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Bacopa monnieri (Linn.) Penn.

Synonym ▶ *Herpestis monniera* (Linn.) H. B. & K. *Moniera cuneifolia* Michx.

Family ▶ *Scrophulariaceae*.

Habitat ▶ Throughout the plains of India in damp marshy areas.

English ▶ Thyme-leaved Gratiola.

Ayurvedic ▶ Braahmi, Aindri, Nirbraahmi, Kapotavankaa, Bhaarati, Darduradalaa, Matsyaakshaka, Shaaluraparni, Mandukaparni (also equated with *Centella asiatica* Linn., synonym *Hydrocotyle asiatica* Linn. *Umbelliferae*, *Apiaceae*).

Unani ▶ Brahmi.

Siddha/Tamil ▶ Piramivazhukkai, Neerbrami.

Folk ▶ Jalaneem, Safed-Chammi.

Action ▶ Adaptogenic, astringent, diuretic, sedative, potent nervine tonic, anti-anxiety agent (improves mental functions, used in insanity, epilepsy), antispasmodic (used in bronchitis, asthma and diarrhoea).

Key application ▶ In psychic disorders and as a brain tonic. (*The Ayurvedic Pharmacopoeia of India; Indian Herbal Pharmacopoeia*.)

B. monnieri has been shown to cause prolonged elevated level of cerebral glutamic acid and a transient increase

in GABA level. It is assumed that endogenous increase in brain glutamine may be helpful in the process of learning.

The herb contains the alkaloids brahmine, herpestine, and a mixture of three bases. Brahmine is highly toxic; in therapeutic doses it resembles strychnine. The herb also contains the saponins, monnierin, hersaponin, bacosides A and B. Bacosides A and B possess haemolytic activity. Hersaponin is reported to possess cardiotonic and sedative properties. It was found, as in case of reserpene, to deplete nor-adrenaline and 5-HT content of the rat brain.

An alcoholic extract of the plant in a dose of 50 mg/kg produced tranquilizing effect on albino rats and dogs, but the action was weaker than that produced by chlorpromazine.

Dosage ▶ Whole plant—1–3 g powder. (*API* Vol. II.)

Balanites aegyptiaca (Linn.) Delile,

Synonym ▶ *B. roxburghii* Planch.

Family ▶ *Simaroubaceae; Balanitaceae*.

Habitat ▶ Drier parts of India, particularly in Rajasthan, Gujarat, Madhya Pradesh and Deccan.

English ▶ Desert Date.

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Ayurvedic ▶ Ingudi, Angaar Vrksha, Taapasadrum, Taapasa vrksha, Dirghkantaka.

Unani ▶ Hingan, Hanguul.

Siddha/Tamil ▶ Nanjunda.

Folk ▶ Hingol, Hingota, Hingothaa.

Action ▶ Seed—expectorant, bechic. Oil—antibacterial, antifungal. Fruit—used in whooping cough; also in leucoderma and other skin diseases. Bark—spasmolytic.

The plant is reported to be a potential source of diosgenin (used in oral contraceptives). The fruit pulp contains steroidal saponins. The diosgenin content of the fruit varies from 0.3 to 3.8%. Aqueous extract of fruits showed spermicidal activity without local vaginal irritation in human up to 4%; sperms became sluggish on contact with the plant extract and then became immobile within 30 s; the effect was concentration-related.

Protracted administration of the fruit pulp extract produced hyperglycaemia-induced testicular dysfunction in dogs. An aqueous extract of mesocarp exhibited antidiabetic activity in streptozotocin-induced diabetes in mice.

The seed contains balanitins, which exhibit cytostatic activity.

Dosage ▶ Leaf, seed, bark, fruit—50–100 ml decoction. (CCRAS.)

Balanophora involucrata Hook. f.

Family ▶ *Balanophoraceae*.

Habitat ▶ The Himalayas from Kashmir to Sikkim and Darjeeling at altitudes of 1,800–3,400 m

Ayurvedic ▶ Chavya (tentative synonym).

Action ▶ Astringent. Used in piles, also in rheumatism.

A related species, *B. polyandra* Griff., found in Nagaland, Manipur, West Bengal, Bihar, Orissa and Andhra Pradesh at 2,000 m, gave a phenolic glycoside, coniferin. The plant is used as an antiasthmatic.

Baliospermum montanum (Willd.) Muell.-Arg.

Synonym ▶ *B. axillare* Bl.
B. polyandrum Wt.
Croton polyandrus Roxb.

Family ▶ *Euphorbiaceae*.

Habitat ▶ The Himalayas, Assam, Khasi Hills, Bengal, Madhya Pradesh, Bihar and Peninsular India, ascending to 1,800 m.

Ayurvedic ▶ Danti, Nikumbha, Udumbarparni, Erandphalaa, Shighraa, Pratyak-shreni, Vishaalya. *Baliospermum calycinum* Muell-Arg. is considered as Naagadanti.

Siddha/Tamil ▶ Neeradimuthu, Danti.

Folk ▶ Jangli Jamaalgotaa.

Action ▶ Seed—purgative. Leaves—purgative (also used in dropsy), antiasthmatic (decoction is given in asthma). Latex—used for body ache and pain of joints. Root and seed oil—cathartic, antidropsical.

Along with other therapeutic applications, *The Ayurvedic Pharmacopoeia of India* indicated the use of dried root in jaundice, abdominal lump and splenomegaly.

The presence of steroids, terpenoids and flavonoids is reported in the leaves. The root contains phorbol derivatives. EtOH extract of roots showed *in vivo* activity in P-388 lymphocytic leukaemia.

Dosage ▶ Root—103 g powder. (*API* Vol. III.)

Balsamodendron mukul

Hook. ex Stocks

Synonym ▶ *Commiphora mukul* (Hook. ex Stocks) Engl.
C. wightii (Arn.) Bhandari.

Family ▶ *Burseraceae*.

Habitat ▶ Rajasthan, Madhya Pradesh, Assam, Andhra Pradesh, Karnataka.

English ▶ Indian Bdellium, Gum Guggul.

Ayurvedic ▶ Guggul, Devadhoop, Kaushika, Pur, Mahishaaksha, Palankash, Kumbha, Uluukhala.

Unani ▶ Muqallal yahood, Muql, Bu-e-Jahudaan

Siddha/Tamil ▶ Erumaikan Kungiliyam.

Action ▶ Oleo-gum-resin—used for reducing obesity and in rheumatoid arthritis, osteoarthritis, sciatica.

Key application ▶ In the treatment of hyperlipidemia, hypercholesterolaemia and obesity. (*WHO*.)

Guggulipid is hypocholesteremic. Guggul resin contains steroids—guggulsterones Z and E, guggulsterols I–V, diterpenoids; volatile oil, including other constituents, contains a terpene hydrocarbon cembrene A. E- and Z-guggulsterones are characteristic constituents, which distinguish *C. mukul* from other *Commiphora* sp.

Guggul resin increases catecholamine biosynthesis and activity in cholesterol-fed rabbits, inhibits platelet aggregation, exhibits anti-inflammatory activity and appears to activate the thyroid gland in rats and chicken. Z-guggulsterone may increase uptake of iodine by thyroid gland and increase oxygen uptake in liver and bicep tissues. (*Planta Med* 1984, 1, 78–80.)

The gum is also used in hemiplegia and atherosclerotic disorders; as a gargle in pyrrhoea aveolaris, chronic tonsillitis and pharyngitis. Fumes are recommended in hay fever, chronic bronchitis and nasal catarrh.

Oleo-gum resin of *Balsamodendron caudatum* is also equated with Guggul in Siddha medicine.

Dosage ▶ Oleo-gum-resin—2–4 g (*API* Vol. I.) 500 mg to 1 g (*CCRAS*.)

Balsamodendron myrrha Nees.

Synonym ▶ *Commiphora molmol* Engl.
C. abyssinica (Berg.) Engl.

Family ▶ *Burseraceae*.

Habitat ▶ Arabia, Somaliland.

Ayurvedic ▶ Bola, Hiraabola, Surasa, Barbara, Gandharasa.

Unani ► Murmakki, Bol.

Siddha/Tamil ► Vellaibolam.

Action ► Oleo-gum-resin—emmenagogue (used for irregular menstruation and painful periods), anti-inflammatory (on pharyngitis and gingivitis), antiseptic, bacteriostatic, antiviral, astringent, stimulant, expectorant, stomachic, carminative (in dyspepsia), a leucocytogenic agent (increases number of white cells in the blood). Used externally for treating acne, boils and pressure sores, internally as a blood purifier.

Key application ► In topical treatment of mild inflammations of the oral and pharyngeal mucosa. (*German Commission E.*) As a gargle or mouth rinse for the treatment of aphthous ulcers, tonsillitis, common cold and gingivitis. (*The British Herbal Pharmacopoeia, ESCOP.*)

The gum (30–60%) contains acidic polysaccharides, volatile oil (2–10%) including other constituents, heerabolene, eugenol, furanosequiterpenes and monoterpenes.

Myrrh is taken as a powder or a tincture, rather than as an infusion; used generally externally or as a gargle.

Aqueous suspension of the gum resin decreased ethanol-induced and indomethacin-induced ulcer in rats. (*J Ethnopharmacol*, 1997, Jan 55(2), 141–150.)

Dosage ► Gum-resin—3–5 g (CCRAS.)

Balsamodendron opobalsamum Kunth.

Synonym ► *Commiphora opobalsamum* (L.) Engl.

Family ► *Burseraceae*.

Habitat ► Found in countries on both sides of Red Sea.

English ► Balsam tree, Balsam of Mecca, Balsam of Gilead.

Unani ► Balsaan, Roghan-e-Balsaan (oil), Hab-e-Balsaan (fruit). Ood-e-Balsaan (wood).

Action ► Used in diseases of the urinary tract. Balsams are diuretic and stimulate mucous tissues in small doses (nauseatic and purgative in large doses).

In Unani medicine, the fruit is used as an expectorant and emmenagogue, also for neurological affections. The wood is also used as an ingredient in compounds for epilepsy and other nerve disorders. The oil is used externally for its anti-inflammatory and revitalizing properties.

Bambusa bambos (L.) Voss.

Synonym ► *B. arundinaceae* (Retz.) Roxb.
Arundo bambos L.

Family ► *Gramineae; Poaceae*.

Habitat ► Wild throughout India, especially in the hill forests of Western and Southern India.

English ► Spiny or Thorny Bamboo.

Ayurvedic ▶ Vansha, Venu, Kichaka, Trinadhvaj, Shatparvaa, Yavphala. Vanshalochana, Vansharochanaa, Shubhaa, tugaa, Tugaakshiri, Tvakshiri (Bamboo-manna). Starch of *Curcuma angustifolia* Roxb., *Zingiberaceae*, was recommended a substitute for Vanshalochana (*Ayurvedic Formulary of India*, Part I, First edn).

Unani ▶ Qasab, Tabaashir (Bamboo-manna).

Siddha/Tamil ▶ Moongil; Moongiluppu, (Bambo-manna.)

Action ▶ Leaf bud and young shoots—used in dysmenorrhoea; externally in ulcerations. Leaf—emmenagogue, antileprotic, febrifuge, bechic; used in haemoptysis. Stem and leaf—blood purifier (used in leucoderma and inflammatory conditions). Root—poisonous. Burnt root is applied to ringworm, bleeding gums, painful joints. Bark—used for eruptions. Leaf and Bamboo-manna—emmenagogue. Bamboo-manna—pectoral, expectorant, carminative, cooling, aphrodisiac, tonic (used in debilitating diseases, urinary infections, chest diseases, cough, asthma).

The plant gave cyanogenic glucoside—taxiphyllin. Bamboo-manna contains silicious crystalline substances.

The starch obtained from *Maranta arundinacea* Linn., *Marantaceae*, is also used as Bamboo-manna (known as Koovai Kizhangu, Kookaineer and Araroottu Kizangu in Siddha medicine).

Dosage ▶ Manna—1–3 g (CCRAS.)

Barbarea vulgaris R. Br.

Family ▶ *Brassicaceae*, *Cruciferae*.

Habitat ▶ Subalpine and temperate Himalayas, at altitudes of 1,800–3,750 m.

English ▶ Bitter Cress, Hedge Mustard, Yellow Rocket, Winter Cress.

Folk ▶ Cress.

Action ▶ Diuretic, anthelmintic, stomachic, antiscorbutic, (leaves are rich in vitamin C 130 mg/100 g). Pulverised herb is used as an agent for stimulating spermatogenesis.

The roots contain sinigrin; seeds contain a glucoside, glucobarbarin, and myrosin.

The protein and phosphorus contents of the plant decrease with the maturity, whereas the calcium contents increase (tender stems are eaten as a salad). The leaves and buds are a rich source of provitamin A (beta-carotene).

Barleria buxifolia Linn.

Family ▶ *Acanthaceae*.

Habitat ▶ Peninsular India from Maharashtra southwards up to an altitude of 1,200 m. An ornamental hedge plant in gardens.

Ayurvedic ▶ Sahachara (purple, blue, rose or white-flowered var.)

Folk ▶ Jhinti.

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Action ▶ Roots and leaves are used in cough, bronchitis, inflammations (applied to swellings).

Barleria cristata Linn.

Family ▶ *Acanthaceae*.

Habitat ▶ Subtropical Himalaya, Sikkim, Khasi Hills, Central and Southern India at 1,350 m.

Ayurvedic ▶ Sahachara, Shveta-Rakta-pushpa Saireyaka (white- and red-flowered var.).

Siddha/Tamil ▶ Ottamulli.

Folk ▶ Katsaraiyaa. Raktajhinti.

Action ▶ Extract of the plant—sasmogenic and hypoglycaemic. Root extract—given in anaemia. The leaves are chewed in toothache. Roots and leaves are applied to swellings. An infusion is given in cough.

The roots contain anthraquinones; flowers gave apigenin, naringenin, quercetin and malvindin.

Barleria prionitis Linn.

Family ▶ *Acanthaceae*.

Habitat ▶ Throughout the hotter parts of India. Also, commonly grown as a hedge plant in gardens.

English ▶ Common Yellow Nail Dye Plant.

Ayurvedic ▶ Sahachara, Baana, Kurantaka, Kuranta, Koranda, Korandaka, Shairiya, Pita-saireyaka

(yellow-flowered var.). Also equated with Vajradanti.

Unani ▶ Piyaabaansaa.

Siddha/Tamil ▶ Chemmulli.

Folk ▶ Piyaabaasaa, Jhinti, Katsaraiyaa.

Action ▶ Leaf—juice given in stomach disorders, urinary affections; mixed with honey and given to children with fever and catarrh; leaf juice is applied to lacerated soles of feet in the rainy season, mixed with coconut oil for pimples. Leaves and flowering tops—diuretic. Bark—diaphoretic and expectorant. Roots—paste is applied over boils and glandular swellings. Plant (Vajradanti)—antidontalgic, used for bleeding gums in Indian medicine. Ash, obtained from the whole plant, mixed with honey, is given in bronchial asthma.

The Ayurvedic Pharmacopoeia of India recommends oil extract of the plant for arresting greying of hair.

The leaves and flowering tops are diuretic, rich in potassium salts. Leaves and stems showed presence of iridoid glucosides, barlerin and acetylbarlerin. Flowers gave the flavonoid glycoside, scutellarein-7-neohesperidoside. The presence of beta-sitosterol is reported in the plant.

In the south, Nila Sahachara is equated with *Ecbolium linneanun* Kurz. (known as Nilaambari), and Shveta Sahachara with *Justica betonica* Linn.

Ecbolium linneanun plant is used for gout and dysuria; the root is prescribed for jaundice.

Dosage ▶ Whole plant—50–100 g for decoction. (*API* Vol. III.)

Barleria strigosa Willd.

Family ▶ *Acanthaceae*.

Habitat ▶ The Himalayas from Uttar Pradesh to West Bengal, up to an altitude of 1,200 m.

Ayurvedic ▶ Sahachara (blue-flowered var.).

Siddha/Tamil ▶ Nili.

Folk ▶ Koilekhaa.

Action ▶ Mild antiseptic, expectorant (given in spasmodic cough); also used as an antianaemic.

The plant gave beta-and gamma-sterol.

Barringtonia acutangula

(Linn.) Gaertn.

Synonym ▶ *Eugenia acutangula* L.

Family ▶ *Lecythidaceae*; *Barringtoniaceae*.

Habitat ▶ Sub-Himalayan tracts from the Ganges eastwards to Assam and Madhya Pradesh.

English ▶ Indian Oak. (Oak is equated with *Quercus robur* L.)

Ayurvedic ▶ Nichula, Hijjala, Ijjala, Vidula, Ambuj. (*Central Council for Research in Ayurveda & Siddha* has wrongly equated Hijjala, Nichula and Vidula with *Argyrea nervosa*, Elephant Creeper.)

Unani ▶ Samandarphal. (Samarphal is also equated with

Rhus parviflora Roxb. in *National Formulary of Unani Medicine*.)

Siddha/Tamil ▶ Kadappai, Samudraphullarni.

Action ▶ Leaf juice—given in diarrhoea. Fruit—bitter, acrid, anthelmintic, haemolytic, vulnerary; prescribed in gingivitis as an expectorant. Powdered seeds—emetic and expectorant. Bark—astrigent, used in diarrhoea and blennorrhoea. Febrifuge. Wood—haemostatic (in metrorrhagia).

Along with other therapeutic applications, *The Ayurvedic Pharmacopoeia of India* indicated the use of the fruit in goitre; also in psychological disorders.

The bark contains tannins (16%), also ellagic acid.

The fruits contain triterpenoid saponins. Saponins possess haemolytic properties.

A related sp. *B. racemosa* (L.) Roxb., found in Assam, eastern and western coasts of India and the Andaman Islands, is also equated with Samudraphala and Hijjala.

European Oak (*Quercus robur*) contains 15–20% tannins, consisting of phlobatannin, ellagitannins and gallic acid. The bark is used as astrigent, antiseptic and haemostatic.

Dosage ▶ Fruit—1–3 g (*API* Vol. III.)

Basella alba Linn. var. rubra Stewart.

Synonym ▶ *B. rubra* Linn.

Family ▶ *Basellaceae*.

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Habitat ▶ Grown as a pot herb in almost every part of India, except hills.

English ▶ Indian Spinach.

Ayurvedic ▶ Upodikaa, Potaki, Maalvaa, Amritvallari.

Siddha/Tamil ▶ Vaslakkirai.

Folk ▶ Poi.

Action ▶ Demulcent, diuretic, laxative (a good substitute for spinach and purslane). Used as a cooling medicine in digestive disorders. Leaf juice is used in balanitis and catarrhal affections. Externally applied in urticaria, burns, scalds. Root—decoction is given to stop bilious vomiting and in intestinal complaints. Used as poultice to reduce local swellings; sap is used in acne.

Used for checking malnutrition in children.

The essential amino acids are arginine, leucine, isoleucine, lysine, threonine and tryptophan. The plant contains several vitamins and minerals, is rich in calcium and iron compounds and contains a low percentage of soluble oxalates. The leaves also contain carotenoids, organic acids and water-soluble polysaccharides, bioflavonoids and vitamin K.

Dosage ▶ Whole plant—10–20 ml juice. (CCRAS.)

Bassia longifolia Koen.

Synonym ▶ *Madhuca longifolia* (Linn.) Macbride.

Family ▶ *Sapotaceae*.

Habitat ▶ South India; common in the monsoon forests of Western Ghats.

English ▶ Mowra Butter tree, South Indian Mahua.

Siddha/Tamil ▶ Illupe, Elupa, Naatu, Iluppei, Iruppei.

Action ▶ Flowers—laxative, bechic (used in coughs, colds and bronchitis), stimulant and nervine tonic. Seed oil—galactogenic, anticephalalgic, laxative in cases of habitual constipation and piles; used externally in rheumatism and skin affections. Bark, seed oil and gum—antirheumatic.

The herb contains 17% tannins and is used for bleeding and spongy gums, tonsillitis, ulcers, rheumatism and diabetes mellitus. Roots are applied to ulcers.

Seed kernel gave protobassic acid (a sapogenol) and two major saponins—Mi-saponins A and B. Mi-saponins (bidesmosides of protobassic acid) exhibit anti-inflammatory activity in rheumatism.

The corollas are a rich source of sugars and contain an appreciable amount of vitamins and calcium (total sugars 72.9%, calcium 140 mg/100 g). Sugars are identified as sucrose, maltose, glucose, fructose, arabinose and rhamnose. Flowers are largely used in the preparation of distilled liquors. They constitute the most important raw material for fermentative production of alcohol.

Bauhinia acuminata Linn.

- Family** ▶ *Caesalpiniaceae*.
Habitat ▶ Central India.
English ▶ Dwarf White Bauhinia.
Ayurvedic ▶ Kaanchnaara, Kovidaara (white-flowered var.)
Unani ▶ Kachnaal.
Siddha/Tamil ▶ Vellaimandarai.
Action ▶ Bark and leaves—a decoction is given in biliousness, stone in bladder, venereal diseases, leprosy and asthma. Root—boiled with oil is applied to burns.

Bauhinia malabarica Roxb.

- Family** ▶ *Caesalpiniaceae*.
Habitat ▶ South India, Assam and Bengal.
English ▶ Malabar Mountain Ebony.
Ayurvedic ▶ Ashmantaka var., Kaanchanaara var. (in the South).
Siddha/Tamil ▶ Malaiyatti.
Folk ▶ Aapataa (Maharashtra), Amlī, Amlosaa.
Action ▶ Antidysenteric.

The plant contains flavonoid glycosides—quercitroside, iso-quercitroside, rutoside, taxifoline rhamnoside, kaempferol glycosides and quercetol glycoside.

Bauhinia purpurea Linn.

- Family** ▶ *Caesalpiniaceae*

Habitat ▶ The Himalayas, and distributed in Northern India, Assam, Khasi Hills. Also cultivated in gardens.

English ▶ Camel's Foot tree, Pink Bauhinia, Butterfly tree, Geranium tree, Orchid tree.

Ayurvedic ▶ Kovidaara, Rakta Kaanchanaara.

Unani/Siddha ▶ Sivappu mandaarai.

Siddha ▶ Mandarai.

Folk ▶ Koilaara, Khairwaal, Kaliaar, Rakta Kanchan.

Action ▶ Bark—astrigent, antidiarrhoeal. Flower buds and flowers, fried in purified butter, are given to patients suffering from dysentery. Extract of stems are used internally and externally for fractured bones. Plant is used in goitre. It exhibited antithyroid-like activity in experimental animals.

The flowers contain astragalín, isoquercitrín and quercetin, also anthocyanins. Seeds contain chalcone glycosides.

Bauhinia racemosa Lamk

Family ▶ *Caesalpiniaceae*.

Habitat ▶ Sub-Himalayan tracts from Ravi eastwards, ascending to 1,000 m. in the Uttar Pradesh, West Bengal and Central and South India.

Ayurvedic ▶ Ashmantaka, Kanchini.

Unani ▶ Kachnaar.

Siddha/Tamil ▶ Kokku mandarai.

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Folk ▶ Aapataa (Maharashtra), Kachnaala.

Action ▶ Bark—highly astringent, anti-inflammatory (used in glandular inflammations, skin diseases, ulcers), cholagogue. Leaves—anthelmintic; with onion for diarrhoea. Flowers—used in haemorrhages, piles; also in cough. Seed—antibacterial.

Octacosane, beta-amyrin and beta-sitosterol have been isolated from the bark. EtOH (50%) extract of seeds exhibited anticancer activity.

Bauhinia retusa Roxb.

Synonym ▶ *B. semla* Wunderlin.

Family ▶ *Caesalpiniaceae*.

Habitat ▶ Northwestern Himalayas up to 1500 m, also in Orissa, Madhya Pradesh and Andhra Pradesh.

Siddha ▶ Nirpa (Telugu).

Folk ▶ Semalaa, Kathmahuli. Gum—Thaur

Action ▶ Gum—emmenagogue, diuretic. (Gum resembles Gum arabic; used as an external application for sores). Protein isolated from seeds—hypoglycaemic, hypcholesterolaemic in young, normal as well as alloxan-induced diabetic albino rats.

The bark contains quercetin-3-O-beta-D-glucoside and rutin.

Bauhinia tomentosa Linn.

Family ▶ *Caesalpiniaceae*.

Habitat ▶ Southern India, Assam and Bihar.

English ▶ Yellow Bauhinia, St. Thomas tree, Bell Bauhinia.

Ayurvedic ▶ Pita Kovidaara (yellow-flowered var.), Pita Kanchana.

Siddha/Tamil ▶ Kokkumandarai, Tiruvaatti, Kanjani.

Folk ▶ Kachnaar.

Action ▶ Antidysenteric. Fruit—diuretic. Bark—astrigent. Root bark—vermifuge. A decoction of the root bark is prescribed for liver diseases. Seed—used for wound healing.

Seeds yield a fatty oil called ebony oil, a water soluble mucilage and saponins. Flowers gave isoquercitrin (6%), rutin (4.6%) and quercetin (small amounts).

Bauhinia variegata Linn.

Synonym ▶ *B. candida* Roxb.

Family ▶ *Caesalpiniaceae*.

Habitat ▶ Punjab, Western Peninsula and Assam. Also cultivated in gardens.

English ▶ Mountain Ebony, Buddhist Bauhinia.

Ayurvedic ▶ Kaanchanaara, Kaanchanaaraka, Kanchanak, Kaanchana, Gandhaari, Sonapushpaka, Ashmantaka.

Siddha/Tamil ▶ Sivappumanchori.

Action ▶ Buds—a decoction is given in piles (also used against tumours), haematuria, menorrhagia. Dried

buds are used in diarrhoea, dysentery, worm infestation, piles and tumours. Root—carminative, used in dyspepsia and flatulence (a decoction is reported to prevent obesity). Bark—astringent, anthelmintic; used externally in scrofula and skin diseases. Seeds—possess human blood agglutinating activity. Leaf—antifungal.

Along with other therapeutic applications, *The Ayurvedic Pharmacopoeia of India* indicated the use of the stem bark in lymphadenitis and goitre. (*Kanchanaar Guggulu* is prescribed for glandular swellings and goitre.)

Water-soluble portion of alcoholic extract of the plant showed preventive effect against goitre in rats.

Flowers gave flavonoids, kaempferol-3-galactoside and kaempferol-3-rhamnoglucoside. The stem bark yields hentriacontane, octacosanol and stigmasterol. Stem contains beta-sitosterol, lupeol and a flavanone glycoside.

Dosage ► Stem bark—20–30 g for decoction. (*API* Vol. I.)

Begonia laciniata Roxb. var. *nepalensis* A. DC.

Family ► *Begoniaceae*.

Habitat ► Tropical and sub-tropical regions, especially in America. Found in Sikkim, Arunachal Pradesh, Assam, Meghalaya, Nagaland and Manipur, ascending to an altitude to 2,100 m.

English ► Beefsteak Geraniums, Elephant's Ear.

Folk ► Hoorjo (West Bengal), Teisu (Nagaland).

Action ► A decoction of the root is given for liver diseases and fever. The extract from succulent stalks is used for venereal diseases in folk medicine. Fresh shoots are chewed for tooth troubles. Aqueous extracts of the leaves and flowers of *Begonia* sp. are active against Gram-positive and Gram-negative bacteria.

Hoorjo and Teisu are also equated with *B. palmata* D. Don var. *gamblei* Hara, found in northeastern regions of India.

Belamcanda chinensis (L.) DC.

Family ► *Iridaceae*.

Habitat ► Introduced from China; cultivated all over India, up to an altitude of 1,800 m.

Folk ► Surajkaanti (Assam), Dasbaha, Dasbichandi (Bengal).

Action ► Rhizomes—expectorant, deobstruent, resolvent, used in tonsillitis, chest and liver complaints (antiviral against pneumonia).

Presence of alkaloids is reported from the plant, glucoside, belamcandin from the roots. The leaves and flowers contain a glycoflavone. The seeds tested positive for leucoanthocyanins.

B

Benincasa hispida (Thunb.) Cogn.

Synonym ▶ *B. cerifera* Savi.

Cucurbita hispida Thunb.

Family ▶ *Cucurbitaceae*.

Habitat ▶ Cultivated largely in Uttar Pradesh, Punjab, Rajasthan and Bihar.

English ▶ Ash Gourd, White Gourd, Wax Gourd, White Pumpkin.

Ayurvedic ▶ Kuushmaanda, Kuushmaandaka, Kuushmaandanaadi.

Unani ▶ Pethaa, Mahdabaa, Kaddu-e-Roomi.

Siddha/Tamil ▶ Ven-poosani, Saambalpushani.

Action ▶ Leaves—cooling, juice rubbed on bruises. Fruit decoction—laxative, diuretic, nutritious, styptic (given for internal haemorrhages and diseases of the respiratory tract.) Juice of fruit—used for treating epilepsy, insanity and other nervous diseases. The ash of fruit rind—applied on painful swellings. Seeds—anthelmintic.

The fruits contain lupeol, beta-sitosterol, their acetates and several amino acids. The fruit juice produces tranquilizing activity and mild CNS depressant effect in mice.

The roots of mature plant contain a pentacyclic triterpene, which exhibits antiallergic activity against both homologous passive cutaneous anaphylaxis and delayed hypersensitivity in mice. The fruit beverage contains pyrazine compounds.

Isomultiflorenol acetate, a pentacyclic triterpene, has been isolated as the major constituent of wax coating of fruits.

Dosage ▶ Dried pieces of the fruit—5–10 g (*API* Vol. IV.) Fruit juice—10–20 m (*CCRAS*.)

Berberis aristata DC.

Sub sp. ▶ *B. asiatica* Roxb. ex DC.

Substi. ▶ *B. lycium* Royle & other species.

Family ▶ *Berberidaceae*.

Habitat ▶ Northwestern Himalayas, Nilgiris, Kulu and Kumaon.

English ▶ Indian Barberry.

Ayurvedic ▶ Daaruharidraa, Daaruu, Daarvi, Daarunishaa, Daarurajani, Vrahataphala, Valliphala, Sthirphala. Pushpaphala, Somakaa, Parjanya, Parjani, Kantkateri, Taarthyaa, Pachampachaa. Kaaliyaka is now equated with Pita Chandana (*Coscinium fenestratum* (Gaertn.) Colebr., *Menispermaceae*). Extract—Rasaanjana.

Unani ▶ Daarhald. Rasaut (extract). Zarishk (fruit).

Siddha/Tamil ▶ Marmanjal.

Action ▶ Rasaut, Rasasranjana (extract)—bitter, cholagogue, antidiarrhoeal, stomachic, laxative, diaphoretic, antipyretic, antiseptic. Used externally in ophthalmia, conjunctivitis, ulcers, sores, swollen gums. Root bark—anti-inflammatory, hypoglycaemic

hypotensive, antiamebic, anti-coagulant, antibacterial. Bark—used in liver complaints, diarrhoea, dysentery, cholera, gastric disorders, enlargement of spleen and for regulating metabolism. Berries—antiscorbutic, laxative.

Berberine hydrochloride and sulphate help in the diagnosis of latent malaria by releasing the parasites into the blood stream.

Alkaloid berberine possesses antibacterial and anti-inflammatory activities. It is used as an intestinal antiseptic and bitter stomachic. It also exhibits antineoplastic properties. (Its synthetic derivative dihydroberberine is used in brain tumour.)

Berberine has been found to inhibit the activity of enzymes trypsin (32%) and chymotrypsin (60%) *in in-vitro* studies.

B. asiatica Roxb.ex Dc. is found in the Himalaya at 900–3,000 m, Assam and Bihar.

See *B. vulgaris*.

Dosage ▶ Extract—1–3 g (CCRAS.); dried stem—5–10 ml decoction. (API Vol. II.)

Berberis chitria Lindl.

Synonym ▶ *B. aristata* auct.
Hook. f. & Thoms.

Family ▶ *Berberidaceae*.

Habitat ▶ The Himalayas from Kashmir to Nepal, at altitudes of 1,500–2,400 m.

Ayurvedic ▶ Daaruharidraa (var.).

Folk ▶ Totaro, Kintodaa (Garhwal).

Action ▶ Same as that of *Berberis aristata*.

The root and stem bark contain alkaloids (5 and 4.2% respectively, calculated as berberine.)

The alcoholic extract of the roots was found to be better antimicrobial agent than the aqueous extract. The alkaloid palmitine hydroxide possesses antispermatogenic properties.

See *B. aristata* and *B. vulgaris*.

Berberis ulicina Hook, known as Khicharmaa in Tibet, is also equated with Daaruharidraa.

Berberis vulgaris Linn.

Family ▶ *Berberidaceae*.

Habitat ▶ Distributed in Northwestern Himalayas.

English ▶ Common Barberry, True Barberry.

Ayurvedic ▶ Daruharidraa (var.).

Folk ▶ Chatrod, Kashmal.

Action ▶ Root and bark—used for ailments of gastrointestinal tract, liver, gallbladder, kidney and urinary tract, respiratory tract, also as a febrifuge and blood purifier.

Key application ▶ Listed by *German Commission E* among unapproved herbs.

An extract with 80% berberine and additional alkaloids stimulated the bile secretion of rats by 72%. (PDR.) As cholagogue. (*The British Herbal Pharmacopoeia*.)

The main alkaloid is berberine (well tolerated up to 0.5 g). Berries are safe.

B

Berberine in small doses stimulates the respiratory system; poisonings have been observed from overdoses. Poisonings from the total herb have not been reported. (*German Commission E.*)

Berberine is bactericidal, amoebicidal and trypanocidal. Berberine is antidiarrhoeal, as it enters into the cytosol or binds to the cell membrane and inhibits the catalytic unit of adenylate cyclase. It is active *in vitro* and in animals against cholera.

Berberine stimulates bile secretion and shows sedative, hypotensive, anti-convulsant and uterine stimulant activity in animals. Alkaloid berberine is also strongly antibacterial. It has been shown to increase white blood cell and platelet counts in animals with iatrogenic leukocytopenia.

Berberine, berbamine and jatrorrhizine are hypotensive and sedative.

Many of the alkaloids are antineoplastic.

The alkaloid berbamine (50 mg three times daily for 1–4 weeks) helped reverse leukopenia induced by benzene, cancer chemotherapy or radiotherapy in a clinical study. (Francis Brinker.)

Berberine, when combined with pyrimethamine, was more effective than combinations with other antibiotics in treating chloroquine-resistant malaria. (Sharon M. Herr.)

Bergenia ligulata (Wall.) Engl.

Synonym ► *B. ciliata* Sternb.
Saxifraga ligulata Wall.

Family ► *Saxifragaceae*.

Habitat ► Temperate Himalaya from Kashmir to Bhutan, between altitudes of 900 and 3,000 m.

Ayurvedic ► Paashaanabheda, Ashmaribhedikaa, Ashmaribhit, Ashmghna, Shilaabhit, Shilaabheda. (These synonyms are also equated with *Aerva lanata* Juss.)

Siddha/Tamil ► Padanbethi.

Action ► Leaf and root—anti-scorbutic, astringent, spasmolytic, antidiarrhoeal. Used in dysuria, spleen enlargement, pulmonary affections as a cough remedy, menorrhagia, urinary tract infections. Alcoholic extract of roots—antilithic. Acetone extract of root-bark—cardiotoxic, CNS depressant and anti-inflammatory; in mild doses diuretic but antidiuretic in higher doses. Anti-inflammatory activity decreases with increasing dosage.

Due to its depressant action on the central nervous system, the drug is used against vertigo, dizziness and headache in moderate or low dosage.

Key application ► In lithiasis, dysuria, polyuria. (*The Ayurvedic Pharmacopoeia of India; Indian Herbal Pharmacopoeia.*)

The rhizome contains an active principle bergenin (0.6%), gallic acid, glucose (5.6%), tannins (14.2–016.3%), mucilage and wax; a C-glycoside and beta-sitosterol.

Bergenin prevented stress-induced erosions in rats and lowered gastric outputs.

(Paashaanabheda indicates that the plant grows between rocks appearing to break them; it does not necessarily mean that it possesses lithotriptic property.)

Dosage ▶ Rhizome—20–30 g for decoction. (*API* Vol. I)

Beta vulgaris Linn. subsp. *cicla* (L.) Moq.

Synonym ▶ *B. vulgaris* auct. non L.

Family ▶ *Chenopodiaceae*.

Habitat ▶ Native to Mediterranean region; cultivated in North India, Maharashtra and South India.

English ▶ Beet Root, Garden Beet, Chard.

Ayurvedic ▶ Palanki.

Folk ▶ Chukandar.

Action ▶ Leaf—used in burns and bruises, also for diseases of spleen and liver. Tuber and seed—expectorant. Leaf and seed—diuretic. Leaf, tuber and seed—anti-inflammatory. Seed oil—analgesic.

Beet roots are eaten raw as salad or cooked. The leaves are nutritionally superior to roots and are a good source of vitamins and minerals.

The plant contains alkaloids of which betaine is a mild diuretic and emmenagogue.

In research, using rats, chard increased regeneration of beta cells in pancreas. Maximum reduction of blood glucose was after 42 days of

administration. (*J Ethnopharmacol*, 2000, 73: 251–259.)

Beets are used orally as a supportive therapy in the treatment of liver diseases and fatty liver (possibly due to betaine). Ingestion of large quantities might worsen kidney disease. (*Natural Medicines Comprehensive Database*, 2007.)

Betula alnoides

Buch.-Ham. ex D. Don.

Synonym ▶ *B. acuminata* Wall.

Family ▶ *Betulaceae*.

Habitat ▶ The temperate and subtropical Himalayas, Khasi Hills and Manipur.

English ▶ Indian Birch, Naga Birch.

Ayurvedic ▶ Bhojapatra (var.).

Action ▶ Used in supportive therapy of rheumatic ailments.

Methyl salicylate (92.8%) has been reported from the essential oil of the bark (of the plant growing in north-eastern region of India).

Betula utilis D. Don.

Synonym ▶ *B. bhojpatra* Wall.

Family ▶ *Betulaceae*.

Habitat ▶ Temperate Himalaya from Kashmir to Bhutan.

English ▶ Himalayan Silver Birch, Indian Paper tree.

Ayurvedic ▶ Bhuurja, Bahulvalkala, Bahuputa, Lekhyapatraka, Charmi, Chitrapatra, Bhutahaa.

Folk ▶ Bhojapatra.

Siddha/Tamil ▶ Boorjapatttram (leaves).

Action ▶ Resin—laxative. Leaves—diuretic; used in the form of infusion in gout, rheumatism, dropsy, and as a solvent of stones in the kidneys; used in skin affections, especially eczema. Bark—used in convulsions. Oil—astrigent, antiseptic.

Key application ▶ (*B. pendula*) In irrigation therapy for bacterial and inflammatory diseases of the urinary tract and for kidney gravel; supportive therapy for rheumatic ailment. (*German Commission E, ESCOP*)

European Silver Birch is equated with *Betula alba* L., synonym *B. pendula* Roth. Astrigent, diuretic, anti-inflammatory, bitter, cholagogue; contains salicylates. Used for kidney and bladder complaints, sluggish kidney functions, rheumatism and gout. Methyl salicylate is obtained by distillation of the twigs. In an Indian sp., *B. acuminata*, methyl salicylate (92.8%) has been reported in the essential oil of the bark. *B. utilis* is also a close relative of *B. pendula*.

Dosage ▶ Bark—3–5 g powder; decoction—50–100 ml (*CCRAS*.)

Bidens pilosa Linn.

Family ▶ *Compositae; Asteraceae*.

Habitat ▶ Throughout India in gardens, waste places and tea plantations.

Folk ▶ Phutium (Gujarat), Kuri (Garhwal).

Action ▶ Plant—cytotoxic. Leaf—applied to ulcers and swollen glands.

The plant contains a number of polyacetylenes which are toxic to bacteria, fungi and human fibroblast cells. Phenylheptatriyne is the major constituent of the leaves and stems.

B. pilosa Linn. var. *minor* (Blume) Sherff, synonym *B. pilosa* Linn. var. *bipinnata* Hook. f. in part, gave phyto-sterin-B, which like insulin, showed hypoglycaemic activity both in normal and diabetic rats. *B. pilosa* auct. non Linn., synonym *B. chinensis* Willd., is used for leprosy, fistulae, pustules, tumours.

Biophytum sensitivum (Linn.) DC.

Synonym ▶ *Oxalis sensitiva* Linn.

Family ▶ *Oxalidaceae*.

Habitat ▶ Throughout tropical India.

Ayurvedic ▶ Lajjaalu (var.) Vipareet Lajjaalu (non-classical), Alam-bushaa (Hindi commentators have equated it with Gorakh Mundi, *Sphaeranthus indicus* Linn., *Asteraceae*.)

Folk ▶ Lajoni, Jhalai, Lakajana.

Action ▶ Plant—used in insomnia, convulsions, cramps, chest-complaints, inflammations, tumours, chronic skin diseases. Ash—in stomachache. Leaves—diuretic, astrigent, antiseptic. Paste is applied to burns, contusions

and wounds. Decoction is given in strangury, asthma and phthisis. Roots—decoction is given in lithiasis. Mature leaves are recommended in diabetes; contain an insulin-like principle.

A saline extract of leaves showed hypoglycaemic activity in rabbits.

Bixa orellana Linn.

Family ▶ *Bixaceae*.

Habitat ▶ Native to Central America, often cultivated in Madhya Pradesh and South India.

English ▶ Annatto.

Ayurvedic ▶ Sinduri, Sinduriyaa.

Siddha/Tamil ▶ Jabara, Manjitti.

Action ▶ Plant—astrigent, antibilious, antiemetic, blood purifier. Leaves—infusion is given in jaundice, also in dysentery. Externally, scar-preventive. Root bark—febrifuge, antiperiodic. Seed pulp—haemostatic, antidysenteric, diuretic, laxative. Fruit—antidysenteric.

An antimicrobial constituent, maslinic acid, alongwith gallic acid and pyrogallol, has been isolated from the leaves. Alcoholic extract of the leaves completely inhibited *Micrococcus pyogenes*, but was inactive against *E. coli*. The aqueous extract, however, showed partial inhibition against *E. coli*. The aqueous extract also showed potent inhibitory activity towards lens aldose reductase, which plays an important role in the management of diabetic complications. The activity is attributed to a flavonoid, isoscutelarein.

Bixin, the main constituent of seed coat, shows cytostatic effect on the growth of human lymphoma cells. Bixin also has a hyperglycaemic effect and may disturb blood glucose control.

Blepharis edulis Pers.

Synonym ▶ *B. persica* (Burm.f.) Kuntze.

Family ▶ *Acanthaceae*.

Habitat ▶ Punjab and western Rajasthan.

English ▶ Acanthus.

Ayurvedic ▶ Utangana, Kaamavridhi, Chatushpatri, Uchataa (equated with *Scirpus* or *Cyperus* sp. during the classical period; with Shveta Gunjaa, *Abrus* sp. during the medieval period.)

Unani ▶ Utangan.

Folk ▶ Karadu (Maharashtra).

Action ▶ Roots—diuretic. Used for urinary discharges and dysmenorrhoea. Seeds—deobstruent, resolvent, diuretic (used in strangury and sexual debility). Powdered plant is applied locally on infections of the genitals and on burns.

Key application ▶ Seed in dysuria and impotency. (*The Ayurvedic Pharmacopoeia of India*.)

A benzoxazine glucoside, blepharin, has been isolated from seeds, and a saponin, which on hydrolysis gave lupeol.

Dosage ▶ Dried seed—3–6 g powder. (*API* Vol. IV.)

Blepharis linariaefolia Pers.

Synonym ▶ *B. sindica* T. Anders.

Family ▶ *Acanthaceae*.

Habitat ▶ Punjab, Haryana, Rajasthan and Gujarat.

Ayurvedic ▶ Ushtrakaandi, Utangan (var.).

Folk ▶ Utangana (Sindh). Asad.

Action ▶ Seeds, boiled in milk, are taken as an invigorating tonic.

Blepharis molluginifolia Pers., used for urinary discharges, is also equated with Utangana.

Blepharispermum subsessile DC.

Family ▶ *Compositae; Asteraceae*.

Habitat ▶ Madhya Pradesh, Maharashtra, Karnataka.

Ayurvedic ▶ Used as a substitute for Raasnaa in Madhya Pradesh.

Action ▶ Anti-inflammatory (used internally and externally for rheumatic affections).

Blumea balsamifera DC.

Synonym ▶ *B. densiflora* Hook. f. in part.

Family ▶ *Compositae; Asteraceae*.

Habitat ▶ Subtropical Himalayas, Nepal, Sikkim, Assam and Khasi Hills at 700–1,350 m.

English ▶ Ngai Camphor.

Ayurvedic ▶ Kukundara, Gangaapatri.

Unani ▶ Kakarondaa.

Action ▶ Tranquilizer (used in excitement and insomnia), expectorant, sudorific. Given in intestinal diseases, colic, diarrhoea. Essential oil from leaves—hypotensive.

The plant is a source of Ngai or Blumea Camphor. Camphor occurs in all parts of the plant, but is generally extracted from leaves. Ngai Camphor oil consists almost entirely of *l*-borneol. It is redistilled to obtain the refined camphor for use in medicine.

The dried leaves contain sesquiterpene lactones. These lactones exhibit antitumour activity against Yoshida sacoma cells in tissue culture.

The plant exhibits moderate antibacterial activity against *E. coli*.

Blumea densiflora DC.

Family ▶ *Compositae; Asteraceae*.

Habitat ▶ Sub-tropical Himalayas, Nepal, Sikkim, Assam and Khasia hills.

English ▶ Ngai Camphor.

Ayurvedic ▶ Kukundara (var.).

Action ▶ Juice of fresh leaves— insecticidal, mosquito repellent. The plant yields an essential oil which yields camphor.

Aerial part contains sesquiterpene lactones, tagitinin A, tirolundin ethyl ether and iso-alantolactone derivatives.

Blumea eriantha DC.

Family ▶ *Compositae; Asteraceae.*

Habitat ▶ Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu, Kerala.

Ayurvedic ▶ Kukundara (var.).

Unani ▶ Kakarondaa.

Folk ▶ Nirmudi (Maharashtra).

Action ▶ Juice of the herb—carminative. A warm infusion of leaves is given as a sudorific, while a cold infusion is considered diuretic and emmenagogue. The oil possesses significant antibacterial and antifungal properties. The oil also shows insecticidal activity.

The essential oil contains 95% ketones, the chief constituent of which are *d*-carvotanacetone and *l*-tetrahydrocarvone and an alcohol.

The plant contains a flavonol, crianthin (isolated from the flowers). It is identical to artemetin, isolated from *Artemisia absinthium*.

Blumea fastulosa (Roxb.) Kurz.

Synonym ▶ *B. glomerata* DC.

Family ▶ *Compositae; Asteraceae.*

Habitat ▶ Tropical Himalayas, and throughout the plains of Assam and Penninsular India.

Ayurvedic ▶ Kukundara (var.).

Unani ▶ Kakarondaa.

Action ▶ Plant—diuretic. Essential oil—CNS depressant.

The steam non-volatile fraction of plant extract contained a mixture of *n*-alkanes.

Blumea lacera.

Family ▶ *Compositae; Asteraceae.*

Habitat ▶ Throughout the plains of India, ascending to 700 m.

Ayurvedic ▶ Kukundara, Kukuradru, Taamrachuuda.

Unani ▶ Kakarondaa.

Siddha/Tamil ▶ Narakkarandai, Kaatu Mullangi.

Folk ▶ Kakranda.

Action ▶ Plant—antipyretic. Leaf—astrigent, febrifuge, diuretic, deobstruent, anthelmintic (particularly in case of thread worm). Root—anticholerin. Essential oil—antibacterial, antifungal.

The leaves on steam distillation yield 0.5% essential oil from which camphor is isolated.

The oil contains cineol 66, *d*-fenchone 10 and citral about 6%. The plant gave a diester of coniferyl alcohol, acetylenic compounds, a thiophene derivative; aerial parts gave campesterol, hentriacontane, hentriacontanol, alpha-amyrin and its acetate, lupeol and its acetate and beta-sitosterol.

The alcoholic extract of the plant showed marked anti-inflammatory activity in carrageenin and bradykinin-induced inflammation in rats.

Dosage ▶ Root—5–10 g paste. (CCRAS.)

Boerhavia diffusa Linn.

Synonym ▶ *B. repens* Linn.
B. procumbens Roxb.

Family ▶ *Nyctaginaceae*.

Habitat ▶ Throughout India as a weed.

English ▶ Horse-purslane, Hogweed.

Ayurvedic ▶ Rakta-punarnavaa, Punarnavaa, Katthilla, Shophaghni, Shothaghni. Varshaabhu (also equated with *Trianthema portulacastrum* Linn., which exhibits anti-inflammatory, antipyretic and analgesic activity).

Unani ▶ Itsit, Bishkhaparaa.

Siddha/Tamil ▶ Mookkirattai.

Folk ▶ Gadaha-purnaa.

Action ▶ Diuretic, anti-inflammatory, antiarthritic, spasmolytic, antibacterial (used for inflammatory renal diseases, nephrotic syndrome, in cases of ascites resulting from early cirrhosis of liver and chronic peritonitis, dropsy associated with chronic Bright's diseases, for serum uric acid levels). Root—anticonvulsant, analgesic, expectorant, CNS depressant, laxative, diuretic, abortifacient.

Key application ▶ As diuretic, hepatoprotective. (*Indian Herbal Pharmacopoeia*.)

B. repanda, synonym *B. chinensis* Linn., roots exhibited antihepatotoxic activity against carbon tetrachloride galactosamine- and paracetamol-induced intoxication in rats. Powdered root gave encouraging results in spermatorrhoea and leucorrhoea.

The chloroform and methanolic extracts of the roots and aerial parts of *B. diffusa* also exhibited antihepatotoxic activity against carbon tetrachloride-induced intoxication in rats.

Punarnavaa is official in IP as a diuretic. The diuretic action of the drug is attributed to the presence of xanthone, beta-ecdysone. Flavonoid, arbinofuranoside, present in the drug, was found to lower serum uric acid in experimental animals, as also in humans.

Punarnavaa has been reported to increase serum protein level and reduce urinary protein excretion in clinical trials in patients suffering with nephrotic syndrome. The activity is attributed to the presence of rotenoids in various parts of the plant.

An antifibrinolytic agent, punarnavoside, has been found to stop IUCD-induced bleeding in monkeys. The drug contains quinolizidine alkaloids.

Dosage ▶ Whole plant—20–30 g for decoction (*API* Vol. I); root—1–3 g powder; 10–20 ml fresh juice. (*API* Vol. III.)

Boerhavia verticillata Poir.

Family ▶ *Nyctaginaceae*.

Habitat ▶ Throughout plains of India.

Ayurvedic ▶ Shveta Punarnavaa, Vrshchiva, Vrshchiraka. (Vrshchira is also equated with *Trianthema* sp.) *B. erecta*, synonym *B. punarnava* Saha and Krishnamurthy, is also equated with the white-flowered species of Boerhavia.

Action ▶ See *B. diffusa*.

Bombax ceiba Linn.

See *Salmalia malabarica* Schott & Endl.

Borago officinalis Linn.

Family ► *Boraginaceae*.

Habitat ► The Mediteranean region, Europe and Asia.

English ► Borage, Cow's Tongue Plant.

Unani ► Gaozabaan (*Onosma bracteatum* Wall. has also been equated with Gaozabaan).

Action ► Fresh herb (compounded with water)—refreshing, restorative and nervine tonic. Leaves and flowers—diuretic, febrifuge, expectorant, demulcent, emollient; promote the activity of kidneys; alleviate pulmonary affections.

The drug strengthens adrenal glands and is given for stress, mental exhaustion and depression; provides support to stomach and intestines in cases of infection and toxicity. Used as a tonic to counteract the lingering effects of steroid therapy. Seeds relieve irritable bowel syndrome and regulate menstruation.

The leaves contain lycopsamine and supindine viridiflorate as the predominant unsaturated pyrrolizidine alkaloids. Due to low concentration of these alkaloids Borage is not toxic.

The drug contains potassium and calcium, combined with mineral acids. The fresh juice affords 30%, the dried herb 3% of nitrate of potash. The stems and leaves supply much saline

mucilage. These saline qualities are mainly responsible for the wholesome invigorating properties of Borage.

Borage imparts pleasant flavour and cooling effect to beverages. In India, squashes and syrups, sold during summer, contain Borage extract.

Borage contains ascorbic acid (38 mg/100 g). Flowers contain cholin, glucose, fructose, amino acids, tannin (about 3%). Seeds contain protein (20.9%) and an oil (38.3%). The seed oil is one of the important sources of gamma-linoleic acid and linoleic acid. Borage oil, combined with Evening Primrose oil, is used in hypercholesterolaemia.

Borage seed oil is used for rheumatoid arthritis, atopic eczema, infantile seborrhoeic dermatitis, neurodermatitis, also for PMS and for preventing heart disease and stroke. Only UPA (unsaturated pyrrolizidine alkaloids) free oil is given internally.

Listed by *German Commission E* among unapproved herbs.

It has been suggested that borage not be used with drugs known to lower the seizure threshold such as tricyclic antidepressants and phenothiazines due to GLA content (only borage seed oil contains significant amounts of GLA). (Francis Brinker.)

Borassus flabellifer Linn.

Family ► *Palmae; Arecaceae*.

Habitat ► Coastal areas of Bengal, Bihar and Western and Eastern Peninsula.

English ► Palmyra Palm, Brab tree.

B

Ayurvedic ▶ Taala, Taada, Trinraj, Mahonnata, Lekhyapatra.

Siddha/Tamil ▶ Panai, Panaimaram.

Action ▶ Fresh sap—diuretic, cooling, antiphlegmatic, laxative, anti-inflammatory. Slightly fermented juice is given in diabetes. Palm-jaggery—used as an energy food for convalescents. Ash of dry spadix—antacid, antibilious (used in heartburn). Young root, terminal buds, leaf-stalks—used in gastritis and hiccups.

The sap is given as a tonic to asthmatic and anaemic patients. Jaggery is given for anaemia, for diseases characterized by a marked loss of potassium. Palm candy is used in coughs and pulmonary affections and as a laxative for children.

The Ayurvedic Pharmacopoeia of India recommends dried male inflorescence in dysuria.

Jaggery solution may be used in hypertension and oedema due to heart and liver diseases, also as a food for typhoid patients.

The sap is an excellent source of biologically available riboflavin.

Aqueous MeOH extract of young shoots contains heat-stable toxin; edible part of young shoot, neurotoxic to rats, but not hepatotoxic.

Dosage ▶ Dried male inflorescence—1–3 g (*API* Vol. III.)

Borreria articularis

(Linn. f.) F. N. Williams.

Synonym ▶ *B. hispida* (L.) K. Sch.
Spermacoce hispida Linn.

Family ▶ *Rubiaceae*.

Habitat ▶ Throughout India, as a weed in cultivated and fallow lands and pastures.

English ▶ Shaggy Button Weed.

Ayurvedic ▶ Madana-ghanti.

Siddha/Tamil ▶ Nathaichoori.

Folk ▶ Ghanti-chi-bhaaji (Maharashtra), Gatbhanjan, Satgathiyaa.

Action ▶ Herb—used in the treatment of headache. Root—prescribed as a mouthwash in toothache. Leaf—juice is given as an astringent in haemorrhoids. Seeds—used as demulcent in diarrhoea and dysentery.

The weed contains beta-sitosterol, ursolic acid and D-mannitol. It is rich in calcium and phosphorus. Isorhamnetin, a flavonoid, is reported in the seeds.

Boswellia serrata Roxb.

Family ▶ *Burseraceae*.

Habitat ▶ The drier parts of Peninsular India.

English ▶ Indian Frankincense, Indian Olibanum.

Ayurvedic ▶ Shallaki, Susravaa, Gajabhakshyaa, Salai. Gum—Kundur.

Unani ▶ Kundur (gum).

Siddha/Tamil ▶ Parangisambirani, Kungli.

Folk ▶ Salai Guggul.

Action ▶ Gum-resin—antiseptic, anti-inflammatory, antiatherosclerotic, emmenagogue, analgesic, sedative, hypotensive. Also used in obesity, diarrhoea, dysentery, piles, urinary disorders, scrofulous affections. Oil—used topically in chronic ulcers, ringworm.

Nonphenolic fraction of gum-resin exhibited marked sedative and analgesic effect in rats. It produced a marked and long-lasting hypotension in anaesthetized dogs.

Many derivatives of 3-keto-methyl-beta-boswellic ester, isolated from the gum-resin., have been prepared; a pyrazoline derivative exhibited maximum anti-inflammatory activity. (Gum-resin is used in osteoarthritis, juvenile rheumatoid arthritis, soft tissue fibrositis and spondylitis, also for cough, bronchitis, asthma, mouth sores.)

Essential oil from gum-resin—antifungal.

Gum-resin contains triterpenes of oleanane, ursane and euphane series.

Stem and fruit—hypoglycaemic.

Dosage ▶ Gum-resin—1–3 g (*API* Vol. IV.)

Brassica alba (L.) Boiss.

Synonym ▶ *Sinapis alba* L.

Family ▶ *Cruciferae; Brassicaceae*.

Habitat ▶ Native of Europe and West Asia. Cultivated in North India as a crop.

English ▶ White Mustard.

Ayurvedic ▶ Siddhaartha, Shveta Sarshapa, Sarshapa-Gaura.

Unani ▶ Khardal Safed.

Siddha/Tamil ▶ Venkadugu.

Folk ▶ Safed Raai.

Action ▶ Stimulant to gastric mucosa, increases pancreatic secretions; emetic (used in narcotic poisoning), diaphoretic, rubefacient. (As a counter-irritant it increases flow of blood to a specific area.) Used externally as a poultice in bronchitis, pleurisy, intercostal neuralgia, chilbains.

Seeds contain glucosinolates.

Sinalbin in *B. alba* and sinigrin in *B. juncea* oil are toxic constituents. The oil with toxic constituents should be avoided in gastrointestinal ulcers and kidney disorders. When moistened, sinigrin in the seeds is degraded to allyl isothiocyanate, a potent irritant volatile oil. (Francis Brinker.)

Glucosinolates are goitrogenic. Excessive consumption of *Brassica* sp. vegetables may alter absorption of thyroid hormone in G2 tract. (Sharon M. Herr.)

Brassica campestris Linn. var. rapa (L.) Hartm.

Family ▶ *Cruciferae; Brassicaceae*.

Habitat ▶ Cultivated as an oil-yielding crop.

English ▶ Field Mustard, Turnip Rape.

Ayurvedic ▶ Sarshapa, Siddhaartha.

Unani ▶ Sarson.

Siddha/Tamil ▶ Kadugu.

Action ▶ Stimulant, diuretic, emetic, rubefacient, counter-irritant. Used externally for bronchitis and rheumatic pains (increases flow of blood to a specific area). Powdered seeds are used as a tea for colds, influenza and fever.

The seeds contain glucosinolates (the derivatives are responsible for toxicity). The concentration of the major glucosinolate, gluco-napin, varies from 0.64 to 1.8% in the oil-free meal of Indian brassicas. The glucosinolates in rapeseed meal split upon enzymatic hydrolysis to produce glucose, potassium, hydrogen sulphate and a sulphur-containing compound which undergoes intramolecular rearrangement to give rise to the antinutritional factors, isothiocyanates or thiocyanates.

The volatile oil of mustard is given internally in colic; in overdoses it is highly poisonous and produces gastroenteric inflammations. It is employed externally as a liniment for rheumatic pains.

Adulteration of mustard oil with argemone oil (*Argemone mexicana* is frequently found growing in brassica fields), by accident or by design, has led to the widespread epidemics of dropsy and glaucoma due to an alkaloid sanguinarine.

Black mustard contains sinigrin, which on hydrolysis by enzyme myrosin, produces allylisothiocyanate; the white mustard contains sinalbin, which produces *p*-hydroxybenzyl isothiocyanate. Mucilage contains sinapine.

Dosage ▶ Seed—500 mg to 1 g paste. (API Vol. III.)

Brassica juncea

(Linn.) Czern. & Coss.

Family ▶ *Cruciferae; Brassicaceae*.

Habitat ▶ Cultivated in Punjab, West Bengal, Uttar Pradesh and Gujarat.

English ▶ Chinese Mustard, Brown Mustard.

Ayurvedic ▶ Raajikaa, Aasuri Raai, Tikshnagandhaa.

Siddha/Tamil ▶ Kadugu.

Folk ▶ Raai

Action ▶ Raai is a substitute for Mustard. Antidysenteric, stomachic, diaphoretic, anthelmintic. Increases pancreatic secretions. A decoction of seeds is given in indigestion, cough. Used externally as a counter-irritant in several complaints of nervous systems.

Brassica napus Linn.

Family ▶ *Cruciferae; Brassicaceae*.

Habitat ▶ Cultivated in Punjab, Bengal and Bihar.

English ▶ Mustard, Indian Rape.

Ayurvedic ▶ Krishna-Sarshapa, Raajakshavaka, Kattaka, Katusneha, Tantubha, Siddhaartha, Siddhaarthaka, Siddhaartha-sita, Rakshogna. (White variety of Sarshapa is also equated with Siddhaartha. Asita and Rakta seed varieties are reddish; Gaur and Siddhaartha are whitish.)

Unani ▶ Kaali Sarson.

Action ▶ Emollient, diuretic, anticatarrhal.

The oil gave brassino steroid—brasinolide. Seeds gave a antithyroid compound, 5-vinyl-2-oxazolidinethone; thioglucosides and thioglucosinolates. The seed oil is said to dissolve gallstone.

Brassica nigra (Linn.) Koch.

Family ▶ *Cruciferae; Brassicaceae*.

Habitat ▶ Cultivated in Punjab, Uttar Pradesh and Tamil Nadu.

English ▶ Black Mustard.

Ayurvedic ▶ Banarasi Raai, Raajika (var.).

Unani ▶ Khardal Siyah.

Siddha/Tamil ▶ Kadugu.

Folk ▶ Raai.

Action ▶ Seeds are used for treating coryza with thin excoriating discharge with lacrimation, sneezing and hacking cough, nostril blockage and dry and hot feeling of pharyngitis.

The seeds contain glucosinolate sinigrin, which produces allyl isothiocyanate when mixed with warm water. Allyl isothiocyanate acts as a counterirritant when diluted (1:50).

Brayera anthelmintica Kunth.

Synonym ▶ *Hagenia abyssinica* (Bruce) J. F. Gmelin.

Family ▶ Rosaceae.

Habitat ▶ Indigenous to north-east Africa. Imported into Mumbai.

English ▶ Cusso, Brayera.

Folk ▶ Kusso.

Action ▶ Anthelmintic. Administered in the form of an infusion for the expulsion of tapeworm (ineffective against hookworm, roundworm, whipworm). Irritant to mucous membrane; produces nausea, vomiting and colic in large doses.

Breynia retusa (Dennst.) Alston.

Synonym ▶ *B. patens* Benth.

Family ▶ *Euphorbiaceae*.

Habitat ▶ The tropical Himalayas and Deccan peninsula.

Ayurvedic ▶ Bahuprajaa, Kaamboji (doubtful synonym).

Folk ▶ Kaali Kamboi (Gujarat).

Action ▶ Used as a galactagogue (as a supporting drug in herbal compound formulations). Spasmodic.

Bridelia montana Willd.

Family ▶ *Euphorbiaceae*.

Habitat ▶ The sub-Himalayan tract from Kashmir eastwards to Assam, and in Bihar, Orissa and Andhra Pradesh.

Ayurvedic ▶ Ekaviraa.

Siddha/Tamil ▶ Venge-maram.

Folk ▶ Gondni, Asaanaa (Maharashtra).

Action ▶ Bark and Root—astrigent, anthelmintic. Used in the treatment of bone fracture.

The root contains 5.7% tannins.

The leaves contain beta-sitosterol, its beta-D-glucoside and a triterpenoid. Fructose, glucose and sucrose were identified as the components of the glycoside.

Bridelia retusa (Linn.) Spreng.

Family ▶ *Euphorbiaceae*.

Habitat ▶ Throughout India up to an altitude of 1,000 m, except in very dry regions.

Ayurvedic ▶ Mahaaviraa, Asana (Asana is equated with *Pterocarpus marsupium* Roxb., the Indian Kino tree.)

Siddha/Tamil ▶ Mulluvengai.

Folk ▶ Gondani, Gondui, Khaajaa.

Action ▶ Bark—astrigent, used in the form of a liniment in rheumatism. Paste of the stem bark is applied to wounds.

The bark contains 16–40% tannin. Presence of a triterpene ketone in the bark is reported. The bark exhibited hypotensive properties in pharmacological trials. The extract of the bark significantly increased the mean survival time of mice infected intracerebrally with vaccinia virus. Ripe fruit pulp contains beta-sitosterol and gallic and ellagic acids.

Brucea sativa

National Formulary of Unani Medicine, Part I, equated Jirjeer with *Brucea sativa* Mill. or *Nasturtium officinale* R. Br.

Nasturtium officinale, found in Europe, is known as watercress. Indian cress is cultivated in gardens as a creeper. *Brucea* is a totally different species (*Simaroubaceae*). Taraamirra of Unani medicine should be equated with *Eruca sativa* and not with *Brucea sativa*.

Action ▶ Taraamiraa (Jirjeer)—used in Unani medicine as a spermatic tonic (powder of seeds is administered with a half-fried egg), also as a blood purifier, diuretic, emmenagogue and deobstruent. Leaf juice—used as a lotion for blotches, spots and blemishes.

Nasturtium officinale (*Brassicaceae*): Antiscorbutic and stimulant. A rich source of vitamins A and E, also of ascorbic acid. Seeds contain gluconcasturtin. Used for metabolic disorders, anaemia, strangury, kidney and bladder disorders and catarrh of the respiratory tract.

Eruca sativa Mill.: Cultivated in North India; known as Taraamiraa, Siddhaartha, Bhutaghna. Seeds are used like mustard. Seeds—antibacterial. Crude juice of the plant inhibited *E. coli*, *S. typhi* and *B. subtilis*. Seeds contain (4-Me-thio)-Bu-glucosinolate (glucoerucin) as K and tetra-Me-N salts. A composition is used in induration of liver.

Brugmansia suaveolens

Bercht. & Presl.

Synonym ▶ *Datura suaveolens* Humb. & Bonpl. ex Willd.

Family ▶ *Solanaceae*.

Habitat ▶ Native to Mexico; grown in Indian gardens.

English ▶ Angel's Trumpet.

Action ▶ Leaf and flower—used to treat asthma; to induce hallucinations. Can cause severe toxicity.

All parts of the plant contain tropane alkaloids (concentration highest in the foliage and seeds), particularly atropine, hyoscyamine and hyoscyne (scopolamine.)

Brunella vulgaris Linn.

Synonym ▶ *Prunella vulgaris* Linn.

Family ▶ *Labiatae; Lamiaceae.*

Habitat ▶ The Himalayas from Kashmir to Bhutan at altitudes of 1,400–4,000 m, in Khasi Hills and hills of South India.

English ▶ Self-heal.

Unani ▶ Substitute for Ustukhudduus. (*Lavandula stoechas* Linn.)

Folk ▶ Dhaaru.

Action ▶ Wound healing, expectorant, antiseptic, astringent, haemostatic, antispasmodic. Leaf—used in piles; and as a cooling herb for fevers.

The herb contains vitamins A, B, C and K; flavonoids; rutin. Flower spikes are liver-restorative, hypotensive, antioxidant.

Lupeol, stigmasterol and beta-sitosterol are obtained from the unsaponifiable fraction from the leaves, the saponifiable fraction gave lauric,

stearic, palmitic, myristic, oleic and linoleic acids.

Bryonopsis laciniosa

(Linn.) Naud.

Synonym ▶ *Bryonia laciniosa* Linn.
Diplocyclos palmatus Jeff.

Family ▶ *Cucurbitaceae.*

Habitat ▶ Throughout India.

English ▶ Bryony.

Ayurvedic ▶ Lingini, Shivalingi, Chitraphalaa.

Siddha/Tamil ▶ Iyaveli, Iyaviraali.

Folk ▶ Lingadonda (Telugu).

Action ▶ Seeds—anti-inflammatory, spasmolytic. Used for vaginal dysfunctions, as a fertility promoting drug. Powdered seeds, also roots, are given to help conception in women. Plant is also used in venereal diseases.

Bryophyllum pinnatum

(Lam.) Kurz.

Synonym ▶ *B. calycinum* Salisb.
Kalanchoe pinnata Pers.

Family ▶ *Crassulaceae.*

Habitat ▶ Throughout the warm and moist parts of India, especially abundant in West Bengal.

Ayurvedic ▶ Parnabija, Airaavati. (Also known as Paashaanabheda.)

Unani ▶ Zakhm-e-Hayaat.

Action ▶ Leaf—disinfectant, antibacterial (used for boils, insect bites, swellings, burns, wounds).

B

Leaves, mixed with those of *Aegle marmelos*, are given in blood and amoebic dysentery. Leaves are also eaten to control diabetes.

Leaves yield glycosides of quercetin and kaempferol, and fumaric acid. Plant extracts—antifungal.

Dosage ▶ Leaf—10–30 ml juice. (CCRAS.)

Buchanania axillaris (Desr.) Ramam.

Synonym ▶ *B. angustifolia* Roxb.

Family ▶ *Anacardiaceae*.

Habitat ▶ Dry deciduous forests in peninsular India.

English ▶ Buchanan's Mango, Cuddapah Almond.

Ayurvedic ▶ Priyaal (var.).

Unani ▶ Habb-us-Simanaa.

Siddha/Tamil ▶ Mudaima, Saaraaparuppu.

Action ▶ Kernel of seeds are considered best among *Buchanania* sp. Uses similar to those of *B. lanzan*.

An ethanolic extract (50%) of the aerial part showed CNS-depressant activity in mice.

Buchanania lanzan Spreng.

Synonym ▶ *B. latifolia* Roxb.

Family ▶ *Anacardiaceae*.

Habitat ▶ Drier parts of India.

English ▶ Almondette tree, Cheronjee, Buchanan's Mango.

Ayurvedic ▶ Priyaala, Piyaala, Kharskandha, Bahulvalkala, Taa-paseshtha, Sannakadru Dhanushpat, Chaar.

Unani/Tamil ▶ Saaraapparuppu.

Siddha ▶ Mudaima, Morala (Tamil).

Action ▶ Kernel—laxative, febrifuge. An ointment made out of the kernels is used to cure itch of the skin and to remove blemishes from the face. Oil from kernels—substitute for almond oil. Applied to glandular swellings of the neck. The oil is a promising source of palmitic and oleic acids.

Kernel lipids (65.6%), comprised mainly of neutral lipids (90.4%), consist mostly of triacylglycerol (82.2%), free fatty acids (7.8%) and small amount of diacylglycerols, monoacylglycerols and sterols.

The kernels are used in Indian medicine as a brain tonic. The leaves are valued as a cardiogenic.

The leaves contain 2.64% tannins (0.35% gallo-tannins). The presence of triterpenoids, saponins, flavonoids and reducing sugars are also reported. Powdered or crushed leaves are applied to wounds.

The bark contains 13.40% tannins. The presence of alkaloids, saponins and reducing sugars is also reported.

Gum (stem exudate) is antidiarrhoeal. Used internally in rheumatism.

Dosage ▶ Stem bark—5–10 g (API Vol. IV.)

Bupleurum flacutum Linn.**Family** ▶ *Umbelliferae; Apiaceae.***Habitat** ▶ The Himalayas from Kashmir to Bhutan and the Khasi Hills, at 1,000–4,000 m.**English** ▶ Hare's Ear.**Folk** ▶ Shingu (Himachal Pradesh), Sipil (Punjab), Thaanyo (Garhwal).**Action** ▶ Roots—anti-inflammatory, haemolytic, antipyretic. Used in inflammations, muscle stiffness, neurosis, pain and pyrexia. Roots resolve inflammations of costal margin and diaphragm.**Key application** ▶ Extracts have been used for the treatment of chronic hepatitis, nephrotic syndrome and auto-immune diseases (*WHO.*).

Therapeutic properties are attributed to saikoside or saikosaponins (yield from roots 2.06–3.02%), a complex mixture of triterpenic saponins. Saponin content varies with age. Saikosaponins are analgesic, antipyretic as well as antitussive; anti-inflammatory on oral administration. In Japan and China, roots have been used traditionally in auto-immune diseases. Saikosaponins form an ingredient of anti-tumour pharmaceuticals. A water-soluble crude polysaccharide fraction, prepared from the root, was reported to prevent HCl/ethanol-induced ulcerogenesis in mice significantly. Saikosaponin-*d*, at a concentration of more than 5 μm , inactivated measles virus and herpes simplex virus at room temperature.

Several sterols, possessing metabolic activities and plasma cholesterol-lowering activity, have also been isolated from the root.

Butea monosperma (Lam.) Taub.**Synonym** ▶ *B. frondosa* Koenig ex Roxb.**Family** ▶ *Papilionaceae; Fabaceae.***Habitat** ▶ Throughout India, up to 1,200 m except in very arid regions.**English** ▶ Flame of the Forest, Butea Gum, Bengal Kino.**Ayurvedic** ▶ Paalasha, Kimshuka, Raktapushpaka, Kshaarshreshtha, Brahmavriksha, Samidvar.**Unani** ▶ Dhaak, Samagh Dhaak, Kamarkas.**Siddha/Tamil** ▶ Palasam, Purasus.**Folk** ▶ Tesu.

Action ▶ Bark—astrigent, styptic (prescribed in bleeding piles, ulcers, haemorrhages, menstrual disorders), anthelmintic. Flowers—astrigent, diuretic, emmenagogue (also given for leucorrhoea). A decoction of flowers is given in diarrhoea and haematuria, also to puerperal women. Seeds—clinical use of seeds as an anthelmintic drug is not considered safe in humans.

Leaves—antibacterial. Stem bark—antifungal.

An aqueous extract of flowers has shown hepatoprotective activity against CCl₄-induced liver injury in albino rats.

B

Extracts of flowers have exhibited significant anti-oestrogenic activity in mice. The seed suspension, on oral administration to albino rats (175 and 350 mg/kg body weight), showed 38.46 and 68.75% cases, respectively, where pregnancy was not interrupted but foetus was malformed.

Alcoholic extract of the whole plant produced persistent vasodepression in cats.

The plant contains flavonoids and glucosides—butin, butrin, isobutrin and palastrin. Flowers contain butrin, coreopsin, monospermoside and their derivatives and sulphurein; also chalcones.

Dosage ▶ Stem bark—5–10 g powder (*API* Vol. II); flower—3–6 g powder; seed—3 g powder; gum—0.5–1.5 g (*API* Vol. IV.)

Butea superba Roxb.

Family ▶ *Papilionaceae; Fabaceae.*

Habitat ▶ Central and Southern India.

Ayurvedic ▶ Lataa-Palaash (orange or orange scarlet-flowered var.).

Action ▶ Seeds—sedative and anthelmintic; decoction emollient and used topically for piles. Seed oil—anthelmintic and hypotensive. Seeds exhibit haemagglutinating activity against human ABO red

cells. Roots—hypotensive. Watery sap from stems is used for drinking purposes. Bark is used in tonics and elixirs.

White-flowered var. is equated with *Butea parviflora* Roxb.

Buxus wallichiana Baill.

Synonym ▶ *B. sempervirens* Linn.

Family ▶ *Buxaceae.*

Habitat ▶ The Western and Central Himalayas and Punjab.

English ▶ Himalayan Boxwood tree.

Folk ▶ Chikri, Shamshaad. Paapari (Garhwal).

Action ▶ Wood—diaphoretic. Bark—febrifuge. Leaves—purgative, diaphoretic; used in rheumatism. Poisonous. Not a safe drug for “purifying blood”. Symptoms of poisoning are severe—abdominal pain, vomiting, convulsions and death.

The mixture of alkaloids is referred to as buxine. Buxenine-G is cytotoxic.

There is preliminary evidence that a specific Boxwood leaf extract (SVP 30) might delay disease progression in HIV-infected patients. The extract is available through internet sources or AIDS Buyers’ Clubs. (*Natural Medicines Comprehensive Database*, 2007.)