

(Lili. tig.)

- Botanical name** : *Lilium tigrinum* Ker-Gawl. **Family:** Liliaceae
- Common names** : *English:* Tiger lily, spotted lily; *French:* Listigre; *German:* Tigerlilie.
- Description** : A perennial plant with bulbous root. Stem 1.2 to 1.8 m high, unbranched and wooly. Leaves scattered, sessile, three-veined, upper ones cordate-ovate, the axils bulbous. Flowers large, appear in a pyramid at the submit of the stem, dark-orange coloured, with dark or very deep crimson, somewhat raised spots, giving appearance of the spots of the tiger.
- Distribution** : Native of China and Japan; widely cultivated in gardens.
- Part used** : Whole plant.
- Microscopical** : Leaf in transection shows dorsiventral tissue arrangement and beset with papilla towards the margin; epidermis single layere of radially elongated cells; mesophyll differentiated into a single layer of palisade and spongy parenchyma; midrib and lateral veins with conjoint, collateral, closed bundles and isodiametric parenchyma. Upper epidermis of elongated, sinuous, rectangular cells and bands of numerous rugose papillae, more often towards margin of leaves; lower epidermal cells elongated, with typical monocot stomata possessing dome-shaped subsidiary cells. Stomatal index 42.85 to 45; stomatal number 15 to 20 per sq mm.
- Stem: in transection consists of a single layer of epidermis of radially elongated cells, covered with thick cuticle and numerous unicellular papillae; followed by 4 to 5 layers of parenchyma; 4 to 6 layers uninterrupted band of sclerenchyma; a wide parenchymatous ground tissue containing numerous scattered, conjoint, collateral, closed vascular bundles; epidermis in surface view of elongated, rectangular cells, beset with numerous unicellular papillae; bicelled trichomes with unicellular heads, stomata with long dome-shaped subsidiary cells.
- History and authority** : Boericke, W, *Mat. Med. with Repertory*, 1927, 404; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1901, 2, 276.



- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Lilium Tigrinum in <i>coarse powder</i> | 100 g  |
| Purified Water                          | 530 g  |
| Strong Alcohol                          | 500 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, five parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**LINUM USITATISSIMUM**

(*Linum. us.*)

- Botanical name** : *Linum usitatissimum* Linn. **Family:** Linaceae
- Common names** : *Hindi:* Alsi; *English:* Flax seed, Lin seed; *French:* Semence de Lin, Lin; *German:* Flachssamen, Lein.
- Description** : An annual herb, stem erect, smooth, about 70 cm high, branching at the summit. Leaves sessile, up to 3.8 cm long, alternate, linear-lanceolate, attenuated at both ends, acute at the apex. Inflorescence corymbose panicle. Flowers pale blue, about 2.5 cm across; sepals 5 (2+3), outer two elliptic with entire membranous margins, while the inner three broad with ciliate margins; petals 5, pale blue, slightly crenate; stamens 5, alternating with petals. Fruit a capsule, small, globular with persistent basal calyx, containing 10 exalbuminous seeds, one in each compartment.
- Distribution** : India, USA, Canada, Europe and Russia.
- Part used** : Seed.
- Macroscopical** : About 4 to 6 mm long, 2 to 3 mm wide and 1.5 mm thick; elongated-ovoid, somewhat flattened and have one edge acute and other end rounded; externally glabrous and shiny, finely pitted, brown to dusky red with a pale yellow, linear raphe along one edge; the hilum and micropyle in a slight depression near the pointed end; internally exhibiting yellowish green endosperm and cotyledons; odour slight characteristic; taste mucilaginous and oily.
- Microscopical** : Transection shows a single layer of epidermis made up of polygonal tabular cells filled with mucilage, covered with a very thin layer of cuticle, followed by 1 to 2-layered collenchymatous or parenchymatous hypodermis; a layer of lignified, yellowish-brown stone cells; below this a thin multiple hyaline layer composed of compressed cells; a pigment layer formed of flat subrectangular to polygonal tabular cells, containing dark brown pigments; inner most zone (endosperm) 8 to 10 layered, parenchymatous, containing small aleurone grains and globules of fixed oil; two plano-convex cotyledons, each consisting of an outermost layer of epidermis and numerous parenchymatous cells, containing abundant aleurone grains and fixed oil.
- History and authority** : Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, 2, 288.

- Preparation** : (a) Trituration 1x Drug strength 1/10
- |   |       |
|---|-------|
| Linum Usitatissimum in <i>coarse powder</i> | 100 g |
| Saccharum Lactis                            | 900 g |
- to make one thousand grammes of the Trituration.
- (b) Potencies: 2x and higher to be Triturated in accordance with the method, HPI and 6x may be converted to liquid 8x; 9x and higher with *Dispensing Alcohol*.

**LUFFA ACUTANGULA**

(*Luffa. ac.*)

- Botanical name** : *Luffa acutangula* Roxb. **Family:** Cucurbitaceae
- Synonym** : *Luffa acutangula* (L.) Roxb. var. *amara* (Roxb.) Clarke.
- Common names** : *Hindi:* Jinga, Torai, Kali Tori; *Bombay:* Turai; *Bengal:* Jhinga.
- Description** : An annual monoecious vine with palmately 5 to 7 angled or lobed leaves. Male flowers 3-staminate in 10 to 20 flowered racemes, female flowers solitary in same axils as males; fruits 15-30 cm long, cylindrical or club-shaped, with 10 prominent almost wing-like, longitudinal ribs or ridges; seeds much compressed, 10-12 mm long slightly corrugated on edges, wing less, black when ripe. The fruit of adulterant *Luffa echinata* Roxb can be differentiated by presence on its outer surface ciliate bristles.
- Distribution** : Cultivated throughout India.
- Part used** : Fruits.
- Macroscopical** : Fruit 15 to 30 cm long. cylindrical or club-shaped, with 10 prominent almost wing-like, longitudinal ribs or ridges; seeds much compressed, 10 to 12 mm long, slightly corrugated on edges, wingless, black when ripe. The fruit of adulterant *Luffa echinata* Roxb. can be differentiated by presence of on its outer surface.
- Microscopical** : Transection through ribs shows a single layer of papillose epidermis covered by a thick striate cuticle, followed by (a) 4 to 6 layers of parenchyma, few cells of which being tangentially elongated and some near the ribs possessing brownish contents; (b) a continuous ring of 8 to 12 layers of stone cells, the outer 6 to 8 layers consisting of closely packed thick-walled sclereids, the inner 2 to 4 layers of thin-walled sclereids with distinct pits; (c) a wide region of parenchyma containing a big, bicollateral, vascular bundle below each rib, each vascular bundle capped above by a patch of sclerenchyma and a few small vascular bundles, scattered above each such bicollateral bundles; (d) the innermost region of interwoven fibres.
- History and authority** : Ghosh, S.C., *Drugs of Hindoosthan*, 1965, 223; Boericke, W., *Mat. Med. with Repertory*, 1927, 159.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Luffa Acutangula, moist magma containing solids 100 g and plant moisture 270 ml | 370 g  |
| Strong Alcohol  | 800 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MENTHA ARVENSIS**

(Ment. arv.)

- Botanical name** : *Mentha arvensis* Linn. **Family:** Lamiaceae (Labiatae)
- Common names** : *English:* Marsh mint, Field mint, Corn mint; *French:* Baume des champs, Manthe des champs.
- Description** : Herbaceous, perennial plant, having pungent smell and with aerial leafy stolon. Leaves sessile, lanceolate to oblong, acute, obtusely or acutely dentate, cuneate at the base, smooth above and glandular below. Inflorescence a loose, cylindrical, slender spike with distinct whorls of flower at intervals. Flowers lilac, with bracts awl-like; calyx campanulate, 5-toothed, throat of calyx naked; corolla subequally 4-lobed, smooth, flat, with corollar tube included in the calyx, limbs erect; stamens 4, equal, protruding, with filament naked; anther-cells parallel; disc prominent; ovary free, carpels 2-celled; style-arm short, stigma usually 2-fid, ovules one in each cell, erect, anatropous. Fruit consists of 4 dry lobes (nutlets) at the base of the calyx. Seeds 4, one in each nutlets.
- Distribution** : Temperate North Asia up to the Himalayas and in Europe.
- Part used** : Leaf.
- Macroscopical** : Leaf sessile, lanceolate to oblong, acute, obtusely or acutely dentate, cuneate at base, smooth above and glandular below, 2 to 3 cm long and 1.5 to 2 cm broad.
- Microscopical** : Transection of lamina shows a thin layer of cuticle, a single layer of upper epidermis made up of highly sinuous cells, with no stomata and no epidermal hairs in the surface view; lower epidermis with both paracytic and diacytic stomata and glandular hairs; mesophyll differentiated into a single layer of elongated palisade cells and 4 to 5 layer of spongy parenchyma, idioblasts containing oil globules; vascular bundles scattered in spongy parenchyma.
- Transection through midrib shows a crescent shaped vascular bundle with xylem on the lower side and two subsidiary vascular bundles near the laminal projections.
- Transection through the petiole shows a layer of collenchyma with comparatively less thickening of walls on the ventral side and heavy thickening of wall on dorsal side; ground tissue parenchymatous.

**Identification** : Evaporate 20 ml of 60 percent alcoholic extract on a water bath to remove *alcohol*. Extract the aqueous part with 3 × 25 ml *solvent ether*, concentrate to 2 ml. Carryout TLC on Silica Gel ‘G’ plate using *chloroform* as mobile phase. Spray the plate with *vanillin sulphuric acid* reagent; orange-yellow coloured spot appear corresponding to standard menthol.

**History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis*, 1993, 75.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Mentha Arvensis in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 637 ml

to make one thousand millilitres of Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MENTHA VIRIDIS**

(Ment. vir.)

**Botanical name** : *Mentha spicata* Linn. **Family:** Lamiaceae (Labiatae)

**Synonyms** : *Mentha spicata* var. *viridis* Linn; *M. viridis* Linn.

**Common names** : *English:* Garden mint, Lamb mint, Brown mint, Spear mint;  
*French:* Baume vert; *German:* Frauenmuenze, Roemische Minze.

**Description** : A glabrous perennial herb, 30 to 90 cm high with creeping rhizomes and erect 4-angled stem. Leaves opposite, smooth or nearly so, with very short petiole, lanceolate to ovate, acute, coarsely dentate, smooth above glandular below. Flowers lilac, occurring in dense axillary whorls in loose, cylindrical, slender, interrupted spikes (5 to 10 cm long); calyx gamosepalous, green to purplish, small, about 3 mm long, glandular, punctate, equally 5-toothed, teeth prominent and long, hair arising from the calyx teeth but throat naked; corolla gamopetalous; stamens 4; ovary tetra carpellary, each carpal developing into smooth, ovoid, one seeded nutlet at maturity; style with bilobed stigma. Odour characteristic, sweetish, strong; taste aromatic and pungent but not followed by cooling sensation.

**Distribution** : Indigenous to the north of England but grown all over the world, cultivated in Indian gardens for culinary purposes.

**Part used** : Whole plant.

**Microscopical** : Stem: In transection, more or less squarish, ridged in outline; single layered covered by thin cuticle, but 2 layered at angles, followed by groups of collenchyma; cortex of oval or elliptical, thin-walled chlorenchyma; endodermis distinct, followed by a ring of fibre patches, a thin zone of phloem encircling xylem ring; pith consisting of large, isodiametric oval or elliptical parenchyma tissue with simple pits.

Leaf: Lamina dorsiventral; stomata diacytic on both the surfaces, comparatively very few on upper surface. Transection of the lamina shows epidermis single layered, covered with thin cuticle; glandular trichomes of two types, abundant on lower surface: (a) some with 1 to 2 celled stalk and a unicellular head, about 20 to 25 µm in diameter, (b) others large, peltate, sunk in depression in the epidermis with unicellular stalk and glandular head composed of 8-radiating cells; non-glandular covering trichomes, uniseriate, 3 to 9 celled, tapering, longitudinally striated, present on lower surface of lamina, on both the surfaces of the midrib and veins; palisade single



layered, discontinuous over midrib, palisade ratio 5 to 7; spongy parenchyma 3 to 5 layered; midrib prominently projected on the lower side with meristele in the form of an arc of xylem and phloem on the dorsal side, embedded in parenchymatous ground tissue, hypodermis collenchymatous.

**History and authority** : Blackwood, A.L., *Materia Medica Therapeutics and Pharmacology*, 1959, 442; Boericke, W., *Mat. Med. with Repertory*, 1991, 427.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Mentha Viridis in *coarse powder* 100 g  
Purified Water 400 ml  
Strong Alcohol 637 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MIMOSA PUDICA**

(Mimo. pud.)

- Botanical name** : *Mimosa pudica* Linn. **Family:** Mimosaceae
- Synonyms** : *Mimosa pudibanda* Wild.; *M. striata-stipula* Steud.
- Common names** : *Hindi:* Lajwanti, Chhuimui; *English:* Sensitive plant, Touch-me-not; *French:* Mimeuse.
- Description** : A diffuse under-shrub, up to 90 cm high; stem and branches sparingly prickly and clothed with long weak deflexed bristles with bulbous base. Leaves alternate, petiolate, petiole 2.5 to 5 cm long and bristly, compound, bipinnate, pinnae 2 to 4, digitatively arranged, with 10 to 20 pairs of leaflets; leaflets 6 to 8 mm long and up to 4 mm wide, sessile, coriaceous, linear-oblong, acute, glabrous above, clothed with appressed bristles beneath, stipulate, sensitive to touch and shows seismonasty; stipules about 8 mm long, linear-lanceolate, acute and bristly. Inflorescence globose heads, 6 to 8 mm in diameter. Flowers tetramerous, pink, pedicle 2 to 2.5 cm long, prickly, usually in axillary pairs all along the branches; bracteole solitary, linear, acute; calyx very minute; corolla pink, 2 to 2.5 mm long, divided about one third of the length, lobes 4, ovate-oblong and obtuse; stamens 4, much exserted; ovary sessile, ovules numerous. Fruit a pod, 1 to 2 cm long, flat, slightly recurved, straw coloured, with many weak bristles; seeds 3 to 5.
- Distribution** : Naturalised throughout tropical and subtropical parts of India; introduced from tropical America.
- Part used** : Root and flower.
- Macroscopical** : Root: fibrous with secondary and tertiary rootlets and nodules of varying sizes, more or less cylindrical, slightly tapering, dull reddish-brown, surface rough, fracture hard and fibrous, wood occupied about one third of the diameter.
- Microscopical** : Root in transection almost circular in outline; cork 6 to 8 layer, phelloderm indistinguishable; secondary cortex wide, composed of thin-walled parenchyma filled with starch grains, also contain rhomboidal crystals of calcium oxalate and tannin. In secondary phloem crystal fibres and ray cells present, tangentially arranged fibres occur in the inner region and scattered groups of fibres occur in the outer region of phloem; xylem in continuous ring.

Flower: prominent features are solitary bracteole with bristles and trichomes; trichomes glandular with 2 to 3 celled stalk and club shaped multicellular head, thick-walled, curved, unicellular hairs present in abundance at the mouth of corolla; corolla in surface view shows polygonal epidermal cells with smooth anticlinal walls; pollen grains spherical with smooth exine.

**History and authority** : Introduced and proved by Sankaran; Julian, O.A., *Mat. Med. of New Homoeopathic Remedies*, 1971, 362.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Mimosa Pudica in *coarse powder* 100 g  
Purified Water 400 ml  
Strong Alcohol 635 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MORINGA OLEIFERA**

(Mor. ole.)

- Botanical name** : *Moringa oleifera* Lam. **Family**: Moringaceae
- Synonym** : *M. pterygosperma* Gaertn.
- Common names** : *Hindi*: Saingna, Shajana; *English*: Drumstick tree; *French*: Bois nephretigne.
- Description** : A very soft-wooded, deciduous tree, with thick corky greyish bark. Leaves alternate, exstipulate, tri-pinnate with rachis, articulate at base, each pinnule entire, elliptic-ovate or obovate, rounded or narrow at base, obtuse at apex, smooth above, paler beneath, petioles slightly sheathing at base, petiolules slender. Flowers pedicellate, bracteate, bisexual, creamy or whitish-yellow, irregular, honey-scented, in many flowered axillary puberulous spreading panicles, bracts linear, shorter than the pedicels; calyx 5, petaloid, unequal, linear lanceolate, reflexed, puberulous outside, imbricate, a disc lining the calyx cup; corolla 5, free, narrow, linear-spatulate, unequal stamens 10, perigynous, inserted on the margin of the disc, filaments flat, hairy or villous at the base; ovary tricarpeal, stipitate, oblong, hairy, unicellular containing numerous ovules. Fruit pod-like loculicidal capsule, elongate or linear- pendulous, cylindrical, 3 to 6 angled, longitudinally 9-ribbed, beaked, three chambered, 23 to 46 cm long, 0.72 cm thick, greenish when young, brown when ripe, fruit chamber corky or pithy and pitted within. Seeds 8 to 15 or more, placed in depression in each chamber; exalbuminous, 3-angled, winged, about 2 cm long including wings with corky testa, dark brown externally, whitish within.
- Distribution** : Found wild in sub-Himalayan tract from Chenab eastwards to Sarda and cultivated all over the plains of India.
- Part used** : Whole plant.
- Microscopical** : Leaflets: transection shows a dorsiventral structure; epidermis single layered; stomata anomocytic, present on both the surfaces, numerous on lower surface but scarce on upper surface; trichomes unicellular with blunt tips; mesophyll differentiated into palisade and spongy parenchyma; palisade 1 to 2 layered and forms a continuous layer from one margin to other; mid rib containing a crescent shaped strand of xylem and phloem, covered both above and below by collenchyma; abundant starch grains, myrosin and crystal cluster of calcium oxalate and secretory cavities scattered both in the lamina and mid-rib.

Young stem: transverse section shows a few unicellular hairs with blunt tips; cork present; a single layered mucilaginous epidermis followed by 1 to 2 layered, collenchymatous hypodermis; a parenchymatous cortex including a more or less continuous ring of sclerenchyma and stone cells in the upper region; patches of pericyclic sclerenchyma present; small phloem; xylem in the form of a cylinder, rays 2 to 3 wide; pith consisting of parenchyma, a large mucilage canal, lined with epithelial tissue present in the center, secondary smaller canals sometimes present; starch and myrosin abundant in the cortex; crystals of calcium oxalate numerous, scattered throughout the parenchymatous tissue specially in the cortex.

Stem bark: Phellem 1 to 2 mm in thickness, stratified, consisting of 2 to 4 tiers of dark brown cells, each tier made up of 5 to 10 rows of cork cells, separated by narrow band of 5 to 8 rows of compressed cells of cork; a phellogen of a single layer of thin walled, rectangular or tangentially elongated colourless cells; a wide phelloderm cells of which containing rosette or sphaero-crystals of calcium oxalate and some chloroplast; cortex consists of rectangular, thin-walled cells and numerous stone cells, occurring singly or in groups in the peripheral part of the cortex and groups of sclerenchyma cells in the inner part scattered irregularly below stone cells; numerous scattered rhomboid or rosette crystals of the calcium oxalate, a few cells containing oil globules and resinous matter present in center; phloem contains concentric groups of bast fibres, separated by parenchyma, mucilage cavities present at places; ray 2 to 3 cells wide.

Root: transection shows presence of the periderm; cork cells filled with brown, granular contents; phellogen single layered; secondary cortex consists of 30 to 35 layers of cells, stone cells present singly or in groups, forming a discontinuous ring, followed by a distinct zone of scattered or groups of stone cells; big lysigenous mucilage cavities present just outside the phloem regions; rhomboid and stellate crystals of calcium oxalate, oil globules and resinous matter scattered in the cortex; stele a solid mass, multicellular rays present; starch grains, resin and mucilage present.

Fruit: Pod consists of exocarp, mesocarp and endocarp; exocarp shows a single layer of epidermis; trichomes like stem; a chlorenchymatous cortex with scattered groups of stone cells, myrosin and mucilage, containing cells and many bundles of sclerotic cells; mesocarp consists of three incomplete rings of vascular bundles, the inner ring consisting of small vascular bundles with inverted xylem; endocarp with gutter shaped longitudinal rows of sclerotic cells along the three sutures; lumen of the pod hairy between the seeds.

**History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis*, 1993, 76.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
Moringa Oleifera in moderately *coarse powder* 100 g  
Purified Water 300 g  
Strong Alcohol 730 ml  
to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**MUSA SAPIENTUM**

(Mus. sap.)

**Botanical name** : *Musa paradisiaca* Linn.var. *sapientum* Kuntze. **Family:** Musaceae

**Common names** : *Hindi:* Kela; *English:* Edible Banana, Plantain; *French:* Bananier; *German:* Banananbaum.

**Description** : An evergreen, perennial gigantic herb with rhizome and adventitious roots. Stem fleshy and spongy. Leaf simple, oblong, very large, varying from 30 to 150 cm in length and 15 cm to 35 cm in width, linear with margin wavy; petiole long and continued in the leaf as a midrib; leaf sheath rolling round each other forming a shaft also called as pseudostem and unicostate, parallel venation. Inflorescence an inversely hanging spadix having many spathes enclosing large number of flowers; upper spathes enclosing female flowers and lower ones below them bear male flowers; flowers mostly unisexual but on the same inflorescence; bisexual flowers may also occur. Flower sessile, bracteate (in the form of spathes), zygomorphic, mostly unisexual and also bisexual; epigynous and incomplete when unisexual, complete when bisexual. Perianth 6, 3 outer and 2 inner, united to form a tube, inner posterior one free, petaloid, imbricate; in male flowers or bisexual flowers androecium 5, stamens arranged in two whorls of 3+2, sometime with one staminode; gynoecium tricarpillary, syncarpous, ovary inferior, trilocular with axile placentation having two ovules in each locule (1-ovules may also be present); ovules may be present in cultivated varieties as they get reduced.

**Distribution** : Throughout India.

**Part used** : Flower.

**Microscopical** : Ovary: Transverse section of ovary shows a single layer of epidermis of oval to rectangular cells, followed by oval, isodiametric parenchyma cells; vascular bundles associated with laticiferous ducts remain embedded in parenchymatous ground tissue; an irregular cavity in the center; starch grains of various shapes (like elongated, cigar, sickle, pyriform) and raphides scattered through the ovarian tissue.

Perianth: surface view shows rectangular or polygonal epidermal cells with stomata, each containing 4 subsidiary cells, 2 lateral and two terminal; transverse section shows a single layer of upper and lower epidermis followed by parenchymatous ground tissue; vascular bundles associated with laticifers scattered in the ground tissue.

**Identification** : Evaporate 25 ml of 45% alcoholic extract to remove *alcohol*. Extract the aqueous part with  $3 \times 25$  ml *chloroform*, concentrate the chloroform extract to 5 ml and carry out TLC of chloroform extract using *chloroform : methanol* (9:1 v/v) as mobile phase. Under U.V. light 6 spots appear at  $R_f$  0.34, 0.53, 0.70, 0.73, 0.80 and 0.96 (all light pink).

**History and authority** : Proved by Jenner; Clarke, J. H., *A Dict. of Pract. Mat. Med.*, 1901, 2, 513.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   *Musa Sapientum* in moderately *coarse powder* 100 g  
                   Purified Water 500 ml  
                   Strong Alcohol 537 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**OCIMUM BASILICUM**

(Ocim. bas.)

- Botanical name** : *Ocimum basilicum* Linn. **Family:** Lamiaceae (Labiatae)
- Synonym** : *Ocimum minimum* Linn.
- Common names** : *Hindi:* Babui tulsi; Niyakshbo; *English:* Sweet basil; *French:* Basilic, Basilic des cuisinieres; *German:* Basilienkraut, Basilikum.
- Description** : A strongly scented, erect, branching herb, attain a height up to 0.9 m, stem and branches green, sometimes with purple tinge specially near the axil. Leaves about 2.5 to 5.0 cm long, ovate, acute, entire or toothed, curved, lateral veins of leaf in 3 to 7 pairs, small dots of glandular hairs present on lower surface, along with midrib on lower surface and petiole, short, stiff hairs occurs sparingly. Inflorescence dense racemose, terminal ones mostly long, lateral ones comparatively shorter, bract stalked and shorter than the calyx. Calyx short, ovate, acute, about 5 mm in length; shortly pedicelled, enlarging in fruit, upper lip rounded, lower lip ovate-lanceolate, awned with two central teeth, longer than the upper one, lateral lips smaller than the lower one; corolla 8 to 13 mm long, white, pink or purple in colour, glabrous or pubescent; stamen exerted, upper filament toothed at the base. Fruit a nutlet, about 2 mm long, ellipsoidal, black.
- Distribution** : Found all over India. Indigenous on the lower hills of Punjab.
- Part used** : Aerial part.
- Microscopical** : Leaf in transection shows dorsiventral type of tissue arrangement; epidermis single layered, epidermal cells barrel shaped, in surface view epidermal cells appear big with sinuous to wavy walls, lower epidermal cells having more sinuous to wavy walls; stomata diacytic, present more abundantly on lower surface; glandular hairs abundantly present and appear as dots on the surface and of two types: (a) large ones sessile or with unicellular stalk, with big glandular head composed of 4 radiating cells, present in the depression of epidermis, with a bladder like covering of cuticle (b) smaller and capitate, having unicellular stalk and 1 or 2 celled head; covering trichomes not very abundant, occur along the veins and petiole, conical in shape, uniseriate multicellular, 2 to 3 celled or sometimes up to 6 cells long with slightly thick and rough-warty walls. In lamina single layer of palisade present below upper epidermis, spongy parenchyma loosely arranged; in midrib a big conjoint, collateral vascular bundle present, capped by sclerenchyma on the both upper and lower sides which extends almost up to epidermis.

Stem: in transection almost circular with wavy outline; epidermis single layered, followed by a few layers of collenchyma; pericycle represented by isolated patches of fibres; vascular tissue present in a ring having phloem outside a distinct cambium and xylem inside; pith broad, parenchymatous.

**Identification** : Extract 10 ml Mother Tincture thrice with 10 ml *hexane* each time; combine the extract and evaporate to dryness, dissolve the residue in 1 ml of *ethyl alcohol*, to this solution add 1 ml *acetic anhydride* and 1 ml of *sulphuric acid*, a green colour is produced.

**History and authority** : Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1876, **10**, 605; *German Homoeopathic Pharmacopoeia*, 2000.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Ocimum Basilicum, moist magma containing  
 solids 100 g and plant moisture 300 ml 400 g  
 Strong Alcohol 730 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**ORNITHOGALUM UMBELLATUM**

(Orni. umb.)

**Botanical name** : *Ornithogalum umbellatum* Linn. **Family:** Liliaceae

**Common names** : *English:* Star of Bethlehem; *French:* Ornithogale en ombelle;  
*German:* Daldiger Milchstern.

**Description** : A perennial herb with subglobose bulbs, bearing numerous bulbils. Leaves 6 to 9, narrowly elongated, linear, deeply channeled, up to 6 mm wide, dark green with distinct white dorsal median line. Scape 10 to 15 cm long. Inflorescence a raceme of 3 to 7 flowers, sometimes with 10 to 20 flowers. Flowers erect, pedicels of lower flowers elongated, perianth segments 6, widely spreading, oblong-lanceolate, brilliant white above, with a broad, green, median stripe beneath; stamens 6, free; ovary superior, 3-chambered. Fruit a capsule.

**Distribution** : Europe, particularly England.

**Part used** : Whole plant.

**Microscopical** : Bulb in transection shows 4 to 6 concentric fleshy leaves, each made up of a single layered upper and lower epidermis of rectangular, thick-walled cells with distinct cuticle; an undifferentiated mesophyll of large, loosely arranged, isodiametric parenchymatous tissue filled with abundant starch grains; bundles of raphides, thin vascular traces consisting of spirally thickened tracheary elements present almost in the middle of the fleshy leaf.

Scale leaves of bulbs in surface view show thin, elongated cells at margins; square to rectangular cells just after the marginal cells; broad and radially elongated cells in the middle; scattered raphides of calcium oxalate; spiral tracheary elements; typical monocotyledonous stomata (each encircled by 2 flattened subsidiary cells).

**History and authority** : Proved by Copper; Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, 2, 678.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Ornithogalum Umbellatum in *coarse powder* 100 g  
                   Purified Water 500 ml  
                   Strong Alcohol 535 ml  
                   to make one thousand millilitres of the Mother Tincture.

- (b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**PAPAVER RHOEAS**

(Pap. rhoe.)

- Botanical name** : *Papaver rhoeas* Linn. **Family:** Papaveraceae
- Common names** : *English:* Corn poppy, Red poppy; *French:* Coquelicot; *German:* Klatschmohn.
- Description** : An erect, slender, branching, annual herb, up to 1 m high, with spreading, bristly hairs. Leaves alternate, more or less clustered at the base of peduncles, irregularly pinnatifid and divided, rarely nearly entire, segments lanceolate and serrate; basal lower leaves petiolate, 10 to 15 cm long; the upper leaves smaller and sessile. Flowers 5 to 10 cm across, solitary, long-peduncled, terminating the stem and branches. Sepals 2, green, deciduous; petals 4 roundish, usually bright scarlet, but varying to purple, often darker toward the base; stamens numerous; stigmatic rays 8 to 14, usually 10. Fruit a capsule, subglobose to broadly obovoid, glabrous, many-seeded, about 2 cm long; pericarp has laticifers with brownish latex, but the latex contains no opium alkaloid.
- Distribution** : Europe, Northern Africa, Naturalized in North America.
- Part used** : Flower (white varieties not used).
- Macroscopical** : Pedicel stiffly hairy; flowers usually bright scarlet to purple; sepals bristly. Petals 2.0 to 4.5 cm wide, roundish, generally entire, but occasionally incised at the apex, bright scarlet to purple, often darker towards the base; frequently with whole margins; stamens numerous, with filament dark, thick and anther short, bluish-green; ovary ovoid with a rounded base on a conical disc, with 8 to 12 stigma rays.
- Microscopical** : Sepals and petals in transection show epidermis single-layered; stomata occasional; ground tissue parenchymatous, loosely-arranged.
- Identification** : To 1 ml of 60% alcoholic extract, add 2 ml of dilute *sodium hydroxide* solution in a test tube, the colour of tincture immediately darkens. Place a strip of moistened red litmus paper over the mouth of the tube; when the mixture is heated to boiling the colour of the paper changes to blue and an amine-like odour develops.
- History and authority** : Mentioned in *Homoeopathic Pharmacopoeia of United States*, 1992, 7009; *German Homoeopathic Pharmacopoeia*, 2000.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Papaver Rhoëas in <i>coarse powder</i> | 100 g  |
| Purified Water                         | 400 ml |
| Strong Alcohol                         | 637 ml |
- to make one thousand millilitres of Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**PERSEA AMERICANA**

(Per. amer.)

- Botanical name** : *Persea americana* Mill. **Family**: Lauraceae
- Synonyms** : *P. gratissima* Gaertn. f.; *P. americana* var. *drymifolia* Blake.
- Common names** : *English*: Avocado, Alligator pear, Butter fruit.
- Description** : A large tree, up to 18 m high. Leaves entire, alternate, oblong or elliptic-lanceolate to oval or obovate, 10 to 25 cm long, apex acute or shortly acuminate, sometimes almost blunt, the base acute to truncate, frequently rounded, surface glabrous above, usually somewhat glaucous with prominent venation below; petiole 2 to 5 cm long, channeled above; flowers shortly pedicellate, small, greenish, in compact panicles; calyx 6, lobes oblong-lanceolate, acute, slightly concave, finely pubescent; corolla lobes absent; stamens 12, 9 fertile, 3 staminodes; fertile stamens in 3 whorls, each stamen of the inner whorl bearing just above its base 2 oval flattened orange coloured glands, filaments slender finely hairy, anthers oblong-ovate; staminodes flattened, orange coloured; ovary ovate-elliptic with style slender, attenuate, finely pubescent. Fruit a berry, large, pyriform, fleshy and single seeded.
- Distribution** : Cultivated in India in Nandi Hills, Courtallam, Nagercoil and foot hills of Nilgiris. Native of tropical America.
- Part used** : Fruit.
- Macroscopical** : Large, 5 to 20 cm long, pear shaped, ovate or spherical, yellowish-green to maroon or purple, skin thin or woody, pulp soft creamy to bright yellow, having firm buttery consistency; seed single, large, conical to ovate, inverted, exalbuminous with two thin seed coats, having reticulate venation.
- Microscopical** : Fruit in transverse section shows pericarp comprising of an exocarp, a mesocarp, an endocarp and a single seed with two cotyledons in the center surrounded by inner and outer integuments. The exocarp consists of a single layer of outer epidermis of heavily thickened and cutinized walls with stomata only in young fruits but lenticels scattered as grey or white dots on the surface in mature fruits; mesocarp pulpy, broadest pulpy zone consists of juicy parenchyma tissue with peripheral cells smaller, gradually increasing in size in deeper region; peripheral zone of mesocarp consists of tangential rows of parenchyma with scattered groups of stone cells; the middle zone consists of scattered oil idioblasts; middle and the inner part of

the mesocarp lack stone cells; idioblasts rounded or polyhedral, filled with little viscous oily material and surrounded by epithelial cells; the oil drops of different sizes also present, scattered in the mesocarp cells; endocarp consists of only an inner epidermis of small, rectangular, thin-walled cells.

The seed consists of two cotyledons in the center, surrounded by two integuments; the outer integument of large rectangular cells and a ring of small vascular bundles; the inner integuments consists of small parenchymatous tissue arranged in radial rows.

**History and authority** : Proved by Luis G.; *Homoeopathic Pharmacopoeia of United States*, 1964, 711.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10

Persea Americana, moist magma containing solids 100 g and plant moisture 300 ml	400 g
Purified Water	100 ml
Strong Alcohol	635 ml

to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



Original Monograph Appeared in HPI Vol. I

**RHUS TOXICODENDRON**

(*Rhus. tox.*)

- Botanical name** : *Rhus toxicodendron* Linn. **Family**: Anacardiaceae
- Common names** : *English*: Poison ivy, Poison oak; *French*: Ambre à poison, Sumac vénéneux; *German*: Gift sumach, Wurtzel sumach.
- Description** : A deciduous, under shrub, branching, stem reddish, up to 1 m high having thin aerial roots, sometimes climbing by such roots. Leaves alternate, pinnately compound, ternate and petiolate. Inflorescence a loose and slender axillary panicle. Flowers small, greenish-white, polygamous. Calyx lobes 5; petals 5; stamens 5; ovary 1-celled. Fruit a drupe, yellowish-white, about 2 mm in diameter, at first pubescent later becoming minutely papillose. Whole plant is resinous, acrid, stains black and extremely poisonous.
- Distribution** : U.S.A.
- Part used** : Leaf.
- Macroscopical** : Leaflets ovate to obovate or rotund, in general outline with 3 to 7 deep teeth or shallow lobes, lateral leaflets unequal at the base and sessile, terminal one larger and at the end of prolongation of the common petiole, apex acute, serrate, pubescent on both sides or eventually glabrous above.
- Microscopical** : Leaflets: Transection shows a single layered epidermis, stomata anomocytic, more abundant on lower surface; both non-glandular and glandular trichomes present; non-glandular trichomes of 2 types: (a) multicellular, uniseriate and (b) unicellular with warts on the surface; glandular trichomes club-shaped, with 2 celled stalk and a small multicellular head. Mesophyll differentiated into single layers of palisade and spongy parenchyma, palisade not continuous on the mid-rib; mid-rib much pronounced towards lower surface and shows a circle of collateral vascular bundles, each bundle containing a secretory duct in the phloem and encircled by a sclerenchymatous sheath, a collenchymatous zone present on both sides of the stele below both epidermises. Rhomboidal crystals of calcium oxalate present both in ground tissue of the midrib and the mesophyll.

Petiole: Transection shows single layer of epidermis followed by 2 to 3 layers of collenchyma; 6 to 8 layers of thin-walled parenchymatous cortex; numerous vascular bundles in a dorsally flattened circle, surrounded by 2 to 3 layers of sclerenchymatous pericycle. Each vascular bundle contains a resin duct in the phloem; pith parenchymatous.

- Identification** : (1) To 1 ml of Mother Tincture, add a few drops of *ferric chloride* solution, a greenish-black colour is produced.
- (2) Take 10 ml of Mother Tincture, acidify with dilute *hydrochloric acid* and extract with *ether*; take the ethereal layer and evaporate to dryness. To the residue add a small quantity of alcohol and to it, add *ferric chloride* solution, a dark green colour is produced.
- (3) Carry out TLC of chloroform extract of Mother Tincture on silica gel G coated, using *chloroform* : *methanol* (9:1 v/v) as mobile phase. Under UV light (366 nm) six prominent spots appear at  $R_f$  0.94 (red), 0.86 (purple), 0.73 (red), 0.65 (light red), 0.44 (Light red) and 0.24 (light red). When sprayed with *antimony trichloride* and heated at 110°, only two prominent spots appear at  $R_f$  0.86 and 0.36 (both pinkish violet).

**History and authority** : Introduced and proved by Hahnemann; Allen, T. F., *Encyclop. of Pure Mat. Med.*, 1874, **8**, 330.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |  |        |
|--|--------|
| Rhus Toxicodendron in <i>coarse powder</i> | 100 g  |
| Purified Water                             | 200 ml |
| Strong Alcohol                             | 824 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**Caution** : Poison, handle with care. Not to be dispensed below 3x.

## Original Monograph Appeared in HPI Vol. I &amp; VII

## SACCHARUM LACTIS

(Sac. lac.)



Mol. wt.: 360.30

- Common names** : Sugar of milk, Lactose.
- Description** : A white, crystalline powder; odourless; taste slightly sweet. It is soluble in 5 parts of water, more soluble in hot water; very slightly soluble in alcohol; particularly insoluble in *chloroform* and in *ether*. It may be obtained from the whey of milk. Its solution in water does not form a syrup.
- Identification** : (a) When heated, it melts, swells, burns and evolving an odour of burnt sugar, leaving a bulky carbonaceous residue.  
(b) When heated with solution of *potassium cupri-tartrate* (Fehling's A+B Solution) a copious precipitate of cuprous oxide is formed.
- Test of steroid** : Carry out TLC method for steroid as per appendix, HPI Vol IX, no violet colour spot appeared.
- Acidity** : 5.0 g dissolved in 50 ml of freshly boiled *water*, requires for neutralisation not more than 0.5 ml of 0.1 N *sodium hydroxide*, *phenolphthalein solution* being used as indicator.
- Clarity, colour and odour of solution** : Dissolve 3.0 g in 10 ml of boiling *water*; the solution is clear, clear, colourless and odourless.
- Arsenic** : Not more than 1 part per million (HPI).
- Copper** : Dissolve 2 g in 20 ml of *water*, add 1 ml of *dilute hydrochloric acid* and 10 ml of *solution of hydrogen sulphide*; no colour is produced.
- More soluble Sugars** : Shake 5.0 g with 20 ml of *alcohol* (90 percent) for ten minutes, filter, evaporate 10 ml of the filtrate to dryness and dry at 105°C, the residue weighs not more than 7 mg.
- Sulphated ash** : Not more than 0.1 percent (HPI).
- Storage** : Preserve in a well-closed container
- Preparation** : used as a vehicle.

## SACCHARUM OFFICINALE

(Sac. Off.)

 $C_{12}H_{22}O_{11}$ 

Mol. wt.: 342.30

- Common name** : *English*: Sucrose.
- Description** : Colourless crystals or a white crystalline powder, odourless, taste sweet, very soluble in *water*, sparingly soluble in *ethyl alcohol*, insoluble in *chloroform* and *ether*. Obtained from sugarcane, or sugarbeet. It contains no added substances.
- Identification** : (1) When heated, it melts, swells up and burns, giving of an odour of burnt sugar and leaving a bulky carbonaceous residue.
- (2) Hydrolyse a solution in *water* by boiling with 0.1 N *sulphuric acid* and neutralise with *sodium hydroxide solution*. Add *potassium cupritartrate solution* and heat. A copious red precipitate is produced.
- Test of steroid** : Carry out TLC method for steroid as per appendix, HPI Vol IX. No violet coloured spot shall appear.
- Specific optical rotation** : Not less than + 65.9° determined in a 20.0 percent w/v solution.
- Acidity or alkalinity** : Dissolve 5.0 g in sufficient *water* to produce 10 ml. Add three drops of *phenolphthalein* solution. The solution is colourless. Titrate with 0.01N *sodium hydroxide* solution to a pink colour. Not more than 0.25 ml of 0.01N *sodium hydroxide* solution is required.
- Barium** : Acidify 10 ml of a 10.0% w/v solution with dilute *sulphuric acid* and allow to stand for twenty four hours. No turbidity is produced.
- Calcium** : To 10 ml of a 10.0% w/v solution, add 1 ml of *ammonium oxalate* solution, the solution remains clear for at least one minute.
- Sulphites** : Dissolve 2.0 g in 20 ml of *water* without heating, add 0.05 ml of 0.1 N *iodine* and one drop of starch solution. A blue colour develops.
- Dextrine** : Dissolve 0.1 g in 10 ml of *water*, add one drop of *dilute hydrochloric acid* and one drop of 0.1N *iodine*. The solution remains yellow.



**SANTOLINA CHAMAECYPARISSUS**

(Sant. cha.)

**Botanical name** : *Santolina chamaecyparissus* Linn.

**Family:** Asteraceae (Compositae)

**Common names** : *English:* Lavender cotton; *French:* Lavender.

**Description** : A hardy, evergreen, strongly aromatic, much branched, tomentose-puberulent undershrub, about 30 to 50 cm tall, producing white wooly young shoots. Leaves evergreen, conspicuously silvery-grey, mostly 3 to 10 mm long, pinnatifid with crowded, narrow rounded leaflets or lobes, which are up to 3 cm long. Heads small, globular, terminal, solitary or few on naked peduncles, the disk about 5 to 12 mm wide, florets all tubular, yellow conspicuously exceeding the involucre, involucre bracts somewhat scarious. Fruit an achene, 3 to 5 angled, glabrous, pappus none.

**Distribution** : Native of Mediterranean region; grown as an ornamental plant on the hills of southern India.

**Part used** : Whole plant.

**Microscopical** : Leaf: transverse section of leaflets / lobes shows, single layer of large epidermis cells with wavy anticlinal walls, covered with thick smooth cuticle; stomata anomocytic; trichomes non-glandular and of two types: (a) long narrow thread like with unicellular stalk, (b) two armed with 1 to 2 celled uniseriate stalk and a two armed terminal cell, the arms further show small branches or protuberences; mesophyll differentiated into 3 layers of palisade and 2 to 3 layers of spongy parenchyma; vascular bundles 1 to 3, if three the central bundle larger than the other two lateral smaller bundles; secretory canals with brown contents, one associated with each vascular bundle.

Petiole: transverse section shows, epidermis single layered of large oval or barrel-shaped cells, with slightly wavy anticlinal walls; striated thick cuticle; stomata anomocytic; hypodermis 2 to 3 layered, palisade-like, chlorenchymatous; stele a flattened arc of 3 vascular bundles embedded in parenchymatous ground tissue; secretory canals present along the central bundles.

Stem: in transection circular in outline with ribs; trichomes non-glandular, similar to leaf; a single layered epidermis; cork when present pericyclic; cortex differentiated into an outer collenchymatous and an inner parenchymatous region in young stem; secretory canals scattered in the inner cortex; endodermis indistinct; pericycle of tangentially elongated patches of sclerenchyma fibres above the phloem; stele sometimes showing two growth rings; pith small, composed of thick-walled heavily lignified cells with simple pits; rays absent.

Root: Transverse section shows a cork of dark brown thick-walled, rectangular cells; followed by a parenchymatous cortex containing secretory canals; a distinct endodermis; a solid stele, occupying half of the entire root; primary xylem tetrach, secondary xylem in the form of solid cylinder surrounded by phloem and contains xylem fibres, scattered vessels and very few parenchyma; phloem consists of fibres, solitary or in small groups, sieve tubes and companion cells; medullary rays and pith absent.

**Identification** : Evaporate 20 ml of 70 percent alcoholic extract on a water bath to remove *alcohol*, make it alkaline with *ammonia* solution and extract with *chloroform*. Carry out TLC of the chloroform extract on Silica Gel 'G' using *chloroform : methanol* (9 : 1 v/v) as mobile phase. Under UV light five spots appear at  $R_f$  0.52 (violet), 0.57 (violet), 0.60 (red), 0.66 (blue), 0.76 (red). On spraying with *antimony trichloride reagent* five spots appear at  $R_f$  0.33 (purple), 0.41 (grey), 0.51 (grey), 0.56 (grey), 0.67 (grey).

**History and authority** : CCRH, *Check list of Homoeopathic Medicinal Plants of India*; Banerjee, *Materia Medica of Indian Drugs*.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Santolina Chamaecyparissus in *coarse powder* 100 g  
                   Purified Water 300 ml  
                   Strong Alcohol 725 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**SIEGESBECKIA ORIENTALIS**

(Sieg. ori.)

**Botanical name** : *Siegesbeckia orientalis* Linn.      **Family**: Asteraceae (Compositae)

**Common names** : *Hindi*: Latlatia, Marangkalmegh; *French*: Guerit vite.

**Description** : An erect, pubescent, aromatic annual, up to 1.2 m high. Stem stiff, erect with horizontal branches below and dichotomous above; stem and branches tinged with purple, terete, pubescent. Leaves opposite, 5 to 12.5 × 3.2 to 7 cm, ovate, acute or acuminate, deeply and irregularly toothed, uppermost leaves much smaller and nearly entire, all finely pubescent on both sides, base cuneate, running down wing-like into a somewhat obscure petiole. Heads small, peduncled, in leafy panicles; flowers yellow, those of the rays red beneath. Ray flowers only 5, all female fertile, with a short ligulate corolla, 2 to 3 fid. Disc flowers hermaphrodite, fertile sometimes, inner sterile, all with corolla tubular, 5 fid or 3 to 4 toothed. Pappus-0. Involucre bracts in two rows, very dissimilar; the outer 5 involucre bracts exceeding 1.3 cm in length, linear spatulate or clavate, horizontally spreading with recurved margins, with the upper surface covered with large viscous glandular hairs; while the inner 5 involucre bracts short, boat-shaped, obtuse, glandular-hairy, each bract enclosing a ray-floret. Fruits an achene, each enclosed in a boat shaped bract, glabrous, slightly rough, black.

**Distribution** : Common in damp localities throughout India as a weed ascending to 2500 m in Himalayas.

**Part used** : Whole plant.

**Microscopical** : Leaf: transection show dorsiventral structure with a single layer of sinuous epidermal cells, containing anomocytic stomata on both surfaces; a smooth cuticle; trichomes of two types (a) peltate glandular, sessile, with 2- celled head and (b) numerous uniseriate multicellular with bulbous base and pointed apex; mesophyll differentiated into a single layer of small palisade and few layers of spongy parenchyma; mid rib projects on both the surfaces with prominent collenchymatous hypodermis below the epidermis; meristele an arc of well developed 5 vascular bundles, embedded in parenchymatous ground tissue.

Petiole shows a simple arc of separate bundles and provided with leaf like wings and trichomes similar to leaves.





**SOLANUM PSEUDOCAPSICUM**

(Sol. psu.)

**Botanical name** : *Solanum pseudocapsicum* Linn. **Family:** Solanaceae

**Description** : A small leafy shrub, up to 120 cm high, with branches slender, glabrous, green. Leaves alternate, bright green and shiny, shortly petiolate, lanceolate, oblong-lanceolate, narrowed gradually at the base into the short petiole, obtuse or obtusely acute at the apex, membranous in texture, glabrous or minutely pubescent and smooth on both surfaces, sinuate on the margins, venation prominent below. Flowers white solitary or in few flowered fascicles on long pedicels, up to 1.27 cm long; calyx 5-lobed, turbinate, glabrous; lobes linear-acute; corolla 5-lobed, rotate, lobes apiculate; stamens 5, alternating with corolla lobes; filaments short; anthers erect, oblong, opening by apical pores; style slender, glabrous. Fruit a berry, yellow or scarlet globose, 1.27 to 1.9 cm diameter, which persists for a long time.

**Distribution** : Cultivated in Gardens.

**Part used** : Fruit.

**Microscopical** : Transverse section shows pericarp consists of an outer most layer of epicarp of cutinized, rectangular or sub-rectangular cells with thick-walls, radial walls being more thickened than the tangential walls; mesocarp of several layers of parenchymatous cells, with outer 2 to 3 layers made of small, compactly arranged, tangentially elongated, pigmented cells, inner layers made of round to oval, large, loosely arranged cell; scattered through the inner mesocarp few bicollateral bundles with spiral-pitted vessels and numerous macrosclereids; placental cells parenchymatous, radially elongated, forming cavities enclosing the seed; endocarp indistinct; central placental region made up of loosely arranged parenchyma containing scattered small vascular bundles and numerous macrosclereids.

Seed: Seed coat in transection shows an epidermis of palisade like, thick-walled sclereids, with the extent of thickening greater on edges than on the flat sides; followed by 2 to 3 layers of rounded parenchymatous cells in the middle region, while several layers of such cells at edges; innermost layer of seed coat consists of thin-walled cells. In surface view the outer epidermis shows sinuous walls with pits; endosperm consists of polygonal cells with aleurone grains; embryo curved, fully developed, consists of two cotyledons and a radicle.

**Identification** : Carry out TLC of *chloroform* extract of the Mother Tincture on Silica Gel ‘G’ plate with *chloroform* : *methanol* (9 : 1 v/v) as mobile phase, shows four spots in U.V. light at  $R_f$  0.25 (blue), 0.40 (blue), 0.53 (blue) and 0.96 (red).

**History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis*, 1993, 85.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
*Solanum Pseudocapsicum* in moderately 100 g  
*coarse powder*  
 Purified Water 300 ml  
 Strong Alcohol 725 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of the Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**STELLARIA MEDIA**

(Stel. med.)

- Botanical name** : *Stellaria media* (Linn.) Vill. **Family:** Caryophyllaceae
- Synonym** : *Alsine media* Linn.
- Common names** : *Hindi:* Safed phulkee; *English:* Chickweed; *French:* Stellaire; *German:* Augentrosgras.
- Description** : A low decumbent annual weed, much branched, 15 to 16 cm high, having line of hairs on stem running on alternate sides on each succeeding internode. Leaves opposite, entire; lower leaves petioled, ciliate; upper leaves sessile, usually 1 to 3 cm long, ovate-elliptic, oblong-ovate or obovate, glabrous, acute or shortly acuminate, glossy above, pale beneath, often with a few whitish tubercles on both surfaces. Flowers greenish-white, in leafy cymes, 0.35 to 0.4 cm long; pedicels up to 2 cm long; sepals 4 or 5, ovate, lanceolate to oblong, obtuse, subacute, ciliate along scarious margins, 0.35 to 0.40 cm long; petals 4 to 5, deeply cleft but shorter than sepals; stamens 10 to 12. Fruit a capsule, ovoid, 0.5 to 0.6 cm long slightly exceeding the calyx. Seeds reddish brown tuberculate, 1 to 1.1 mm across.
- Distribution** : Throughout India in moist shady places.
- Part used** : Whole plant.
- Microscopical** : Leaf: transverse section shows midrib slightly projected on lower surface, containing a small meristele with xylem towards upper side and phloem towards lower side; stele surrounded by a single layered parenchymatous bundle sheath; ground tissue of thin-walled parenchymatous cells; lamina dorsiventral, with single layer of epidermis, upper epidermal cells slightly larger than lower, both with sinuous anticlinal walls; stomata anomocytic; tuberculate deposits present on both the epidermis in surface view; mesophyll differentiated into single layered palisade and 3 to 5 layered spongy parenchyma rosette crystals of calcium oxalate scattered; stomatal number for upper epidermis 56 to 78 per sq mm; for lower epidermis 122 to 166 per sq mm; stomatal index for upper epidermis 27.7 to 33.3 per unit area and for lower epidermis 39 to 35; palisade ratio 6.5 to 8.

Stem: transverse section shows single layer of epidermis of barrel shaped cells with thin cuticle; trichomes uniseriate, multicellular, 2 to 8 celled, arising in bunches from one side only; hypodermis chlorenchymatous, 2 to 3 layered; cortex 4 to 6 layers of thin-walled parenchymatous cells; endodermis single layered; pericycle represented by sclerenchymatous patches present above each vascular bundle; vascular bundles in a ring, conjoint, collateral, containing phloem towards outside and xylem towards the pith, pith hollow.

Root: transverse section shows the outermost zone of disorganized cork cells, cork cambium 1 to 2 layered of thin-walled cells; secondary cortex of thick-walled cells, 10 to 12 layered; crushed primary xylem, secondary xylem forming a solid core surrounded by a continuous ring of secondary phloem, vessels more or less radially arranged; pith absent.

**Identification** : Evaporate 25 ml of Mother Tincture on a water bath to remove *alcohol* completely. Extract the aqueous part twice by using 25 ml of *chloroform* each time. Concentrate the chloroform extract to 1 ml and carry out the TLC of the chloroform extract on silica gel ‘G’ plate by using *chloroform* : *methanol* (9:1 v/v) as mobile phase. Under UV light three spots appear at  $R_f$  0.13 (yellow), 0.23 (yellow) and 0.95 (blue). When sprayed with *sulphuric acid*, three pink spots appear at  $R_f$  0.35, 0.77, 0.95.

**History and authority** : Clarke, J.H., *A Dict. of Pract. Mat. Med.*, 1901, **3**, 1263.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
 Stellaria Media, moist magma containing  
 solids 100 g and plant moisture 440 ml 540 g  
 Strong Alcohol 480 ml  
 to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, four parts Purified Water and five parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**TALPA EUROPEA**

(*Talp. eur.*)

- Zoological name** : *Talpa europea* Linn. **Family:** Talpidae
- Common names** : *English:* Common European mole, Old world mole, Taupes.
- Description** : An insect-eating mammal, also eats earth worm; about 12 to 18 cm long including about 3.5 cm long tail which is half-hidden in the hard spikey fur; head broad and flattened, followed immediately by a cylindrical body, covered with velvety, soft, thick, smooth, grey-black to grey fur; neck indistinct; muzzle blunt-pointed; snout long, pink, surrounded by sensitive whiskers; eyes tiny, placed at the end of the snout, covered with a thin membrane and hidden by fur which can only detect light and has very weak vision; teeth sharp, stony; point of nose and sole of feet bare, flesh coloured, ears small, scarcely visible; fore-limbs strong, robust, paddle shaped and bare side turns out word, claws very strong, used for digging; hind legs narrow, long, used mainly to push itself forward.
- Distribution** : All over British Isles, except Ireland and some small islands; most of the main land of Eurasia, Japan, Hainan and Formosa.
- Part used** : Dried pelts.
- Macroscopical** : Pelt grey-black or grey, not more than 150 mm long and 100 mm wide, velvety and soft. Hairs about 5 to 10 mm long and always wavy; hairs have no definite primary orientation; each hair is thicker around the centre than the end, this allows the mole to move freely along the underground corridors since such hairs exert no resistance in any direction and also protect the mole from dirt and water. Skin is very protective, it has twice as much blood and haemoglobin as other mammals of the same size, which help it to breath more easily in an underground environment where there is lack of oxygen and excess of carbon dioxide.
- Microscopical** : Hairs consist of several straight sections connected by narrower and curved elements, which cause change in direction of hairs by about 50° at each junction, resulting in a wavy or zigzag structure. Long coarse hairs have 6 to 8 sections having the terminal section about twice as long as the one present below and terminates in a long, thin tip. Terminal sections of the shorter, wooly hairs are almost of same width as preceding sections. Long coarse hairs appear jagged at the base due to the presence of projections of their horny basal cells; medulla usually a single row of cells and sometimes extremely narrow or even completely absent and so hair bends at this point

between two consecutive sections. In terminal section of the long hairs the medulla sometimes consists of two rows of cells, resulting in two rows of air chambers side by side at the centre of the hair. Hairs contain large amount of finely granular melanin pigment.

**History and authority** : *German Homoeopathic Pharmacopoeia, 2000.*

**Preparation** : (a) Trituration 1x Drug strength 1/10  
Talpa Europea 100 g  
Saccharum Lactis 900 g  
to make one thousand grammes of the Trituration.

(b) Potencies: 2x and higher to be triturated in accordance with the method, HPI, 6x may be converted to liquid 8x, HPI; 9x and higher with *Dispensing Alcohol*.

**TYPHA LATIFOLIA**

(Typh. lat.)

**Botanical name** : *Typha latifolia* Linn. **Family:** Typhaceae

**Common names** : *English:* Cat-tail, flag.

**Description** : Plant marshy or aquatic, perennial, stout with creeping rootstock; 1 to 3 m high. Stem simple, erect, terete. Leaves usually basal, flat, 1 to 3 cm wide, glaucous green, very long exceeding the flowering culm. Inflorescence dense cylindrical spike with separate pistillate and staminate flowers, lower part up to 15 cm long and 3 cm in diameter, deep brown bearing pistillate flowers, followed immediately above by an apical narrow yellowish male flower bearing part of spike. Perianth slender hair like in both female and male flowers; pistillate flowers without bracts; stigma spatulate. Fruit 1 cm long with persistent style and having numerous white hairs arising near the base.

**Distribution** : North America except the extreme north, Europe.

**Part used** : Root stock.

**Microscopical** : Transverse section shows a single layer of epidermis, 2 to 3 layers of hypodermis, followed by an outer cortex of 6 to 8 layers of parenchymatous cells, inner cortex containing large air cavities and scattered cortical bundles, aerenchyma having brown contents and raphides of calcium oxalate; endodermoid layer made up of barrel shaped cells with U-shaped thickenings but lacking in both starch grains and casperian strips; pericycle 1 to 2 layered; a large stele with numerous small scattered medullary vascular bundles and polygonal thin-walled compactly arranged parenchymatous cells, containing starch grains and occasional raphides of calcium oxalate; large peripheral amphivasal vascular bundles arranged almost in a ring, all vascular bundles surrounded by sclerenchyma cells.

**History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1927, 272.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Typha Latifolia in *coarse powder* 100 g  
                   Purified Water 400 ml  
                   Strong Alcohol 635 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part Mother Tincture, three parts Purified Water and six parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.



**ULEX EUROPAEUS**

(Ulex. eur.)

- Botanical name** : *Ulex europaeus* Linn. **Family**: Fabaceae (Leguminosae)
- Common names** : *English*: Gorse; *French*: Grand ajone; *German*: Gaspeldorn.
- Description** : An evergreen, densely spinous shrub, 60 to 240 cm high, with main branches erect or ascending, with rather sparse, blackish hairs, from them arising numerous horizontal short branches armed with many rigid, sharp and branched spines; all branches end in spiny tips; only vigorous shoots near the ground bear fully developed leaves. Leaves linear, 15 to 25 mm, sharply pointed, becoming spinous or scaly with age. Spines 1.5 to 2.5 cm, green rigid, deeply furrowed. Stipules 0. Flower abundant, golden yellow, axillary, 11 to 20 mm, pedicelate, bracteolate, bracteoles 2, at the apex of pedicel, 2 to 4 mm wide. Calyx bilabiate, yellowish, with lower lip 3-toothed, upper ones 2-toothed, minute; corolla papilionaceous, bright yellow, 25 to 20 mm long, standard broadly obovate, wings and keel oblong-ovate, obtuse, the keel hairy along the lower margin, wings longer than keel; stamens monadelphous in closed tube, adherent to the claws of the wings and keel, alternately long and small, long with globose anthers and short with linear anthers. Fruit a pod, 2 to 4 seeded, 11 to 20 mm long, turgid, oblong, black or dark-brown with grey or brown hairs and subtended by persistent calyx. Seeds strophiolate.
- Distribution** : Native of Europe and North Africa, Introduced in India. Higher altitude of Nilgiris, Palni and Kodaikanal hills of South India; cultivated in Simla hills as a winter fodder.
- Part used** : Seed.
- Macroscopical** : Seeds rounded-oblong, somewhat flattened, 2 to 3 mm in length and 2 mm wide, with an arched dorsal surface; seed coat thick, hard, smooth, glossy, dark brown to black; a depression or longitudinal groove on one side; caruncle pale coloured at one extremity.
- Microscopical** : Transverse section shows: testa consisting of outer epidermis of uniseriate palisade-like layer of sclereids of unevenly thickened walls, becoming two layered at hilar region and covered by thin cuticle; hypodermis differentiated into single layer of small columnar cells called hourglass-cells or osteosclereids followed by tangentially elongated compressed, thin-walled parenchymatous cells; compact group of tracheids with reticulate thickening occur at hilar region; hypodermal; layer of osteosclereides get expanded

beneath the hilum into a cushion in which compact group of tracheids remain embedded; caruncle consists of thin-walled elongated, turgid, pale yellowish parenchymatous cells; inner epidermis single layered; endosperm having distinct outer layer of thick-walled epidermal cells followed by a zone of large thick-walled cells with pits. Cotyledons consist of single layer of epidermis consisting small cells and mesophyll of 3 layers of palisade and several layer of spongy parenchyma rich in starch.

**Identification** : Evaporate 20 ml of 70% alcoholic extract on a water bath to remove *alcohol*. Extract the remaining part with 3 × 25 ml *chloroform*. Combine and concentrate to 5 ml and carry out TLC at chloroform extract of the Mother Tincture on Silica Gel ‘G’ using *chloroform : methanol* (9:1 v/v) as mobile phase. Under UV light 4 spots appear at  $R_f$  0.33, 0.37, 0.49, 0.75 (all yellow spots). On spraying with *antimony trichloride reagent* three spots appear at  $R_f$  0.35, 0.41, 0.73 (all pink spots).

**History and authority** : Frederik Schroyens, *Blue Print for a New Repertory Synthesis; Homoeopathic Pharmacopoeia of United States, Revision Series*, Dec. 1993, 9215.

**Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10  
                   Ulex Europaeus in *coarse powder* 100 g  
                   Purified Water 300 ml  
                   Strong Alcohol 725 ml  
                   to make one thousand millilitres of the Mother Tincture.

(b) Potencies: 2x to contain one part of the Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

**XANTHIUM SPINOSUM**

(Xanth. sp.)

**Botanical name** : *Xanthium spinosum* Linn.      **Family**: Asteraceae (Compositae)**Common name** : *English*: Cockle.**Description** : An annual, branched herb, 30 to 120 cm high, with strigose or puberulent stem. Leaves lanceolate, shortly petiolate, tapering at both the ends, entire, sometimes with a few coarse teeth (2.5 to 6 cm long, 5 to 25 mm wide), sparsely strigose or glabrate above, excessively hairy on midrib and veins, densely silvery sericeous beneath, axillary tripartite yellow spines in the axil of petioles. Heads unisexual, present staminate heads, situated above the pistillate heads. Staminate heads. many flowered with involucre bracts in 1 to 3 whorls, corolla 5, tubular, ovary rudimentary, style unbranched; pistillate heads 2-flowered, corolla none, forming a conspicuous 2-chambered bur with hooked prickles and style branched; pappus none. Fruits oval, about 1 to 1.5 cm long, borne singly or in two's in axils, finely puberulent and provided around with slender hooked prickles.**Distribution** : USA.**Part used** : Whole plant.**Microscopical** : Leaf: transection shows a single layer of epidermis; stomata anomocytic, present on both surfaces; trichomes two types: (a) nonglandular, simple, 3 to 5 celled, uniseriate and (b) glandular with short stalk and multicellular glandular head ; mesophyll containing 2 to 3 layers of palisade cells; mid rib protruding on lower side with collenchymatous cells, 2 to 3 layered below both the upper and lower epidermis; parenchymatous ground tissue of compactly arranged cells; meristele with 3 conjoint, collateral vascular bundles. Stomatal index 16.66 to 23.7.

Stem: transverse section shows a circular outline; single layer of epidermis, followed by single layer of hypodermis of parenchymatous cells, endodermis single layered; a wide parenchymatous cortex having resin ducts just adjacent to the endodermis; few layers of phloem containing phloem parenchyma, patches of fibres, companion cells and sieve tubes; wide xylem with radially arranged vessels; pith parenchymatous.

**History and authority** : Boericke, W., *Mat. Med. with Repertory*, 1972, 336.

- Preparation** : (a) Mother Tincture  $\phi$  Drug strength 1/10
- |   |        |
|---|--------|
| Xanthium Spinosum in <i>coarse powder</i> | 100 g  |
| Purified Water                            | 350 ml |
| Strong Alcohol                            | 685 ml |
- to make one thousand millilitres of the Mother Tincture.
- (b) Potencies: 2x to contain one part Mother Tincture, two parts Purified Water and seven parts *Strong Alcohol*; 3x and higher with *Dispensing Alcohol*.

# APPENDICES

**APPENDIX – I**

**ACETALDEHYDE**

**Reagent:-**

1. **Tollen's reagent:** Take 2 ml of 5 percent *silver nitrate solution* and add a drop of 10 percent *sodium hydroxide solution*. Add 2 percent *ammonia solution* sufficient just to dissolve the precipitate appeared.
2. **Furfural solution:** 2 g furfural in 100 ml of strong alcohol.

**APPENDIX – II****Test for steroid:-****Identification of Related Foreign Steroids**

Carry out the method for thin layer chromatography, using silica gel 'G', as the stationary phase and a mixture of 77 volumes of dichloromethane, 15 volumes of ether, 8 volumes of Methanol and 1.2 volumes of Water as mobile phase. Apply separately to the plate 1 µl of each of three solutions in a mixture of 90 volumes of Chloroform and 10 volumes of Methanol. Solution (1) containing 1.5% w/v of the substance being examined, solution (2) containing 1.5% w/v corresponding references substance and solution (3) containing 0.03% w/v each of Prednisolone RS, Prednisone RS and Cortisone RS. Develop the plate in a pre-saturated TLC chamber containing the mobile phase and after developing the plate upto 10 to 12 cm, remove the plate from chamber and allow it to dry in air until the solvents have evaporated, heat at 105° for 10 minutes, cool and spray with alkaline blue tetrazolium solution. The principal spot in the chromatogram obtained with solution (1) corresponds to that in the chromatogram obtained with solution (2). Any secondary spot in the chromatogram obtained with solution (1) is not more intense than the proximate spot in the chromatogram obtained with the solution (3).