

Ethnobotany of the Todas of South India



Ben Ramage

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PLEASE READ

PLEASE READ

Disclaimer and Warning

While the botanical names and descriptions given in the following work most certainly correspond, it is possible in some cases that the photographs, samples, and Toda names and usages may not match precisely the scientific names and descriptions given. Because I am an amateur botanist and because the professionals I called upon only had access to photographs and minimal samples (as opposed to the entire rooted plant), accuracy cannot be assured. For this reason, this project should not be used as an identification guide, and under no circumstance is to be used as a guide to edibility or medicinal value—doing so could prove fatal.

PLEASE READ

Important Environmental Note

If this project should be used in conjunction with other resources, or if the reader is to gather wild plants for any other reason, I plead with him or her to take this important ecological precaution. All too many times in the past, when knowledge of wild plant usage has spread beyond the original holders of this information, overharvesting has been a serious problem and has even led to the extinction of certain species. Therefore, I request that the reader follow this simple rule: never collect any plant or any part of a plant unless there are 10 more within a 10 meter radius. For example, if you are taking leaves, make sure there are at least 10 times as many leaves in the near vicinity (even on the same plant is fine). Likewise, if you are collecting whole plants, insure that there are 10 times as many healthy plants in the given area. Thank you for preserving biodiversity.

Dedication

The following work is dedicated to the entire Toda population, with the hope that it will help preserve some of the ancient knowledge being forgotten today.



Pic i: Vasamalli (left) and Pothili (right)

Acknowledgement

I would like to use this space to thank a number of people for offering their time and effort and helping me considerably throughout the course of my project. First I would like to thank Jakka Parthasarthy for supervising my work and providing guidance, along with the rest of the Tribal Research Center (at M. Palada) for allowing me to use its resources. Secondly, I would like to thank Suresh Baburaj, S. Rajan, L. Bheeman, N. Arjunan, and S. Yobu of the Survey of Medicinal Plants and Collection Unit (Ooty) for helping with the difficult task of identifying, botanically, the plants in this report. And last but certainly not least, I give my deepest thanks to Todas Vasamalli and Pothili, who truly deserve the credit for the success of this project. Together they have sacrificed a great deal of time; taking me to remote corners of the Nilgiris, translating, patiently explaining the uses of plants, providing good company, housing and feeding me, and most of all making me feel so at home in this foreign place. Additionally, I would like to thank the many Todas who have offered their ancient knowledge of plants through the translations of Pothili and Vasamalli, and assisted me in other ways as well. To all who have been involved—thank you.

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Preface

Following the brief introductory section of this paper is a compendium of over 40 wild plants found in the vicinity of Ooty, the vast majority of which are used for specific purposes by the native Toda inhabitants. Toda names and estimated spelling, found directly above the explanations of usage, have in all cases come from the mouths of Pothili or Vasamalli—either from their own knowledge or translated from another Toda. Most of the information regarding usage has likewise been collected in the same way. If anything written has come from another source, or if there has been a disagreement between Vasamalli and Pothili, it will be noted.

All except for a few of the plants included have been identified and matched with their botanical names. This has been accomplished with reference to a number of books (see bibliography) and with the help of the Survey of Medicinal Plants and Collection Unit, Ooty. Descriptions of plants have been copied directly from botanical works in order to assure their validity. I have personally collected all samples and taken all photographs (except for the photo below, taken by Deborah Adams).



Me on Toda land

INTRODUCTION



Pic ii: View of the Nilgiris from the Mysore plain

Until approximately two hundred years ago, the tribal peoples inhabiting the Nilgiris (or ‘blue mountains’), a South Indian offshoot of the Western Ghats, remained almost entirely secluded from the larger population of the plains below.



Pic iii: Bandipur National Park--nearly identical to much of the forest that once encircled the Nilgiris

Once surrounded on all sides by thick forest housing an abundance of dangerous animals (including tiger, wild elephant, wild boar, and bison), and supporting large populations of malaria-carrying mosquitoes, the Nilgiris were well protected from the peoples of the plains.



Pic iv: Shola forest and grassland
(with planted eucalyptus in the upper right corner)

Having a very different climate than that of the blistering lowlands, these cool mountains exhibited plant and animal life quite distinct from the surrounding area. Home to only a handful of tribal societies who had found a harmony with each other and with the natural environment, the ecology of the region remained quite stable. A mixture of ‘shola’ (meaning ‘natural’ or ‘native’) forest and grassland, kept as such by the buffalo grazing of the Toda tribal population, the cool and picturesque Nilgiris were irresistible to British colonists in the early nineteenth century. Longing to escape the heat of the plains, and feeling at home in the mild mountain climate, they penetrated the dangerous forests and established a hill station—Ooty. With them came European plant and animal life, non-tribal Indian workers from the lowlands, and a road into the Nilgiris.



Pic v: Toda buffalo grazing



Pic vi: Agricultural fields on Toda land

Nearly two hundred years later the Nilgiris are every bit as developed as the plains below, with roads, commerce, and modern agriculture reaching into all but the most secluded areas. The Todas and other tribals have taken up modern agriculture on a relatively large scale, and are beginning to become involved in many other aspects of modern life as well (see pic vii below). As a result, a great deal of land is now cultivated and planted with cash crops, and much of the traditional knowledge of the natural environment is not being absorbed by the disinterested younger generations.



Pic vii: Sattelite dish at a Toda *mund* (or village)



Pic viii:
Pine

Pic ix:
Eucalyptus



In addition, massive plantings of pine and eucalyptus by the Indian government (for use as construction materials and medicinal oil, respectively) has put an incredible strain on the native plant life of the region. Almost nothing can survive on the dark floor of the pine forest, or in the dry soil beneath eucalyptus trees, which take up massive quantities of water.



Pic x: Dark floor of pine forest

Today the amount of ‘shola’ (or wilderness) remaining in the Nilgiris is greatly reduced, and the native plants (and animals who depend upon them) are faced with a plethora of challenges: large areas where the sun hardly shines and/or the soil is too dry, the growing use of herbicides, the rapid spread of European invasives, and of course continued development and habitat loss.

As a result, the Nilgiris have been declared a ‘biodiversity hotspot’—meaning that an especially high concentration of species are present, and that this diversity is in great danger. By demonstrating some of the many uses of wild plants, it is my hope that this project will remind the reader of the worth of the wild, and preserve knowledge that may otherwise be lost.

Wild Plants Used by the Todas

*The following section has been ordered loosely according to usages of the plants. However, because most plants have more than one use, it was impossible to accomplish this in a simple and exclusive manner. To aid the reader, below is an index of the plants based on their functions:

Ceremonial or Holy

1. Kers
2. Puris
3. Kappuri
4. ?
5. Kaj
6. Thevarai
7. Theymelgu
8. Pallkurdy
9. Kokkuitars
10. Melli
11. Pusemull

Food

1. Kers
6. Thevarai
7. Theymelgu
10. Melli
11. Pusemull
12. Naye
13. Purspum
14. Harsithor
15. Pothanthor
16. ?
17. Thavit
18. Mulkaric
19. Pulis
20. Vallarakerei
21. Takmul
22. Omening
23. Tori
24. Aishkoithor
30. ?
33. Kokehars

Medicine

12. Naye
17. Thavit

20. Vallarakerei
21. Takmul
22. Omening
23. Tori
24. Aishkoithor
25. Surmanthor
29. Pashyarthor

Poison or Intoxicant

26. Yemuth

Tool

1. Kers
3. Kappurt
5. Kaj
8. Pallkurdy
9. Kokkuitars
10. Melli
11. Pusemull
12. Naye
15. Pothanthor
17. Thavit
19. Pulis
27. Mothinthor
28. Polik
29. Pashyarthor
30. ?
32. Mos
33. Kokehars

Cosmetic

28. Polik

Other Significance

31. Ketiskpuf
32. Mos
33. Kokehars
34. Kaitthor (=Genus)

35. Kaitthor (=Genus)
36. Kaitthor (=Genus)
41. Systamp

Buffalo-related

29. Pashyarthor
34. Kaitthor (=Genus)
35. Kaitthor (=Genus)
36. Kaitthor (=Genus)
37. ?
38. Thelks
39. Thaff
40. Tib or Theb

No Known Use

- (included because of relative abundance in the Nilgiris)
41. Systamp
 42. ?
 43. ?

Glossary of Toda Terms

Thor = plant

Man = tree

Ars = leaf

Puf = flower

Pum = fruit

Kurdy = creeper

Index of Toda and Botanical Names

xi.

<u>#</u>	<u>Toda name</u>	<u>Genus and species</u>	<u>Family</u>
1.	Kers	<i>Syzygium sp.</i>	Myrtaceae
2.	Puris	<i>Sophora glauca</i>	Papilionideae
3.	Kappuri	<i>Euphorbia rothiana</i>	Euphorbiaceae
4.	?	?	?
5.	Kaj	?	?
6.	Thevari	<i>Atylosia trinervia</i>	Papilionideae
7.	Theymelgu	<i>Piper mullessua</i>	Piperaceae
8.	Pallkurdy	<i>Smilax aspera</i>	Liliaceae
9.	Kokkuitars	<i>Mappia foetida</i>	Icacinaceae
10.	Melli	<i>Rubus ellipticus</i>	Rosaceae
11.	Pusmull	<i>Rubus leucocarpus</i>	Rosaceae
12.	Naye	?	?
13.	Purspum	<i>Elaeagnus kologa</i>	Elaeagnaceae
14.	Harsitthor	<i>Physalis minima</i>	Solanaceae
15.	Pothanthor	<i>Solanum anguivi</i>	Solanaceae
16.	?	<i>Passiflora mollissima</i>	Passifloraceae
17.	Thafit	<i>Rhodomyrtus tomentosa</i>	Myrtaceae
18.	Mulkaric	<i>Toddalia asiatica</i>	Rutaceae
19.	Pulis	<i>Oxalis latifolia</i>	Oxalidaceae
20.	Vallarakerei	<i>Centella asiatica</i>	Umbelliferae
21.	Takmul	<i>Berberis tinctoria</i>	Berberidaceae
22.	Omening	<i>Ricinis communis</i>	Euphorbiaceae
23.	Tori	<i>Mahonia leschenaulti</i>	Berberidaceae
24.	Aishkoihthor	<i>Solanum nigrum</i>	Solanaceae
25.	Surmanthor	<i>Chromolaena odorata</i>	Compositae
26.	Yemuth	<i>Datura innoxia or D. metel</i>	Solanaceae
27.	Mothinthor	<i>Leucas sp.</i>	Labiatae
28.	Pulik	<i>Pouzolzia sp.</i>	Urticeae
29.	Pashyarthor	<i>Dodonaea angustifolia</i>	Sapindaceae
30.	?	<i>Girardinia diversifolia</i>	Urticeae
31.	Ketiskpuf	<i>Calceolaria gracilis</i>	Scrophulariaceae
32.	Mos	?	?
33.	Kokehars	<i>Rhododendrum arboreum</i>	Ericaceae
34.	Kaitthor (=Genus)	<i>Strobilanthes sp.</i>	Acanthaceae
35.	Kaitthor (=Genus)	<i>Strobilanthes sp.</i>	Acanthaceae
36.	Kaitthor (=Genus)	<i>Strobilanthes sp.</i>	Acanthaceae
37.	?	?	?
38.	Thelks	<i>Lobelia nicotianaefolia</i>	Campanulaceae
39.	Thaaf	?	?
40.	Tib or Theb	?	?
41.	Systamp	<i>Cestrum aurantiacum</i>	Solanaceae
42.	?	<i>Dahlia imperialis</i>	Compositae
43.	?	<i>Solanum mauritianum</i>	Solanaceae

1. Kers

(ceremonial or holy / tool / food)

1

USAGE / IMPORTANCE:

Perhaps the plant most crucial to the traditional functioning of Toda society, the Kers tree has importance before birth and after death. Before a baby is born, a birthright ceremony is performed beneath the crown of this sacred tree. As part of this ceremony, the mother is told the name of the clan into which her baby will be born, and presented a “bow and arrow” (see following plant) by the father. Additionally, an oil lamp is burned in a cavity that has previously been carved in the trunk of the tree (see picture 1b). After a Toda passes away, the body is always burned atop a pile of Kers sticks, as wood from this tree is the only wood allowed for this purpose. Aside from being used for such pre- and post-life rituals, this tree is also utilized for simple subsistence. Kers sticks are used as firewood in houses and temples, and its fruits are eaten for nourishment. However, I am told that in recent years fruits have been rather sparse. Some Toda believe this to be a result of global warming.



Pic1b: cavity carved into trunk



Pic 1a: Kers tree

BOTANICAL DESCRIPTION:

Myrtaceae - K.M. Matthew & S.J. Britto

Trees. Leaves usually decussate, rarely alternate (*Callistemon*, *Eucalyptus*), coriaceous, pellucid-punctate, nerves close, anastomosing intramarginally; stipules 0. *Inflorescence* axillary and/or terminal, sometimes lateral, in paniced or corymbose cymes, sometimes flower solitary; bracteoles 2, deciduous. *Flowers* 4- or 5-merous. Calyx-tube campanulate or urceolate, rarely subglobose, persistent, adnate to ovary, sometimes produced above ovary; lobes 4 or 5, usually distinct, rarely obscure, persistent, sometimes deciduous (*Callistemon*). *Petals* 4 or 5, imbricate, usually free, sometimes fused into a calyptrate lid, deciduous. *Disc* usually thick, lining calyx above. *Stamens* usually alpha, inserted on the margin of disc, incurved in bud; filaments free or basally connate; connectives often gland-tipped. *Ovary* inferior, 2- 5-celled; ovules alpha on axile placentae; style simple; stigma small. *Fruit* an indehiscent berry or a loculicidally capsule; seed(s) solitary or alpha. [cit 1a]

Syzygium J. Gaertner - Fruct. 1 : 166. 1788 (nom. cons.).

Trees. Leaves decussate, lateral nerves close, intramarginal nerve prominent. *Cymes* paniculate, terminal and/or axillary, bracteolate or not; pedicels sometimes jointed. *Calyx-tube* turbinate, persistent, adnate and produced above ovary; lobes 4, obscure or distinct. *Petals* 4, calyptrate or free, caducous. *Disc* thickened or not. *Stamens* alpha, bent inwards in bud; filaments unequal, basally subconnate. *Ovary* 2-celled; ovules alpha. *Berry* globose, 1-seeded. [cit 1b]

BOTANICAL DESCRIPTION:Papilionideae (Faboideae):

Herbs, (sub)shrubs (stragglers or lianes) or trees. Leaves alternate, generally compound, often odd-pinnate or 1- or 3-foliolate, rarely simple, usually stipulate; stipels sometimes present; often pulvinate. Inflorescence terminal and/or axillary, sometimes leaf-opposed, in racemes, panicles, umbels, spikes or in a few-flowered clusters, rarely flower solitary. Flowers zygomorphic, bisexual. Calyx-tube usually campanulate; lobes 5, unequal, imbricate, or valvate. Corolla papilionaceous; petals 5, imbricate; the upper (adaxial) exterior and forming the standard (vexillum); the 2 laterals the wings (alae), + parallel to each other; the lower 2 interior and connate by their lower margins into a keel (carina). Disc rare. Stamens 10, rarely 9, monadelphous or diadelphous, rarely free; anthers uniform or dimorphic. Ovary superior, 1-celled; ovules alpha, sometimes 1 or 2; style straight, often abruptly or gradually curved, bearded or glabrous. Pod dehiscent by 2 or 1 suture(s) or indehiscent, sometimes jointed and breaking into 1-seeded segments; seeds sometimes strophiolate (arillate). [cit 2a]



Pic 2: Puris

USAGE / IMPORTANCE:

Used to construct the "bow and arrow" presented at birthright ceremonies (see preceding plant).

Sophora: - F.B.I. 50 XCII.

Shrubs with pinnate leaves, very small calyx teeth, stamens all free (an unusual thing in this family), and the pod constricted between the seeds and usually not opening.

Sophora glauca Leschenault; F.B.I. ii 249, XCII 4.

Height 6 to 12 feet; branchlets terete, densely pubescent. Leaflets ten to fifteen pairs plus a terminal one, 1/2 by 1/5 inch, oblong, obovate-elliptic, blue-green or olive green, softly hairy on both sides, with strong midrib produced as a mucro. Flowers in dense terminal racemes with small and very quickly falling linear bracts and bracteoles. Calyx 1/4 inch long and broad, with small but distinct teeth, pinkish purple; pedicels shorter, densely silky, erect. Corolla twice as long, petals with long claws, equal: standard obovate, 1/4 inch broad, notched: wings oblong: keel petals overlapping at the back but scarcely united. Pod cylindrical with a stalk of 1/4 to 1 inch and equally long point, constricted between the seeds which if few may be far apart, very densely velvety. Seeds one to six, almost perfectly ovoid except for a swelling near the small hilum, polished, light coloured. t. 90. Wight Ic. 1054 ex. pods.

On the open downs. Nilgiris: near Ootacamund in flower all the year round, and down to Pykara, Kotagiri and Coonoor. *Fyson* 679, 1784, 2239, 2723. *Bourne* 4592, 4020. Not collected on Pulneys.

Gen. Dist. Shevaroy, the hills of Western India, but apparently somewhat local, and not on the ghats of the Bombay presidency.

The leaves have a rank smell when bruised, somewhat like that of the English Elder, and on drying turn black. The flower is much compressed, the standard being folded round at the base and leaving a small tubular opening above the upper edge of the keel and wings. Partly because of this folding but also of its thickness, the standard is very stiff, and is made more so by the support of the upper calyx lobe. The keel and wings are free of each other but small projections at the base of the latter fit into hollows in the wings so that they must move together. A heavy insect pushing its way down the tubular opening between the firm standard and the wing petals would necessarily force the latter down and with them the keel and so come into contact with the anthers held in place as these are by their stiff filaments. The flower thus appears adapted for visits by short-tongued bees. [cit 2b]

3. Kappuri

(ceremonial or holy / tool)

3



Kappuri - *Euphorbia rothiana* - Euphorbiaceae

Pic 3a: plant reclining

USAGE / IMPORTANCE:

This plant is used in temples to sweep the floor and to kill insects. Inquiring as to exactly how insects are killed with this plant, I was told that it is simply “custom,” and could not manage to extract more detailed information.



Pic 3b:
Toda
temple





? - ? - ?

USAGE / IMPORTANCE:

Plays a role in both priest initiation and marriage ceremonies.



**USAGE / IMPORTANCE:**

Sticks from this tree were traditionally used for firestarting, and are still used today at funerals and in temples.



6. Thevarai

(ceremonial or holy / food)

6

BOTANICAL DESCRIPTION:

Atylosia R. Wight et Arnott - Prodr. 257. 1834

Vines. Leaves 3-foliolate; leaflets with resinous glands below; terminal one larger; laterals oblique, inequilateral, basally 3-nerved; stipules lanceolate; stipels 0. *Inflorescence* axillary, racemose, sometimes flowers in pairs, bracteate; bracteoles 0. *Calyx-tube* campanulate; lobes 5, unequal; upper lobes connate into 2-fid lip; lower one longest. *Corolla* often persistent; standard orbicular, with inflexed auricles at base; wings oblong or obliquely obovate; keels not beaked. *Stamens* 9 +1; vexillary stamen free; anthers uniform. *Ovary* sessile; ovules 3 or more; style incurved at the middle, filiform or slightly thickened, glabrous; stigma capitate. *Pod* linear or oblong, compressed, transversely lined between the seeds, septate; seeds strophiolate. [cit 6a]

Atylosia trinervia (DC.) Gamble, Fl. Pres. Madras 368. 1918 & 1: 260. 1957 (repr. ed.) var. *trinervia*. *Collaea trinervia* DC. Mem. Leg. 247. 1826. *Atylosia candollei* Wight & Arn. Prodr. 257. 1834; Wight. Ic. t. 754. 1844; Baker in Hook. f. Fl. Brit. India 2: 212. 1876.

A shrub with yellow flowers.

Distrib.: Kanniyakumari, Madurai, Nilgiri [cit 6b]



USAGE / IMPORTANCE:

When a woman dies, her daughter-in-law (provided that she has one) holds this plant in her left hand while lighting the sticks, atop which the body is resting, with her right. Additionally, the inside of the fruit is eaten.

7. Theymelgu

(ceremonial or holy / food)

7

USAGE / IMPORTANCE:

A variety of black pepper, the seeds of this plant were once used for seasoning in sambar. Today, at funerals, they are tied under the arm, along with one whole rice husk.



Theymelgu - Piper mullessua - Piperaceae

BOTANICAL DESCRIPTION:

Piper Linnaeus Sp. Pl. 28. 1753.

Scandent *shrubs*; nodes swollen. *Leaves* alternate, generally ovate, coriaceous, 5-9-nerved from base, apex acuminate, petiolate; stipules connate, caducous. *Flowers* unisexual (*bisexual* in *P. nigrum*), sessile, in axillary spikes, partly embedded in elongate peduncles enclosed within bracts; bracteoles present or 0. *Stamens* 2 or 3; filaments stout; anthers 2-celled, widely separated. *Ovary* ovoid, globose or ellipsoid; styles 2-4, spreading or reflexed, stigmatiferous, persistent or not. *Berry* globose, ovoid, smooth or angled, black or dark brown when mature. [cit 7a]

Piper mullessua Buch. - Ham. ex D. Don. Prodr. Fl. Nep. 20. 1825. *P. brachystachyum* Wall. ex. Hook. f. Fl. Brit. India 5 : 87. 1886; Gamble, Fl. Pres. Madras 2 : 844. 1957 (repr. ed.).

Chavica sphaerostachya Miq. Syst. Piperac. 279. 1843; Wight, Ic. t. 1931. 1853.

A much-branched woody climber, in shola forests.

Distrib.: Coimbatore, Madurai, Nilgiri, Tirunelveli. [cit 7b]

8. Pallkurdy

(ceremonial or holy / tool)

8



Pallkurdy - *Smilax aspera* - Liliaceae

USAGE / IMPORTANCE:

This vine is made into bangles that are worn by both girls and boys at their naming ceremonies, and is also used in the construction of special sticks designed for churning butter.

BOTANICAL DESCRIPTION:

Liliaceae K.M. Matthew & S.J. Britto

Erect *herbs*, or *climbers*, rarely armed, generally with underground stems (corms, bulbs, tubers, or rhizomes). *Leaves* simple, usually well developed, sometimes scaly, radical and basal or cauline, usually parallel-nerved, rarely reticulate (*Smilax*), cladodes occasional (*Asparagus*). *Inflorescence* terminal and/or axillary, of simple or branched racemes, umbels, sometimes in subcorymbs, rarely flower solitary. *Flowers* *bisexual*, regular. *Perianth* tubular, shallowly or deeply 6-lobed; lobes often spreading. *Stamens* 6, usually included, often adnate to the base of perianth tube; filaments free, rarely connate. *Ovary* usually superior, sometimes inferior (*Ophiopogon*), 3-celled; ovule(s) 1-alpha per cell on axile placentae; style(s) 1 or 3, simple or branched; stigma(s) simple or 3-lobed, sometimes lobes recurved. Fruit a *locolical* capsule or berry, angular, winged; seed(s) 1 or more per cell, globose or compressed. [cit 8a]

Smilax Linnaeus Sp. Pl. 1028. 1753.

Armed *vines*. Leaves alternate, coriaceous, 3- 5-nerved, finely reticulate; petiole twisted, basally broadened into a distinct sheath, auriculate, jointed above the sheath, with 2 apical caducous tendrils. *Umbel(s)* axillary, 1-3 or more, alternate or verticillate, peduncled; bracts cuspidate; bracteoles scarious. *Flowers* *unisexual*. Male: *Perianth*-lobes 6, free, subequal; outer ones broad; inner ones narrow. *Stamens* 6, adnate to the base of perianth; filaments flat, erect, apically callose; anthers ovoid-ellipsoid; pistillode 0. Female: *Staminodes* 3 or 6, filiform. *Ovary* globose, 3-celled; ovule(s) 1 or 2 per cell, pendulous; style short; stigmas 3, recurved. *Berry* globose, ca. 3-seeded. [cit 8b]

Smilax aspera L. Sp. Pl. 1028. 1753; Hook. f. Fl. Brit. India 6: 306. 1892; Fischer in Gamble, Fl. Pres. Madras 3: 1060. 1957 (repr. ed.) *S. maculata* Roxb. Fl. Ind. 3: 796. 1832; Wight, Ic. t. 2059. 1853.

A climbing shrub, in evergreen forests.

Distrib.: Coimbatore, Madurai, Nilgiri. [cit 8c]

9. Kokkuitars

(ceremonial or holy / tool)

9



BOTANICAL DESCRIPTION:

Icacinaceae K.M. Matthew & S.J. Britto

Trees. Leaves alternate, simple, entire; stipules 0. *Inflorescence* terminal or axillary, of paniced cymes; pedicels jointed. *Flowers* regular, 5-merous, *bisexual*. *Calyx* small; lobes imbricate, persistent, rarely 0. *Petals* 4 or 5, free or connate at base, valvate, deciduous, rarely persistent. *Stamens* 5, usually free. *Ovary* superior, 1-celled; ovules 2, pendulous, collateral; style sometimes excentric; stigma simple. *Drupe* globose to ellipsoid, 1-seeded. [cit 9a]

Mappia, Jacq.

Trees. Leaves alternate, petiolate, simple, 1-nerved. *Flowers* small, in terminal corymbose cymes. *Calyx* 5-toothed. *Petals* 5, usually hairy within. *Stamens* 5, hypogynous, alternate with the petals, anthers 2-lobed, dorsifixed, dehiscing longitudinally; pollen grains subquadrate. *Disk* hypogynous, cup-shaped. *Ovary* superior, 1-celled; style short; ovules 2, pendulous. *Fruit* drupaceous. *Seed* pendulous; embryo in fleshy albumen, cotyledons leafy, radicle superior.--DISTRIB. Species 8 or 10, natives of the Western Peninsula, Ceylon and tropical South America. [cit 9b]

Mappia foetida, Miers *Contrib.* i. 64 (not *Stemonurus foetidus*, *Wight*); leaves glabrescent ovate acuminate not black in drying, base rounded. *Mappia foetida*, *Bedd. Fl. Sylv.* t. 141 (not the text).

WESTERN PENINSULA; Nilghiri Mts. and Mysore, *Wight, &c.*

A large tree. Bark wrinkled. *Leaves* 2 1/2 - 7 by 2 - 3 3/4 in., coriaceous, thinly pubescent, ultimately glabrous; petiole 3/4 - 1 in. *Peduncles* half the length of the leaves, flattened, ultimate pedicels about 1 1/2 in., strigose. *Flower-buds* roundish-oblong. *Calyx* minute, lobed, lobes rounded. *Corolla* hairy within. *Anthers* roundish. *Ovary* half the length of the stamens. *Drupe* oblong, obtuse, 3/4 by 3/8 in. [cit 9c]

Pic 9b: plate made of leaves



USAGE / IMPORTANCE:

The leaves of this plant are used to make plates and cups for use in the temple (see picture 9b)—no vessels are permitted within the temple.

10. Melli

(ceremonial or holy / tool / food)

10a

USAGE / IMPORTANCE:

The leaves of this plant are used as containers for drinking (see picture 10b) in the temple and at priest initiation ceremonies. Additionally, the thorny peel is removed from the larger non-woody stems and the juicy core is eaten. The fruits are also edible.



Melli - *Rubus ellipticus* - Rosaceae

Pic10b: Hothkaras drinking out of leaf



10. Melli

(ceremonial or holy / tool / food)

10b

BOTANICAL DESCRIPTION:

Rosaceae K.M. Matthew & S.J. Britto

Unarmed *trees* or armed straggling *shrubs*. *Leaves* alternate, simple or compound; stipules free or adnate to petiole. *Inflorescence* terminal and/or axillary, of racemes or umbellate to corymbose panicles, rarely flower solitary, bracteate, bracteolate. *Flowers* often 5-merous, *bisexual*, regular. *Calyx-tube* free or adnate to ovary; lobes 5, valvate or imbricate. *Petals* 5, imbricate, inserted on the margin of the disc. *Disc* glandular, lining the calyx tube. *Stamens* usually alpha, inserted at the mouth of calyx-tube; anthers small, didymous. *Carpel(s)* 1 to alpha, free or connate; ovary (half) inferior or superior, 1- or 2- 5-celled; ovule(s) (1)2 per cell, pendulous; style terminal or basal; stigma capitate. *Fruit* various, generally a drupe or pome; seeds erect or pendulous. [cit 10a]

Rubus Linnaeus Sp. Pl. 492. 1753.

Armed *stragglers*; prickles straight or recurved. *Leaves* odd-pinnate, 3- 7-foliolate; stipules free or adnate to petiole. *Inflorescence* terminal and/or axillary, of corymbose panicles. *Calyx-tube* shallowly campanulate; lobes 5, persistent, imbricate. *Petals* 5, clawed, persistent. *Disc* lining the calyx-tube. *Stamens* alpha, inserted on the mouth of the calyx-tube; filaments unequal, subulate. *Carpels* alpha, borne on a prominent convex receptacle. *Ovary* superior; ovules 2 per ovary, collateral, pendulous; style subterminal; stigma capitate. *Fruit* an aggregate of drupelets, rugose; seeds pendulous [cit 10b]

Rubus ellipticus Smith in Rees, Cyclop. 30: n. 16. 1815; Hook. f. Fl. Brit. India 2: 336. 1878; Gamble, Fl. Madras 1: 441(313). 1919; Fyson, Fl. s. Ind. hill stat. 193. 1932; Matthew, Mat. Fl. Tamilnadu Carntatic 209. 1981.

R. gowreepful Roxb. Fl. ind. 2: 517. 1832; Wight & Arn. Prodr. fl. Ind. orient. 298. 1834; Wight, Icon. pl. Ind. orient. t. 230. 1839.

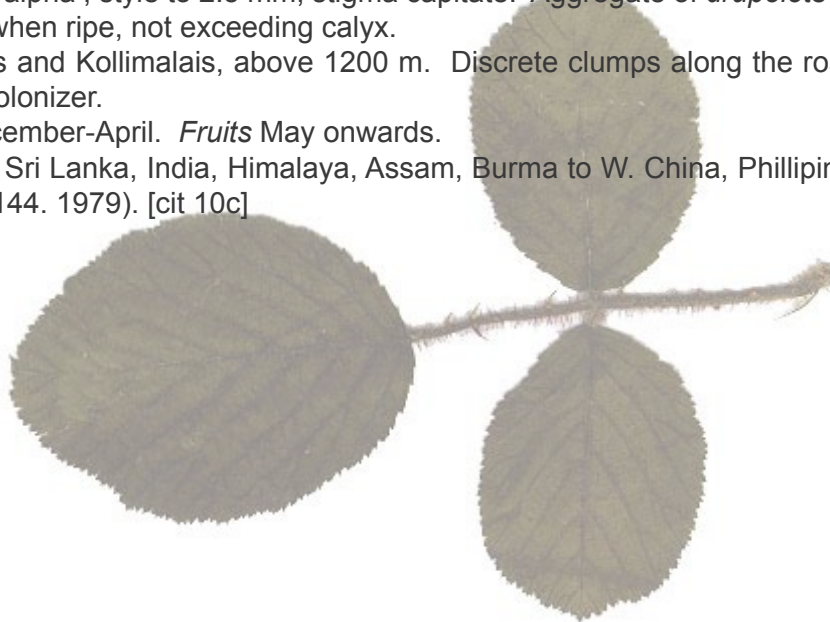
R. wallichianus Wight & Arn. 1.c.; Wight, Icon. pl. Ind. orient. t. 231. 1839

Straggler to 3 m; branchlets short-tomentose, bristly, spines to 5mm. *Leaves* 3-foliolate, 10-15 cm; leaflets broadly ovate to (sub) orbicular, laterals smaller, terminal larger, 5-10 x 3-9.5 cm, chartaceous, nerves ca. 10 pairs, glabrous above, densely tomentose below, base rotund-subacute, margin 2-serrate, apex rounded; petiole 2-5 cm, prickled, bristly; petiolule to 4 mm; stipules to 4.5 mm. *Panicles* 5-10 cm, bristly; peduncle 2-5 cm; bracts to 1cm; bracteoles to 4 mm; pedicel to 1.5 cm. *Flowers* 1.5 cm across. *Calyx-lobes* 5, ovate, 6 x 4 mm, tomentose, bristly. *Petals* 5, white, oblong-obovate, 1 x 0.5 cm, claw to 2 mm. *Stamens* 20; filaments 4-6 mm. *Carpels* alpha; style to 2.5 mm; stigma capitate. Aggregate of *drupelets* globose, 7 x 8 mm, orange when ripe, not exceeding calyx.

Servarayans and Kollimalais, above 1200 m. Discrete clumps along the road, on slopes, etc. Ready colonizer.

Flowers December-April. *Fruits* May onwards.

Distribution: Sri Lanka, India, Himalaya, Assam, Burma to W. China, Phillipines (Enum. Fl. Pl. Nepal 2 : 144. 1979). [cit 10c]



11. Pusmull

(ceremonial or holy / tool / food)

11



USAGE / IMPORTANCE:

The stems are used for fires in temples and at priest initiation ceremonies.
The fruit is also eaten.



BOTANICAL DESCRIPTION:

(see page 10b)

Rubus leucocarpus

Ann. Nova Acta Phys. Med. Acad. Caes. Leop. Carol. Nat. Cur. 18: 16. 1834. *R. lasiocarpus* Smith var. *subglaber* Thw. Enum. Pl. Zeyl. 101. 1859; Hook. f. Fl. Brit. India 2: 339. 1978. *R. niveus* Thunb. var. *subglaber* (Thw.) Gamble, Fl. Pres. Madras 442. 1919 & 1: 313. 1957 (repr. ed.)

A straggling shrub
Distrib.: Madurai (CAL), Nilgiri (Gamble 1957) [cit 11]

12. Naye

(food / medicine / tool)

12



Naye - ? - ?

USAGE / IMPORTANCE:

Stems up to one and a half feet in height are sliced like radish and used in sambar. The root is chopped up and mixed with the peel of the stem of a plant called Thori (not included in this project) to make medicine for shivers and cold. Also, hollow older stems are dried and used as a resonating musical instrument.

13. Purspum or Purspumman

(food)

13

BOTANICAL DESCRIPTION:

Elaeagnaceae K.M. Matthew & N. Rani
Stragglers. Leaves alternate, simple, penninerved, petiolate, estipulate. *Flowers* actinomorphic, *bisexual*, aggregated in axillary fascicles. *Perianth* 1-seriate, gamophyllous. *Stamens* as many as perianth-lobes, epiphyllous, subsessile. *Ovary* superior, 1-locular; ovule 1, erect. *Fruit* a drupaceous nut.

Elaeagnus Linnaeus Sp. Pl. 121. 1753.
Branchlets woody; tender parts lepidote. Leaves elliptic, (sub) coriaceous, glabrous above, scaly below. Bracts minute, deciduous; bracteoles 0; pedicel to 0.5 cm. *Flowers* 4-merous. *Perianth* tubular-urceolate; lobes triangular, spreading or incurved, subcoriaceous, valvate, subequal, united, scaly without, accrescent. *Stamens* alternating with perianth-lobes, attached at the throat of tube on a ring included or partly exerted, dorso-versatile. *Ovary* oblong-turbinate, puberulous; stigma lateral; ovule basal. *Nut* closely covered by fruiting perianth; seed oblong; testa thick.
[cit 13a]

Elaeagnus kologa D.F.K. Schldl. in DC. Prodr. 14(2): 611. 1857; Gamble, Fl. Madras 2: 1246(873). 1925; Fyson, Fl. s. Ind. hill stat. 511. t. 442. 1932; Matthew, Mat. Fl. Tamilnadu Carnatic 324. 1981. *E. latifolia* L. Sp. pl. 121. 1753, in part; Wight, Icon. pl. Ind. orient. t. 1856. 1852; Hook. f. Brit. India 5: 202. 1886, in part.

Tamil: Kulangi; Perunkuliri

Leaves elliptic to oblong, 3-6 x 1.5-3 cm, subcoriaceous, sparingly scaly below, base (sub)acute to truncate, apex (sub)acute to obtuse; scales brown, peltate, orbicular; petiole to 1 cm. *Fascicle* 5-7 or more-flowered. *Flowers* 6.5 mm across. *Perianth*-tube urceolate, 9 mm; lobes 4, sparsely scaly within, 2 mm. *Stamens* 4, included; anthers (sub)divaricate at base, 1.2 mm. *Ovary* 2 mm; style flattened, 6 mm, scaly and hairy, rolled inside. *Nut* obovoid, ribbed, 1.5 x 1 cm, winged.

Kollimalais and Servarayans, above 1200 m, typically along shola border; also in thickets. Common; the high altitude replacement of *E. indica*.

Extensive straggler to 6(8) m, with arching branches. Leaves dark green above, rusty, with darker rusty pustules below. *Flowers* cream, January-February. *Fruits* March onward

Specimen examined: RHT 21483 (RHT, L.).

Distribution: Peninsula (DC. 1.c.). [cit 13b]



USAGE / IMPORTANCE: Fruits are eaten.



BOTANICAL DESCRIPTION:

Solanaceae K.M. Matthew & N. Rani

Herbs, shrubs, sometimes climbing (*Solanum*, p.p.) or small *trees*. *Leaves* alternate, rarely clustered, simple, blade entire or lobed, rarely pinnately divided, penninerved, margin entire or irregularly toothed, petiolate, estipulate. *Flowers* actinomorphic (zygomorphic in *Browallia*, *Nicotiana*), 5(7)-merous, *bisexual*, sessile or pedicellate, solitary (axillary), or aggregated in racemes, cymes, corymbs, umbels or panicles, terminal, lateral, sometimes extra-axillary in *Solanum*; bracts and bracteoles often 0. *Calyx* cupular, 5- or more-lobed, campanulate or tubular, valvate, persistent in fruit (except *Brugmansia*). *Corolla* sub-rotate, campanulate, salver-form or trumpet-shaped; lobes 5 or more, equal (unequal in *Browallia*), distinct or connate into a circular limb, plicate, valvate or induplicate-valvate in bud, spreading or reflexed. *Stamens* 5 or more, alternating with corolla-lobes, equal or didynamous, inserted below or above the middle of the tube, exserted or included, free or connivent into a cone; anthers oblong, rarely cordate, parallel, dehiscence longitudinal (introrse) or porous (apical); connectives narrow, broadened in *Cyphomandra*. *Ovary* superior, globose, obliquely placed, 2- 5-locular; ovules alpha; placenta axile (peltate); style usually as long as corolla; stigma capitate or obscurely 2- 5-lobed. *Disc* often nectariferous. *Fruit* a berry or a capsule, alpha-seeded; seeds compressed, discoid or (sub)reniform, rarely angular; albumen fleshy; testa smooth or pitted, scaly, often crustaceous. [cit 14a]

**USAGE/IMPORTANCE:**

Fruit is eaten.

Physalis Linnaeus Sp. Pl. 182. 1753.

Erect *herbs* or *subshrubs*; branchlets geniculate. *Leaves* chartaceous, softly strigose-pubescent on either side, margin entire to irregularly toothed, apex gradually acuminate, petiolate. *Flower(s)* solitary, axillary, pedicellate. *Calyx* campanulate, accrescent in fruit. *Corolla* yellow with dark purple purple centre, broadly campanulate, villous within; lobes plicate in bud. *Stamens* 5, attached near the base, exserted; anther dehiscence longitudinal. *Ovary* 2-locular; stigma capitate or (sub)bilobed. *Berry* globose, overtopped by inflated calyx; seeds compressed, smooth or rugose. [cit 14b]

Physalis minima L. Sp. pl. 183. 1753; Roxb. Fl. ind. 1: 563. 1832; Hook. f. Fl. Brit. India 4: 238. 1883; Gamble, Fl. Madras 2: 939(659). 1923; Santapau, Rec. Bot. Surv. India (ed. 3) 16: 174. 1967; Matthew, Mat. Fl. Tamilnadu Carnatic 278. 1981 & Ill. Fl. Tamilnadu Carnatic t. 490. 1982.--Plate 76 h.

P. pubescens Wight, Ill. Ind. Bot. t. 166 B. f. 6. 1850, non L.

Tamil: Sodakku thakkaali

Herb to 50(80) m. *Leaves* elliptic-ovate, 6-10 x 4-6 cm, chartaceous, lateral nerves ca. 6 pairs, sparsely strigose, base obliquely rounded to acute, margin coarsely toothed, apex acute; petiole to 7 cm. *Calyx*-lobes 5, triangular, 3.5 mm, chartaceous, strigose-pubescent without, basally connate, acute. *Corolla* 5 mm across; lobes 5, triangular ovate, 4 mm, prominently nerved, connate from the middle, acute. *Stamens* 5, unequal; filaments 2-4 mm; anthers oblong, 2.5 mm. *Ovary* 1.5 mm; style 4 mm. *Berry* 0.7 cm across, acrescent calyx 1.5 cm long.

Plains from the coast; less on the hills to 1000m; weed of fallow lands, river banks, etc.

Flowers yellow(ish) with purple throat, with two peaks during November-February (plains) and July-October (hills). *Fruits* through the year.

Distribution: Tropical Asia, Africa, Australia (Hook.f. !.c.). [cit 14c]

15. Pothanthor

(food / tool)

15

USAGE / IMPORTANCE:

Not eaten by the Todas, but I was told by one Tamil man that after the seeds are removed the fruits are eaten by non-tribals. However, according to Suresh Baburaj this is not true, and the man was confusing this plant with another. I will not speculate as to who is correct. As for the Todas, they crush the fruits and apply the bitter pulp to mothers' breasts when it is time to ween their children.



BOTANICAL DESCRIPTION:

Solanum Linnaeus Sp. Pl. 184. 1753.

Armed/unarmed, erect/spreading *herbs* or *shrubs*, rarely *climbers*. *Leaves* appearing opposite (from adnation), those of the same node unequal, blade entire, sinuate, angulate or pinnatifid, sometimes prickly, margin entire, toothed in *S. nigrum*. *Flowers* stalked, aggregated in axillary, extra-axillary or terminal umbels, corymbs, cymes or racemose panicles. *Calyx*-lobes 5, free or connate, rarely enlarged in fruit. *Corolla* white, blue, or purple, sub-rotate; lobes 5, plicate. *Stamens* 5, attached at the mouth or short tube, connivent around style, brightly coloured (usually yellow), exserted, dehiscing by apical pores. *Ovary* globose or conic, 2-locular; style exserted or included; stigma acute, capitate or 2-lobed. *Berry* pulpy, globose; seeds triangular or circular, compressed. [cit 15a]

Solanum anguivi Lam. Tabl. encycl. 2: 23. 1794; Hepper, Bot. J. Linn. Soc. 76: 290 1978. *S. indicum* auct. non L.: Roxb. Fl. ind. 1: 570. 1832; Wight, Icon. pl. Ind. orient. t. 346. 1840; Hook. f. Fl. Brit. India 4: 234. 1883; Gamble, Fl. Madras 2: 938 (658). 1923; Saldanha & Nicolson, Fl. Hassan 462 & 872. 1978; Matthew, Mat. Fl. Tamilnadu Carnatic 279. 1981.

Tamil Naai mulli ; Mulluchundai

Armed *shrub* to 3(5) m. *Leaves* sinuate, 9-13 x 6-9 cm, thick-chartaceous, lateral nerves ca. 5 pairs, prickly along the midnerve, base obliquely truncate, apex subacute; petiole to 2 cm. *Racemes* 8-10 flowered, extra-axillary; peduncle ca. 7 cm; pedicel to 1 cm. *Calyx* cupular; lobes, triangular, 7 mm, thick, prickly. *Corolla* blue-purple, 2.5 cm across; lobes 1.5 cm, acute. *Stamens* 5; filaments 0.5 mm; anthers linear-oblong, 0.8 cm. *Ovary* 2.2 x 2 mm; style 1 cm, pubescent; stigma acute. *Berry* globose, 0.8 cm across; seeds minutely pitted.

Hills, above 800 m, on degraded slopes, in wastelands, etc. Very common.

Branchlets purplish covered with powdery yellow indumentum. *Flowers* with two peaks during January-April and August-October. *Fruits* through the year, ripening orange.

Distribution: India, Malaya, Indo-China, Phillipines, Taiwan (Enum. Fl. pl. Nepal 3: 11. 1982). [cit 15b]



USAGE /
IMPORTANCE:
 Edible fruit



BOTANICAL DESCRIPTION:

Passifloraceae K.M. Matthew & S.J. Britto

Vines, with axillary tendrils. *Leaves* alternate, often simple, entire or lobed; lobes elliptic to oblong, palmately nerved; foliar glands on petiole or at leaf-base; stipules minute to large, sometimes caducous. *Inflorescence* axillary, 1- or many-flowered, sometimes cymose, with basal flowers transformed into tendrils; bracts and bracteoles small to large, forming a conspicuous involucre or 0. *Flowers* 4- or 5-merous, *bisexual* or *unisexual*. *Calyx-tube* saucer shaped or cupular; lobes 4 or 5, imbricate, sometimes connate, persistent. *Petals* 4 or 5, imbricate. *Corona* extrastaminal, inserted on the calyx-tube, annular or thread-like. *Disc* often extrastaminal, annular, often with 5-ligulate glands (*Adenia*). Male: *Stamens* ca. 5, inserted on androgynophore or on calyx-tube; anthers oblong, basifixed, apiculate. *Bisexual*, female: *Ovary* superior, sessile or on a gynophore, 1-celled; ovules alpha on 3 parietal placentae; styles 3, short, prominent; stigmas capitate to subglobose, sometimes lacinate. *Fruit* an indehiscent berry or 3-valved capsule; seeds compressed, pitted, enclosed in a membranous or pulpy aril. [cit 16a]

Passiflora Linnaeus Sp. Pl. 955. 1753.

Tendrill-climbers. *Leaves* alternate, palmately lobed, margin mostly glandular-dentate; stipules small or large. *Flower* *bisexual*, solitary; bracts and bracteoles often large. *Calyx-tube* saucer-shaped to cylindrical; lobes 5. *Petals* 5, inserted on the throat of calyx-tube. *Corona* extrastaminal, with 1 to several rows of alpha filiform segments and a shallow cup surrounding gynandrophore. *Stamens* 5, on gynandrophore. *Ovary* 1-celled; ovules alpha; styles usually 3; stigmas capitate. *Berry* fleshy, indehiscent. [cit 16b]

Passiflora mollissima (H. B.K.) Bailey in Rhodora 18: 156. 1916. *Tacsonia mollissima* H.B.K. Nov. Gen. Sp. 2: 144: 1817; Fyson, Fl. South Indian Hill St. 2: t. 188. 1932.

An evergreen perennial climber, introduced in gardens of hilly regions. [cit 16c]

17. Thafit

(food / medicine / tool)

17

USAGE / IMPORTANCE:

The fruit of this plant is eaten and the young leaves are used as a medicine for diarrhea. Additionally the wood, which is very strong, is used for axe handles and as firewood.



BOTANICAL DESCRIPTION:

Rhodomyrtus D.C.

Trees or tomentose shrubs. *Leaves* opposite, 5- or 3-nerved. *Flowers* rather large, axillary. *Calyx-tube* turbinate, oblong or subglobose, hardly produced above the ovary; lobes 5 rarely 4, herbaceous, persistent. *Petals* 5, rarely 4, spreading. *Stamens* infinite, free, in many series. *Ovary* 1- 2- 3-celled with spurious partitions, or divided into numerous 1-ovuled superposed cells; style filiform, stigma capitate. *Berry* drupelike, globose or ovoid, with few or numerous seeds not distinctly superposed in rows. *Seeds* compressed, reniform or nearly orbicular, horizontal, testa hard; embryo curved or spiral, radicle very long, cotyledons small.--DISTRIB. 5 Species, 4 of them inhabitants of E. Australia, and 1 widely distributed over tropical Asia, especially throughout the Indian Archipelago as far as China.

Rhodomyrtus tomentosa, *Wight Spicil Neilgh.* i. 60, t. 71; branches downy above slightly compressed, leaves elliptic or obovate obtuse shortly petioled 3-nerved hoary on the underside with soft tomentum, peduncles axillary shorter than the leaves 1-3 fl., flowers with 2 ovate bracteoles at the base, calyx tomentose 5-cleft, lobes unequal, berry oval or subglobose 3-celled, seeds compressed forming 2 rows in each cell. *Miq. Fl. Ind. Bat.* i. pt. i. 477: *Benth. Fl. Hongk.* 421: *Bedd. Fl. Sylv. Anal. Gen.* t. xiv. *Myrtus tomentosa*, *Ait.*; *D.C. Prodr.* iii. 240: *Vahl Symb.* ii. 56: *Blume Bijdr.* 1081: *W. & A. Prodr.* i. 328: *Wight Ill.* ii. 12. t. 97*, f. 3. *lc.* 522; *Roxb. Fl. Ind.* ii. 498; *Wall. Cat.* 3630; *Korth. in Ned. Kruidk. Arch.* i. 197. *M. canescens.* *Lour. Fl. Cochine.* i. 311.

WESTERN PENINSULA. Pulney Hills, *Beddoine*; Nilghiris, *Adam*. EASTERN PENINSULA. MALACCA. *Griffith. Maingay*; SINGAPORE and PENANG, *Thomson, Anderson*. CEYLON, alt. 6-8000 ft., *Walker, &c.*

A shrub, 4-5 ft.: young parts clothed with thick tomentum. Lower *leaves* in threes, upper ones and those of the branches opposite, 1-2 and a half in. with 3 or rarely 5 prominent nerves starting from near the base, dark brown above, at length glabrous and shining, hoary beneath and rugose. *Peduncles* about half the length of the leaves, bearing 1-3 large pink flowers 1/2 to 3/4 in. across. *Petals* downy outside, shortly clawed. *Berry* about the size of a cherry, dark purple, pulp fleshy, sweet and aromatic.--*Col. Beddome* says that this is abundant on the higher mountains in the Madras Presidency, and is known at Ootacamund as "Hill Gooseberry." The fruit is eaten raw, or made into jam called "Thaonty." Its wood is white with pink heart, the grain close and cutting like cheese, but splitting when seasoned; useful for small turnery. [cit 17]

USAGE / IMPORTANCE:

The fruit of this plant is eaten and reportedly has an excellent taste.

BOTANICAL DESCRIPTION:

Rutaceae K.M. Matthew, S.J. Britto & B.C. Stone
(Glycosmis & Murraya)

Trees, shrubs, stragglers or lianes, often armed. *Leaves* alternate, compound, gland-dotted; stipules 0. *Inflorescence* axillary and/or terminal, of racemes or cymes. *Flowers* 4- or 5-merous, *bisexual* or *unisexual* (*polygamous*). *Calyx* short, 4- or 5-lobed. *Sepals* imbricate. *Petals* 4 or 5, free, sometimes basally subconnate, imbricate. *Disc* cupular to annular, lobed or not, sometimes columnar and elongate, rarely obscure. *Stamens* as many, or twice as many, as petals, sometimes inserted around the disc; filaments free or rarely connate. *Ovary* superior, 3- 5- celled, rarely more; ovule(s) 1 or 2 or alpha per cell, collateral to superposed; stigma capitate or lobed. *Fruit* a berry, drupe, capsule or of 1-4 capsular cocci; seeds compressed or not, rarely winged. [cit 18a]

Toddalia A.L. Jussieu Gen. 371. 1789 (nom. cons.).

Toddalia asiatica (L.) Lam. Tabl. encycl. 2: 116. 1792.

Paullinia asiatica L. Sp. pl. 365. 1753.

Toddalia aculeata Pers., Syn. pl. 1: 249. 1805; Wight & Arn. Prodr. fl. Ind. orient. 149. 1834; Wight, Ill. Ind. Bot. t. 66. 1840; Beddome, Fl. sylv. S. India, Anal. Gen. 42. t. 6. f. 4. (f. 5/) 1870; Hook. f. Fl. Brit. India 1: 497. 1875. [cit 18b]

Toddalia aculeata Pers.; F.B.I. i. 497, IX I; the Toddali. A rambling woody plant, with stem near the ground as thick as one's arm or, higher up, as one's wrist, and there studded with pyramidal lumps of cork three-quarters of an inch high. Twigs armed with curved prickles. Leaves alternate, three-foliolate: petiole 1 to 1 1/4 inches, with an occasional prickle: leaflets sessile, 1 to 3 by 1/2 to 1 inch, obovate cuspidate with short blunt acumen notched at the end, coriaceous, glabrous, finely crenulate, dark green: midrib strong, lateral veins numerous, slender, parallel nearly to the margin. Flowers white 1/3 to 1/2 inch across, in close axillary cymose panicles 2 to 3 inches long; unisexual. Calyx very small. Petals oblong, thickened and incurved at the apex, male flowers globular in bud, the petals shorter. Stamens equal in number to the petals; ovary rudimentary. Female flowers oblong in bud, the petals longer and the ovary well formed on a low disc, with a nearly sessile stigma lobed like it. Fruit the size of a pea, with few angular seeds. Embryo bent, enclosed in a fleshy endosperm. t. 57. Wight Ill. t. 66.

In sholas very common on both the Nilgiri and Pulney downs; extending even down to the plains and all over South India. Very variable in regard to the size and breadth of the leaflets, and on the plains usually a low shrub with smaller and narrower leaflets.

Gen. Dist. Widely over the Indian and Malayan tropics, to Java, Sumatra, China and the Phillipines. [cit 18c]



USAGE / IMPORTANCE:

Underground tubers are eaten like potatoes and leaves are rubbed on brass plates to clean them.

**BOTANICAL DESCRIPTION:**

Oxalidaceae K.M Matthew & S.J. Britto

Herbs, often stemless and bulbous. *Leaves* alternate or whorled, digitately or pinnately compound. *Inflorescence* axillary and/or terminal in (pseudo) umbels. *Flowers* 5-merous, bisexual, regular. *Sepals* 5, free, imbricate. *Petals* 5, connate at base. *Stamens* 5 +5; outer ones short, opposite the petals; inner ones long, opposite the sepals; filaments fused at base. *Ovary* superior, 5-celled; ovules alpha per cell on axile placentae; styles 5; stigmas capitate, entire or 2-fid. *Capsule* oblong or ovoid, loculicidal; valves adnate to central column or spreading; seeds usually arillate. [cit 19a]

Oxalis Linnaeus Sp. Pl. 433. 1753.

Cauliscent or acaulescent *herbs*, bulbous or not. *Leaves* digitate, radical or cauline; stipules membranous, adnate to petiole. *Flowers* in (pseudo) umbels, usually 3-morphic, heterostylous. *Sepals* 5. *Petals* 5, contorted in bud, + - connate at base. *Stamens* 5 +5; outer ones short, opposite the petals; inner ones long, opposite the sepals; filaments fused at base. *Ovary* 5-celled; ovules alpha per cell on axile placentae; style 5, distinct. *Capsule* with persistent valves; seeds with an elastic, fleshy integument. [cit 19b]

Oxalis latifolia Kunth, Nov. gen. sp. 5 : 237. t. 467. 1821: Fyson, Fl. s. Ind. hill stat. 75. t. 51. 1932: Matthew, Rec. Bot. Surv. India 20 : 57. 1969; Veldk. in Steenis, Fl. Males. I. 7: 158. 1971; Matthew, Mat. Fl. Tamilnadu Carnatic 161. 1981.

Hills, above 1200 m as weed of plantations. Abundant in the coffee plantations at Yercad.

Bulb globose. *Flowers* rose, with a peak during January-March. *Fruits* not seen.

Distribution: Native of C. tropical S. America (Veldk. 1.c.) ; now widely spread as a weed of cultivation. [cit 19c]



20. Vallarakerei

(food / medicine)

20

USAGE / IMPORTANCE:

This is the popular herb Gotu Kola. According to the Todas, if four leaves are eaten twice a day, morning and night, after approximately one month memory will begin to improve. Leaves have a taste similar to carrot, but are often somewhat bitter.



BOTANICAL DESCRIPTION:

Umbelliferae (Apiaceae) K.M. Matthew & S.J. Bri

Herbs. Leaves compound, rarely simple, alternate, sometimes in basal rosettes; leaflets entire or variously lobed, penni- or palmi-nerved; petioles sheathing at base; stipules occasional. *Umbels* terminal and/or axillary, usually compound, rarely simple; rays a few to alpha, with several flowers in each; involucre bracts usually distinct or 0, entire, rarely lobed; involucre of bracteoles present or 0. *Flowers* 5-merous, *bisexual*, sometimes *polygamous*. *Calyx*-lobes 5, sometimes obscure or 0. *Petals* 5, valvate, alternating with calyx-lobes, equal, radiant, sometimes unequal in outer flowers, with an emarginate or 2-lobed, inflexed apex. *Disc* 2-lobed, free from the styles or confluent with the thickened style-base forming stylopodium. *Stamens* 5, alternating with petals; filaments often inflexed, inserted on the disc. Ovary inferior, 2-celled; ovule 1 per cell, pendulous; styles 2; stigmas capitate. *Fruit* of 2 indehiscent laterally or dorsally compressed mericarps, separated by a narrow commissure, attached to, and often pendulous from, an entire or forked carpophore; primary ribs usually 5, prominent or not, often alternating with 5 secondary ones, vittae usually present, rarely 0; seed 1 per mericarp. [cit 20a]

Centella Linnaeus Sp. Pl. ed. 2. 1393. 1763.

Centella asiatica (L.) Urban in C. Martius, Fl. bras. 11(1): 287. t. 78. f. 1. 1879; Gamble, Fl. Madras 1: 556(392). 1919; Buwalda in Steenis, Fl. Males. I. 4: 177. 1949; Hiroe, Umbellif. World 181. 1979; Krahulik & Theob. in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 3: 484. 1981; Matthew, Mat. Fl. Tamilnadu Carnatic 227. 1981 & Ill. Fl. Tamilnadu Carnatic t. 315. 1982.

Hydrocotyle asiatica L. Sp. pl. 234. 1753; Roxb. Fl. ind. 2: 88. 1832; Wight & Arn. Prodr. fl. Ind. orient. 366. 1834; Wight, Icon. pl. Ind. orient. t. 565. 1842; Hook.f. Fl. Brit. India 2: 669. 1879.

Tamil: Vallaarai

Prostrate *herb*, with perennial rootstock; stem puberulous, creeping with long stolons, rooting at nodes. *Leaves* simple, in rosettes, orbicular-reniform, 1-2.5(3.5) x 1.5-3(6.5) cm, chartaceous, puberulous, base cordate, margin crenate-dentate, apex rotund; petiole 2.5-7(20) cm, sheathing at base. *Umbels* simple, ca. 3-flowered; peduncle 5-7 mm; involucre bracts 2, hooded, 2.5 mm; pedicel to 0.5 mm. *Petals* 5, purplish, to 1.5 mm. *Stylopodium* depressed. *Stamens* 5, to 1 mm; filaments 0.5 mm. *Ovary* 2-celled; ovule 1 per cell; styles 2, distant, free from the disc, 0.5 mm; stigmas 2, simple. *Mericarps* laterally flattened, to 1.5 mm; vittae obscure; commissure narrow; dorsal ribs 7-9, marginate, laterals arcuate, interconnected.

Throughout the range, barring the extreme coast, to 1600 m, in low-lying areas, by water courses, etc. More robust specimens in moist and sheltered places.

Perennial. *Flowers* and *fruits* through the year. Widely used medicinally for internal consumption.

Distribution: Widespread in tropical and subtropical regions throughout the world (Enum. Fl. pl. Nepal 2: 185. 1979). [cit 20b]

21. Takmul

(food / medicine)

21

USAGE / IMPORTANCE:

Leaves and fruits are eaten, and leaves and ground thorns are used to treat fever.



BOTANICAL DESCRIPTION:

Berberidaceae K.M. Matthew & S.J. Britto

Shrubs. Leaves compound. Racemes axillary. Flowers bisexual. Sepals 3+3, petaloid, free, imbricate. Petals 3+3, glandular at base on the inner surface, imbricate, caducous. Stamens 6; filaments free; anthers dehiscing by apical valves. Ovary superior, 1-celled; ovules ventral; stigma subsessile, discoid. Berry globose, 1-seeded. [cit 21a]

Berberis

Berberis tinctoria Leschenault; F.B.I. i 110, included in *B. aristata* DC.; IV 4; common Nilgiri Barberry.

A shrub, but very variable in size and form; in the open often only 2 or 3 feet high, but in a shola sometimes reaching 15 feet with stem as thick as one's arm and long scandent branches bearing numerous slender leafy twigs; wood very tough, bright yellow in color. Leafy twigs green or purple, grooved and angular, studded with triple spines in the axils of which are tufts of leaves. Leaves when young purplish, obovate, entire or with a few spiny teeth, glabrous, 1 to 2 1/2 inches. Racemes of flowers drooping, sometimes branched; pedicels slender, red 1/2-inch; petals notched. Berry sausage-shaped when young, eventually top-shaped, 1/3 by 1/6 inch, purplish red, turning to a dark-blue with glaucous bloom, with the dry style and large round stigma still attached. t. 10. Wight Ill. t. 8.

Distinguished from *B. aristata* DC. by the slender drooping pedicels and the shape of the fruit.

By roadsides, on the edges of and inside sholas; quite common. Nilgiris: Ootacamund, Pykara, Kotagiri. Pulneys: Kodaikanal downs.

Schneider in Bull: de L'Herbier Boissier, Ser. 2. 5. 1905, p. 432 divides the Nilgiri specimens into three species, *B. tinctoria*, *B. wightiana*, and *B. ceylanica*, by the colour and surface of the under side of the leaves, the hairiness of the twigs, and the inflorescence. I am not, however, able to distinguish these, nor does Gamble in G.F.M.P. [cit 21b]



22. Omening

(food / medicine)

22

USAGE / IMPORTANCE:

This is the well known Castor Oil Plant. The Todas use an oil extracted from the fruit (see picture 22d) to be used as a drink with no medicinal value (according to Pothili), but according to Suresh Baburaj it is drunk to ease stomach pains. Both agree that it is rubbed on the stomach to warm the body. CAUTION: This is the plant from which the highly poisonous compound Ricin is derived. Use extreme caution with all parts of the plant.



BOTANICAL DESCRIPTION:

Ricinis Linnaeus Sp. Pl. 1007.1753.

Ricinis communis L. Sp. pl. 1007. 1753; Roxb. Fl. ind. 3: 689. 1832; Hook. f. Fl. Brit. India 5: 457. 1887; Pax & Hoffm. in Engl. Pflanzenr. IV. 147a. XI: 119. 1919; Gamble, Fl. Madras 2: 1335(933). 1925; Purselove, Trop. Crops, Dicots 180. 1977; Matthew, Mat. Fl. Tamilnadu Carnatic 339. 1981 & Ill. Fl. Tamilnadu Carnatic t. 652. 1982.--Plates 102l & 109o.

Tamil: Aamanakku; Semmuthukkottai.

Monoecious, evergreen *shrub* to 4 m. *Leaves* alternate, palmatifid, 6- 10-lobed, each 1-nerved with many lateral nerves, peltate; lobes lanceolate, 10-18 x 3-7 cm. Panicle *racemes* terminal, to 15(30) cm. Male *flowers* below, 1.5 cm across, female ones above, 6 mm across. Male: *Perianth* cupular, splitting into 3-5 lobes, lanceolate, valvate, 4 mm, margin inrolled, acuminate. *Stamens* alpha; filaments connate and repeatedly branched; anther cells divergent, 4 mm. Female: *Tepals* 5, subequal, lanceolate, valvate, 5 mm, acute. *Ovary* globose, echinate, 3 mm, 3-locular; ovules 3, pendulous; styles 3, stout, 4 mm, papillose, stigmatiferous. *Disc* 0. *Capsule* 3-lobed, 2 cm across, prickly; seeds oblong; testa smooth, marbled, shiny, carunculate.

Plains from the coast, to 1400 m. Planted.

Flowers and *fruits* through the year. Oil extracted from the seeds.

Distribution: Probably native in N.E. tropical Africa; widely cultivated throughout tropics (Enum. Fl. pl. Nepal 3: 199. 1982). [cit 22]



Pic 22b: flower cluster



Pic 22d: oily inside of fruit



USAGE / IMPORTANCE:

Young red leaves and berries are edible, and bright yellow inner bark (see Pic 23b) is used to treat fever. This inner bark is extremely bitter, but I am told that if one has a fever, the bitterness is not tasted.

**BOTANICAL DESCRIPTION:**

Mahonia Nuttall Gen. 1: 211. 1818 (nom. cons.).

Mahonia leschenaultii (Wight & Arn.) Takeda ex Gamble, Fl. Madras 1: 32(23). 1915; Takeda, Notes Roy. Bot. Gard. Edinburgh 6: 223. 1917; Fyson, Fl. s. Ind. hill stat. 16. t. 11. 1932; R. Chatterjee, Rec. Bot. Surv. India 16(2); 38. 1953; Ahrendt, J. Linn. Soc. Bot. 57: 325. 1961; Matthew, Mat. Fl. Tamilnadu Carnatic 139. 1981 & Ill. Fl. Tamilnadu Carnatic t. 20. 1982.

Berberis leschenaultii Wallich (Cat. 1479. 1829) ex Wight & Arn. Prodr. fl. Ind. orient. 16. 1834; Wight, Icon. pl. Ind. orient. t. 940. 1845 & Spicil. Neilgh. t. 8. 1846.

B. nepalensis Sprengel in L. Syst. Veg. (ed. 16) 2: 120. 1825, var. *leschenaultii* Hook. f. & Thomson in Hook. f. Fl. Brit. India 1: 109. 1872.

Tamil: Mullu kadambu

Shrub to 4 m; branchlets with persistent leaf-bases. *Leaves* even-pinnate, 30 x 10 cm; leaflets ca. 6 pairs, opposite, inequilateral, oblong, ovate-lanceolate, 8.5 x 4.5 cm, coriaceous, glabrous, glossy above, base obtuse, auriculate, margin serrately spiny, apex acute; stipules in pairs, subulate. *Racemes* terminal, ca. 20 cm; peduncle to 2.5 cm; pedicel to 1 cm. *Sepals* 3+ 3, ovate, 5-7 x 4 mm, petaloid. *Petals* yellow, 3+ 3, subequal, 6 x 1.5 mm, oblong, notched at apex and shortly 2-lobed, with 2 basal glands within. *Stamens* 6, adnate to the base of the petal; filaments 2 mm, flat, thick; anthers 2 mm, dehiscent by recurved valves. *Ovary* oblong, to 4 mm, 1-celled; ovules ca. 4, ventral, ascending; stigma discoid or peltate, subsessile. *Berry* globose, to 8 mm, glaucous, 1-seeded.

Pic 23b: bright yellow inner bark



Servarayans (Yercad, Kaka shola). Scarce.

Shrub. Flowers (May). *Fruits* (May), ripening dark blue.

Distribution: Hills of the Peninsula above 1500 m. [cit 23]

24. Aishkoihthor

(food / medicine)

24

USAGE / IMPORTANCE:

According to my Toda informants, the leaves, stem, and fruit of this plant are all edible and used for stomach pains, sores in the mouth, and sore throat. However, I recommend exercising a great deal of caution when using this plant, as it belongs to the same genus as the nightshades--many of which contain poisonous alkaloids.



BOTANICAL DESCRIPTION:

Solanum nigrum L. Sp. pl. 186. 1753; Hook. f. Fl. Brit. India 4: 229. 1883; Gamble, Fl. Madras 2: 936(657). 1923; Fyson, Fl. s. Ind. hill stat. 419. 1932; Matthew, Mat. Fl. Tamilnadu Carnatic 279. 1981.

S. rubrum Miller, Gard. dict. (ed. 8) 1768, non L. 1767; Roxb. Fl. ind. 1: 565. 1832; Wight, Icon. pl. Ind. orient. t. 344. 1840.

Tamil: Manathakkalli; Milaguthakkaali; Sirungunni; Kaasithazhai

Unarmed *shrub* to 1.5 m; branchlets sparsely scabrous, zigzag. *Leaves* broadly ovate-elliptic, 6-12 x 4-7 cm, chartaceous, lateral nerves ca. 6 pairs, base rounded to decurrent, margin bluntly toothed, apex acute; petiole to 5 cm. *Umbel* ca. 7-flowered, extra-axillary; peduncle to 2 cm; pedicel to 0.7 cm. *Calyx* cupular, herbaceous; lobes 5, oblong, 2 mm, puberulous without, acute. *Corolla* white, 6 mm across; lobes 5, oblanceolate, 5 mm, basally decurrent, acute. *Stamens* 5; filaments 0.5 mm; anthers 1.5 mm. *Ovary* 1.5 mm; style 2 mm, pubescent below; stigma capitate. *Berry* juicy, 0.5 cm across; seeds discoid, minutely pitted.

Plains from the coast (especially by the river banks/bed), and hills to 1500 m. Very common.

Annual. *Flowers* with a peak during December-March. *Fruits* February onwards, ripening black.

Distribution: Almost cosmopolitan (Enum. Fl. pl. Nepal 3: 111. 1982). [cit 24]

USAGE / IMPORTANCE:

Leaves are crushed and applied to wounds for sterilization.

BOTANICAL DESCRIPTION:

Compositae (Asteraceae) N. Rani & K.M. Matthew

Herbs or *shrubs*, erect, ascending, prostrate or climbing, rarely *trees* (*Veronia arborea*), sometimes lactiferous. *Leaves* alternate or opposite, at times both, simple or compound, penninerved, petiolate or sessile, estipulate. *Inflorescence* a centripetal *capitulum* of several (rarely 1 or a few) florets, aggregated on the flattened peduncle (*receptacle*), surrounded by bracts. *Florets* (4-)5-merous, *bisexual* or *unisexual*, rarely neuter, tubular and regular, *radiate* or *ligulate* and aggregated in any one of the following types; (i) all tubular and *bisexual*--*capitula homogamous*, disciform; (ii) all tubular, outer female, inner *bisexual*--*capitula heterogamous*, disciform; (iii) outer radiate and female, inner tubular and *bisexual*--*capitula heterogamous*, radiate; (iv) all *ligulate* and *bisexual*--*capitula homogamous*, ligulate; and exceptionally, (v) all *unisexual*--*capitula monoecious* (*Xanthium*). *Capitula* 1 to several, variously aggregated in simple clusters, cymes, racemes, panicles or in glomerules. Bracts (*phyllaries*) usually alpha, multi-seriate to uni-seriate, herbaceous or scarious, sometimes spinescent, spreading or reflexed after fruiting; bracteoles 0 or reduced to paleaceous scales or bristles on the *receptacle*. *Calyx*-tube adnate to ovary; *limb*, of scales, hairs or awns, persistent in fruit (*pappus*), rarely 0. *Corolla* regular tubular-campanulate (tubular) or obliquely extended into a 2- 4-toothed strap (*radiate*) or a 5-toothed strap (*ligulate*). *Stamens* (4)5, epipetalous, alternating with corolla-lobes, usually included; filaments filiform, free; anthers 2-celled, oblong-linear, parallel, usually flattened, connate by margins, base entire or tailed; connectives usually produced. *Ovary* inferior, narrowly oblong to linear, 1-locular; ovule 1, basal; style running through anther-tube, usually 2-fid above; style-arms acute, obtuse or truncate, glabrous or variously pubescent. *Disc* minute, annular, epigynous. *Achenes* hardly enlarged, compressed, ribbed or angled, variously pubescent, rarely rostrate; seed 1, erect, exalbuminous; testa membranous. [cit 25a]

Chromolaena A.P. de Candolle Prodr. 5: 133. 1836.

Chromolaena odorata (L.) R. King & H. Robinson, Phytologia 20: 204. 1970; Matthew, III. Fl. Tamilnadu Carnatic t. 369. 1982.--Plate 54 g.

Eupatorium odoratum L. Syst. nat. (ed. 10) 1205. 1759; C. B. Clarke, Compos. ind. 30. 1876; Hook. f. Fl. Brit. India 3: 244. 1881; Fyson, Fl. s. Ind. hill stat. 317. 1932.

Aromatic, erect, viscid-pubescent *subshrub* to 3 m. *Leaves* opposite, simple, obovate to deltoid-ovate, 6-8 x 3-5(7) cm, chartaceous, 3-nerved from base, puberulous above, pubescent below, base acute to +_ truncate, margin coarsely serrate, entire or narrowed above, apex acute; petiole to 1.5 cm. *Panicle* corymbose, much branched; *capitula* stalked, *homogamous*, disciform; *receptacle* flat or slightly convex, pitted; *involucre* cylindric, ca. 1 cm long. *Phyllaries* alpha-seriate, scarious, unequal; outer ovate, concave, 1.5 mm, pubescent, acute; inner oblong to linear, 7 x 0.5-1 mm, acute, finely ciliate above. *Florets* *bisexual*, blue-purple. *Pappus* 1-seriate, 4.5 mm, barbellate. *Corolla* tubular-campanulate, 1.2 mm across; tube gradually widened above, 4.5 mm; lobes 5, ovate, 0.5 mm, acute. *Stamens* 5, subexserted; filaments filiform, linear, flat, base subentire; connectives ovate, acute. *Ovary* linear, 4 mm, angular, narrowed below; style 8 mm, linearly 2-fid; stigma truncate, puberulous. *Achenes* scaly without, angles thickened.

Hills, lower slopes, 500-1000m; less in the plains. Introduced. Very aggressive on the Western Ghats where it has displaced *Lantana* in places (*Indian Forester* 97: 170-171. 1971), while in the area it does not appear to be too aggressive.

Flowers during December-March.

Distribution: Native in America, widely naturalized in tropical Asia (Enum. Fl. pl. Nepal 3: 28. 1982). [cit 25b]



26. Yemuth

(poison or intoxicant)

26

USAGE / IMPORTANCE:

Pothili says: "If a man smells this plant, he will go mad." Suresh Baburaj reports that this plant is indeed a narcotic and hallucinogen, but believes that a certain part (which he could not tell me) must be smashed and eaten in order for an effect to occur. This plant is closely related to the infamous jimson weed (*Datura stramonium*), as well as the ornamental plant, angel trumpet (*D. wrightii*).



BOTANICAL DESCRIPTION:

Datura Linnaeus Sp. Pl. 179. 1753.

Herbs or subshrubs. Leaf-blade entire to lobed, chartaceous, lateral nerves ca. 6 pairs, glabrous or pubescent, margin entire, apex acute, petiolate. *Flower(s)* solitary, axillary, pedicellate. *Calyx* tubular, herbaceous, 5-lobed, upper part deciduous, lower part persistent. *Corolla* trumpet-shaped; tube cylindrical, gradually widened from middle; lobes 5, connate into a circular limb, plaited, 5- or 10-toothed. *Stamens* 5, inserted near the middle of tube, decurrent below, included; filaments filiform; anthers oblong, puberulent, dehiscence longitudinal. *Ovary* conical, echinate, 2-locular; ovules alpha, on bifurcate placentae; style elongate; stigma 2-lobed. *Capsule* globose, armed, irregularly bursting; calyx-base persistent; epicarp thick; seeds alpha, circular, compressed, rugose. [cit 26a]

Datura innoxia Miller, Gard. dict. (ed.8) 1768; Saff. Annual Rep. Board of Regents Smithsonian Inst. 1920; 549. t. 3. f. 4. 1920 & J. Wash. Acad. Sci. 11: 179. 1921; Santapau, J. Bombay Nat. Hist. Soc. 47: 659. 1948 & Rec. Bot. Surv. India (ed. 3) 16: 174. 1967; Matthew, Mat. Fl. Tamilnadu Carnatic 277. 1981.

D. metel auct. non L. : Sims in Curtis, Bot. Mag. t. 1440. 1812; Hook. f. Fl. Brit. India 4: 243. 1883; Gamble, Fl. Madras 2: 941(660). 1923; et auct. mult. ind.

Herb to 50 cm. *Leaves* elliptic-ovate, 7-16 x 6-12 cm, softly pubescent on either side, base unequally truncate or rounded, margin almost entire, rarely shallowly lobed; petiole to 9 cm. *Calyx* 8 cm, pubescent without; lobes 5, lanceolate, 1 cm, acute. *Corolla* white, 5 cm across; tube 10-12 cm; limb 3 cm; teeth 10, lanceolate, 0.7 cm. *Stamens* 5; filaments 7 cm; anthers 1 cm. *Ovary* 0.5 cm; style to 12 cm. *Capsule* ca. 3.5 cm across; spines long, weak, to 1 cm, sharp.

Plains and foothills: weed of wastelands. Less common than *D. metel*.

Plants whitish pubescent. *Flowers* through the year. *Fruits* with long acuminate spines.

Distribution: Mexico to S. America and W. Indies; introduced early into Canary Isls., N. Africa and India (Saff. 1921: 179). [cit 26b]



USAGE / IMPORTANCE:

Leafy branches are used to dust clothes, which was in fact the usual method of “washing” in traditional times. Washing with soap and water (see following plant) was rare.

**BOTANICAL DESCRIPTION:**

Labiatae (Lamiaceae) N. Rani & K.M. Matthew

Aromatic *herbs*, *subshrubs* or arborescent *shrubs* (*Colebrookea*); branchlets decussate, generally 4-gonous, sometimes terete. *Leaves* decussate or whorled, simple, petiolate, estipulate. *Flowers* subsessile or pedicellate, zygomorphic, 2, 4, 6 or more in decussate fascicles or cymes which by aggregation form false whorls (*verticillasters*). *Verticils* axillary or terminal, simple, or superposed into spurious racemes, spikes, or panicles, or the clusters rarely 1-sided in elongate, secund spikes (*Pogostemon paniculatus*); floral bracts decussate or whorled, subtending the verticils, persistent or caducous. *Calyx* turbinate, campanulate or tubular; lobes 5, valvate or imbricate, usually 2-lipped, rarely 1-lipped (*Origanum*) or 8- 10-toothed. *Corolla* tubular-bilabiate; tube cylindric or inflated, straight or bent; lobes 5, unequal, imbricate; lower lip usually deflexed. *Stamens* 2 or 4, subequal, or if didynamous, the lower pair longest, attached at the throat of corolla, and arranged in one of the following ways: (i) bent upwards into the upper lip; (ii) bent downwards into the lower lip; (iii) all exerted away from both; filaments glabrous or bearded, free or basally connate, usually declinate; anthers parallel or divaricate, 1- or 2-celled, confluent, sometimes dimidiate (*Anisomeles*, *Scutellaria*) and disjointed by a slender connective (*Salvia*), basifixed, introrse, dehiscence longitudinal. *Ovary* superior, deeply 4-grooved, 4-locular; ovule 1, on basal placenta; style simple, gynobasic, or terminal (*Teucrium*); stigma equally or unequally bifid. *Disc* subentire or 4-lobed, sometimes the anterior lobe enlarged. *Fruit* a schizocarp of 4, dry, 1-seeded nutlets enclosed at the base of enlarged, persistent calyx. *Nutlets* basilar or laterally ventral (*Teucrium*), rarely 1 or 2 aborted, scarred; epicarp chartaceous; seeds erect or transverse (*Scutellaria*); fruiting pedicel usually elongate and recurved. [cit 27a]

Leucas R. Brown Prodr. 504. 1810.

Erect or diffuse *herbs* or *subshrubs*; hairs on the branchlets deflexed, spreading or appressed. *Leaves* ovate, oblong, linear to lanceolate, petiolate. *Flowers* 6-alpha, in paired cymes, aggregated into terminal and/or axillary multi-seriate pseudovercils (*verticillasters*), or 2 or 4, exclusively axillary (*L. biflora*), subsessile; bracts alpha, linear-subulate, lanceolate or filiform, ciliate, persistent. *Calyx* tubular, turbinate, campanulate, sometimes funnel-shaped; mouth straight or oblique, 8- 10-ribbed, often villous within, 8- 10-toothed, valvate; teeth equal or unequal. *Corolla* white; tube cylindric, glabrous or annulate within; lobes 5, bilipped, 1 + 4; upper lip usually shorter than lower, rarely subequal, hooded, enclosing the stamens, densely bearded without; lower lip deflexed, broad and flat, lateral lobes shorter than the connate mid (2)lobes, membranous. *Stamens* 4, ascending into the upper lip, included or partly exerted: anthers divaricate, at length confluent. *Ovary* 4-celled, cells subtrigonus; style gynobasic, flat and broadened towards apex; stigma obliquely 2-fid. *Disc* 4-lobed, alternating with 4 locules, or anteriorly enlarged. *Nutlets* 4, subtrigonus, erect, basilar; fruiting calyx enlarged.

Note: Common over the entire tract (plains and hills), easily recognized by the white flowers aggregated in compact whorls, with a distinct odour when crushed and in fact going under the same Tamil name (Thumbai). [cit 27b]

USAGE / IMPORTANCE:

On the rare occasions when clothes were washed (see preceding plant), this is the plant that provided the detergent. Also used as a soap and shampoo, it is cooling to the body and good for the scalp. To prepare the cleanser, the stem is peeled and the peel is soaked in water overnight. In the morning, the peel is mashed between two rocks (see picture 28b) and the abundant slimy residue is collected; this is easier if the mashed peel is placed back in the soaking water. Today, priests still wash themselves and their clothes with only this plant.

**BOTANICAL DESCRIPTION:**

Urticaceae K.M Matthew & N. Rani

Monoecious or dioecious herbs, (sub)shrubs/trees, sometimes epiphytic. *Leaves* alternate, opposite or ternate, simple or pedately lobed (*Girardinia*), usually 3-nerved from base, often with raphides, margin entire or crenate-serrate, apex acute to acuminate, petiolate or sessile; stipules deciduous or persistent, rarely 0. *Flowers* in *unisexual or androgynous* clusters, variously aggregated; bracts and bracteoles minute or 0. Male: shortly stalked, (3)4- or 5-merous. *Tepals* (3)4 or 5, valvate, concave, gibbous, or transversely plicate in the middle. *Stamens* as many as, and opposite, tepals, inflexed in bud, elastically reflexed later; anthers 2-celled, oblong, parallel, dorsifixed, dehiscence longitudinal, extrorse. Pistillode minute, various. Female: usually sessile. *Tepals* (3)4 or 5, free or connate, valvate or imbricate, enclosing the pistil, contracted above, toothed. *Ovary* superior, 1-locular; ovule 1, basal, erect; style linear or filiform, hairy or papillose; stigma ciliate-fimbriate or penicillate, sometimes sessile. *Achenes* ellipsoid-globose or compressed, hardly enlarged, enclosed in winged or wingless persistent perianth; seed 1, oblong to ovoid or flattened; testa smooth; albumen scanty or 0. [cit 28a]

Pouzolzia Gaudichaud-Beaupre in Freycinet Voyage Monde Bot. 503. 1830 ("1836").

Monoecious, subshrubby/shrubs. *Leaves* alternate, opposite or ternate, simple, chartaceous, 3-9-nerved, margin entire, apex acute to acuminate, petiolate; cystoliths punctiform; stipules lanceolate or cordate, persistent. *Flowers* in axillary, sessile clusters or in short panicles, sometimes the branchlets passing into a leafy spike. Male: shortly stalked, rounded or truncate in bud, 4- or 5-merous. *Tepals* 4 or 5, free, concave or transversely plicate in the middle, usually hairy along the flexure, tip incurved, acute. Pistillode minute. Female: sessile. *Tepals* connate, and adnate to



pistil, contracted above, sometimes winged in fruit. *Ovary* obovoid-ellipsoid; style linear, hairy. *Achenes* enclosed in, winged or wingless persistent perianth; testa membranous; albumen scanty or 0.

Gregarious, generally scabrid (sub)shrubs often by stream banks, ravines, or marshy places on the hills.

Flowers and fruits through the year. The large number of named infraspecific taxa point to the high degree of polymorphism. [cit 28b]

Pic 28b: peel of stem being mashed to extract soap

29. Pashyarthor

(tool / medicine / buffalo-related)

29



USAGE / IMPORTANCE:

A plant of many uses, this shrub functions as a bonsetter, a toothbrush, a broom, and a fuel. To heal broken bones the leaves of this plant are heated and wrapped around the area of injury. When the bone of a buffalo is broken, the leaves are boiled together with mud and the resulting plaster is applied to the animal's body. Sticks of this plant are broken and uneven edges are used to brush teeth. Leafy branches serve as a broom and the strong wood of this plant is reportedly the best firewood, its coals burning long and hot.

BOTANICAL DESCRIPTION:

Sapindaceae K.M. Matthew & S.J. Britto

Shrubs, trees, or climbers. Leaves alternate, even-pinnate, rarely simple or 2-ternate; leaflets (sub)opposite, coriaceous (except *Cardiospermum*); stipules 0 (except *Cardiospermum*). *Inflorescence* in axillary or terminal corymbose racemes or panicles (whose lower branches tendrilled in *Cardiospermum*). *Flowers* 4- or 5-merous, *polygamodioecious*, regular or irregular. *Sepals* 4 or 5, generally connate at base, imbricate or rarely valvate, usually subequal. *Petals* 4 or 5, rarely 0, sometimes 2-seriate, imbricate, equal or unequal, clawed, inside often with basal scales or with hairy tufts. *Disc* pubescent, glabrous or glandular, lobed, annular or unilateral, somewhat flat, wavy, rarely 0 in male flowers. *Stamens* 8-10, usually arising from inside the disc or behind it in irregular flowers; filaments pilose or glabrous, equal or unequal, free, sometimes basally connatae; pistillode present in male flowers. *Ovary* superior, (2-) 3-celled, rarely excentric; ovule(s) 1 or 2 per cell on axile placentae; style terminal; stigma 1-3-lobed or stigmatic lines. *Fruit* a loculicidal capsule, rarely winged, sometimes an indehiscent schizocarp or drupe; seeds arillate or not. [cit 29a]

Dodonaea P. Miller Gard. Dict. Abr. ed. 4. 1754.

Dodonaea angustifolia L. f. Suppl. pl. 218. 1782; Matthew, Ill. Fl. Tamilnadu Carnatic t. 164. 982; Leenh. Blumea 28: 280. 1983.

D. burmanianna DC. Prodr. 1: 616. 1824; Wight & Arn. Prodr. fl. Ind. orient. 114. 1834; Wight, Ill. Ind. Bot. t. 52. 1840.

D. viscosa auct. non Jacq.: Hook. f. Fl. Brit. India 1: 697. 1875; Gamble, Fl. Madras 1: 253(181). 1918; Matthew, Mat. Fl. Tamilnadu Carnatic 177. 1981,

Tamil: Viraali; Vilaari

Shrub to 3 m; branchlets gland-dotted. *Leaves* simple, elliptic-oblongate, 5.5-11 x 2-3 cm, thin-coriaceous, gland-dotted, base attenuate, margin entire, apex obtuse-acute, subsessile. *Inflorescence* of axillary or terminal racemes or panicles, 2-6 cm; peduncle to 1 cm. Male: 6 mm across. *Sepals* 4 or 5, oblong, to 2 mm long, ciliate. *Petals* 0. *Disc* rudimentary. *Stamens* 4-10; filaments 0.8 mm, glabrous; anthers 2.5-3 mm; pistillode to 1 mm. Female: 3 mm across. *Sepals* 4 or 5, ovate, 1 mm. *Petals* 0. *Ovary* 2 mm; style 5 mm; stigma 2- or 3-fid. *Bisexual:* 4 mm across, regular. *Sepals* 4 or 5, greenish, oblong-ovate, imbricate, or valvate, 2.5 mm, subequal. *Petals* 0. *Disc* small, annular. *Stamens* 5-10, to 3 mm, inserted outside the disc, free, equal, subsessile; anthers apically scaberulous. *Ovary* globose, 0.5 mm, 2- 4-celled; ovules 2 per cell; style 3 mm; stigma 2- or 3-fid. *Capsule* 1.5 x 2 cm, strongly nerved, winged; seed(s) globose, 1-3, to 3 mm.

Throughout the area (in the plains from near the coast to 1500 m) even in rocky, gravelly or limestone ground. Most aggressive colonizer on disturbed ground. The extensive areas on the hills under this species give some idea of the extent of wanton destruction of primary forests without any significant use being made subsequently.

Shrub. *Flowers* with two peaks during August-November and February-April. *Fruits* through the year.

Distribution: S. Africa, Madagascar, Tropical Africa, Iraq, Iran, Arabia, Afghanistan, Pakistan, India, Sri Lanka, China, Indo-China, Japan, Malesia, Pacific, Australia, New Zealand, N.C. & S. America, W. Indies (Leenh. 1.c.). [cit 29b]



USAGE / IMPORTANCE:

Stem fibers are used to make a strong rope, and the leaves are cooked to make a curry. The raw leaves, armed with sharp hairs which cause a burning sensation when touched, are used to discipline children.

**BOTANICAL DESCRIPTION:**

Girardinia Gaudichaud-Beaupre in Freycinet Voyage Monde, Uranie Physicienne Bot. 498. 1830 ("1826").

Girardinia diversifolia (Link) I. Friis, Kew Bull. 36: 145. 1981; Matthew, Ill. Fl. Tamilnadu Carnatic t. 666. 1982.

Urtica diversifolia Link, Enum. hort. berol. alt. 2: 385. 1822, non Blume, 1825.

Girardinia leschenaultiana Decne. in Jacquem. Voy. Inde. 4, Bot. 152. 1844; Wight, Icon. pl. Ind. orient. t. 1976. 1853; C. Fischer, Fl. Madras 3: 1372(960). 1928; Matthew, Mat. Fl. Tamilnadu Carnatic 340. 1981.

G. heterophylla Decne. var. *palmata* Hook. f. Fl. Brit. India 5: 551. 1888, based on *G. palmata* Blume, nom. illegit.

Subshrubby to 1.5(2) m; branchlets with stinging hairs throughout. Leaves alternate, pedately 3-7-lobed, 10-15 x 10-18 cm, chartaceous, 3-nerved from base, sparsely scabrous above, densely so along the nerves below, base truncate to subcordate, margin inciso-serrate, apex acuminate;



petiole to 15 cm; stipules cordate, auriculate. Male *spikes* branched or unbranched, Female ones in capitulate heads, clustered along the rachis, axillary or subterminal. Male: 3.5 mm across. *Tepals* 4, ovate, cucullate, 2 mm, valvate, membranous, strigose-hairy without, acute. *Stamens* 4; filaments 2 mm; anthers 0.8 mm. Pistillode globose, 1.5 mm. Female: 1.5 mm across. *Tepals* connate into a ventricose tube, 2- 4-lobed, split at one end, strigose without. *Ovary* ovate, 1 x 0.8 mm, flattened; style filiform, 2.5 mm. *Achenes* 4 mm across, compressed.

Hills above (800)1000 m: wastelands, near habitations. Occasional clumps.

Petioles reddish; tender parts with stinging hairs. *Flowers* with a peak during November-January. *Fruits* December onwards.

Distribution: Sri Lanka, India, Himalaya, Burma east to China, Malesia (Enum. Fl. pl. Nepal 3: 204. 1982).

[cit 30]

USAGE / IMPORTANCE:

Not of any major importance, the flowers of this plant are plucked by children, held at their bases, and popped for fun on any hard surface. The Toda name actually translates to “pop” flower.’

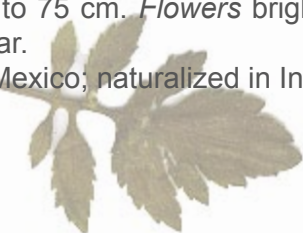
BOTANICAL DESCRIPTION:

Scrophulariaceae N. Rani & K.M. Matthew

Erect or prostrate, marsh or aquatic *herbs* (*climber: Maurandya*), rarely root *parasites*. *Leaves* all decussate or alternate, often both, rarely ternate, simple or pinnatifid, petiolate or (sub)sessile, estipulate. *Flower(s)* zygomorphic, 5-merous, *bisexual* (4-merous and actinomorphic in *Scoparia*), axillary, solitary or in terminal, lax racemes, cymes or pedunculate capitate clusters (*Limnophila rugosa*, (sub)sessile or pedicellate; pedicels elongating in fruit; bracts and bracteoles present or 0. *Calyx*-lobes (4)5, equal or unequal, connate or free, valvate or imbricate, herbaceous. *Corolla* tubular, 2-lipped; lobes (sub)equal or unequal, imbricate, rarely rotate (*Celsia*, *Scoparia*, *Sopubia trifida*), membranous; upper lip outer, rarely inner, in bud. *Stamens* 2 or 4, with or without staminodes, included or exerted; filaments equal, or if didynamous, upper pair shorter; anthers 2- or 1-celled, sessile or stipitate, disjunct, contiguous, parallel or divaricate, rarely transverse (*Verbascum*), dehiscence longitudinal, introrse; connectives broad; staminodes minute, linear, simple or forked. *Ovary* superior globose or conical, 2- or imperfectly 4-locular; ovules alpha, on swollen, axile placentae; style terminal, simple or dilated; stigma 2-lamellate, 2-lobed, capitate or simple. *Disc* annular, cupular or unilateral, glandular, hypogynous. *Capsule* oblong-lanceolate, cylindrical or rarely compressed (*Veronica*), loculicidal or septicidal, or both, 2- 4-valved, or irregularly rupturing; calyx persistent, usually not enlarged; epicarp thin; seeds alpha, minute, angular, truncate or globose; testa smooth, reticulate or rugose; septa and valves persistent. [cit 31a]



Calceolaria Linnaeus Vet. Acad. Handl. Stockholm 31; 286. 1770 (nom. cons.).
Calceolaria gracilis Kunth in Humb. et al. Nov. gen. sp. 2: 339. 1818.
C. mexicana Benth. Pl. Hartw. 47. 1839; Hook. f. Fl. Brit. India 4:246. 1883; Gamble, Fl. Madras 2: 973(684). 1924; Fyson, Fl. s. Ind. hill stat. 426. t. 365. 1932; Matthew, Rec. Bot. Surv. India 20: 168. 1969 & Mat. Fl. Tamilnadu Carnatic 281. 1981.
 Sevarayans, as a weed of cultivation.
 Flaccid herb to 75 cm. *Flowers* bright yellow, with a peak during December-March. *Fruits* through the year.
Distribution: Mexico; naturalized in India and Malesia (Enum. Fl. pl. Nepal 3: 113. 1982).
 [cit 31b]





Mos - ? - ?

USAGE / IMPORTANCE:

This tree is used for firewood, and the blooming of its flowers signifies the start of a new season.



USAGE / IMPORTANCE:

The sticks of this tree are used for firewood, the stumps are carved into buffalo horn sculptures, and the sweet liquid inside the flowers can be licked. The flower is also important to the Todas because soon after its blooming, the amount of honey to be harvested notably increases.

**BOTANICAL DESCRIPTION:**Ericaceae

Shrubs and trees with alternate or falsely whorled leaves, and perfectly regular flowers with five sepals; a five lobed monopetalous corolla; ten stamens, with anther cells opening at the apex; a five celled superior ovary, and dry capsular fruit. (Distinguished from the Vacciniaceae in the last two respects.)

Species about 1,000, in all all parts of the world, comprising plants of such different habit as *Rhododendron* and *Azalea*, developed chiefly on the mountains of western Asia, and *Erica* (Heather, Heath, Ling) a genus adapted by the small, often narrow and inrolled leaves to dry conditions and occurring exclusively in Europe and the Cape region of South Africa.

In Europe *Menzesia*, *Andromeda*, *Arbutus* (Strawberry tree) and *Arctostaphylos* (Bearberry), *Pyrola* (Wintergreen) and *Monotropa* (Birdsnest) belong to this or a very closely allied family. [cit 33a]

Rhododendron, Linn.

Trees or shrubs, sometimes very small; often scaly or aromatic. *Leaves* alternate, often clustered towards the ends of the branches, rarely subopposite or falsely whorled, entire, coriaceous. *Flowers* fascicled or subcorymbose, terminal, rarely solitary or axillary; bracts broad, generally caducous; bracteoles linear. *Calyx* 5-lobed, sometimes small or obsolete, rarely saucer-shaped, persistent. *Corolla* campanulate, widely funnel-shaped or cylindric, tube long or abort, lobes 5-10. *Stamens* 5-18, usually 10; anthers oblong, dehiscing by terminal pores. *Ovary* 5- 20-celled; style long or short, stigma capitate; ovules very many in each cell. *Capsule* short woody, or elongate thinner, 4- 20-valved from the apex, valves breaking away from the placentas. *Seeds* very many, ellipsoid, albuminous; testa close or loose, often shortly crested, or tailed at one or both ends.--Species 180, in the Mts. of Europe, Asia, Malaya and N. America. [cit 33b]

Rhododendron arboreum, Sm. Exot. Bot. t. 6; leaves lanceolate or oblong narrowed at both ends rugose-veined on both surfaces, silvery or with rusty tomentum beneath, corolla campanulate red pink or nearly white. *Hook. Exot. Fl. t. 108; Bot. Reg. t. 890, 1240, 1982; Wall. Cat. 755, and Pl. As. Rar. ii. 23, t. 123; DC. Prodr. vii. 720; Hook f. in Journ. Hort. Soc. Lond. vii. 78, 92; Bot. Mag. t. 5311; Bedd. Fl. Sylv. t. 228; Brand For. Fl. 281; Kutz For. Fl. ii. 93; in Journ. As. Soc. 1877, pt. ii. 216. R. puniceum, Roxb. Hort. Beng. 33, and Fl. Ind. ii. 409. R. cinnamomeum, Wall. Cat. 760; G. Don Gen. Syst. iii. 844. R. album, Sweet Brit. Fl. Gard. v. (1838) t. 148. R. campbelliae, Hook. f. Rhod. Sikkim Himal. t. 6. R. Windsorii. Nutt. in Hook. Kew Journ. v. 1853, 357 var. beta included (not var. y).--Borans, Hardwickle in Asiat. Research. vi. 359.*

Temperate Himalaya; alt. 5-10,000 ft., from Kashmir to Bhotan, very common. Khasia Mts.; alt. 4-6,000 ft., common. Birma; Karen Hills, Kurz.

A tree. 25 ft. *Leaves* 5 by 1.25 in., acute, rarely shortly so, base cuneate, tomentum beneath usually hard white, sometimes cinnamomeous or more wooly; petiole .25-.5 in. *Heads* many-flowered, dense; pedicels 0-.25 in., hairy; bracts densely hairy. *Calyx-lobes* sometimes .125 in., widely ovate, sometimes very obscure. *Corolla* 1-1.5 by .75-1 in., 5-lobed, usually red, sometimes pink nearly white as depicted by Wallich. *Stamens* 10; filaments glabrous or nearly so. *Ovary* mealy or ferruginous wooly, usually 7- 9-celled. *Capsule* 1 by .3 in., cylindric, curved, furfuraceous. *Seeds* ellipsoid, testa scarcely lax except produced at the end.--In *R. Campbellia* the leaves are 9 by 2.5 in., petiole .75 in. In *R. windsori*, in all the numerous examples collected by Booth, the calyx is, as Nuttall describes, minute; but, in the cultivated plant (*Bot. Mag. t. 5008*), they are ovate-lanceolate acuminate.

Var. nilagirica; leaves elliptic or oblong subobtusate, the base rhomboid or often rounded. *R. nilagirica*, *Zenk. Pl. Ind. t. 15. R. arboreum*, var. *Wight III. t. 140, and Ic. t. 1201. R. nobile*, *Wall. Cat. 1521, B.--Mts. of South India and Ceylon. alt. 5-8000 ft., very common.--The whole of the Deccan material at Kew is very homogenous, and unlike the Himalayan; Beddome's figure (Fl. Sylv. t. 228) from fresh Nilgherry specimens exhibits however nearly the Himalayan form.*

[cit 33c]



34. Kaitthor

(other significance / buffalo-related)

34



USAGE /

IMPORTANCE:

Approximately three weeks after any one of plants 34, 35, or 36 (which all belong to the same Genus) begin to bloom, there is a large increase in the amount of honey to be collected. These plants are also browsed heavily by buffalo.

BOTANICAL DESCRIPTION:

Acanthaceae N. Rani & K.M. Matthew

Herbs, undershrubs or shrubs, erect, prostrate or climbing; branchlets 4-gonous or terete, often nodose. *Leaves* decussate, simple, sometimes appearing whorled, blade always entire (pinnatifid in *Acanthus* and *Hygrophila* spp.), usually penninerved, generally with raphides, petiolate or sessile, estipulate. *Flowers* zygomorphic, *bisexual*, sessile or pedicellate, solitary or aggregated in cymes, spikes, racemes or panicles; bract(s) 1, 2 or more, sometimes sterile or 0; bracteoles present or 0, both usually persistent in fruit. *Calyx*-lobes 4 or 5, equal or unequal, times spinescent, rarely reduced (*Meyenia*, *Thunbergia*). *Corolla*-lobes 5, basally connate and decurrent into a cylindrical or ventricose tube; limb strongly 2-lipped or (sub)equally spreading, imbricate or twisted to left in bud. *Stamens* 2 or 4, with or without staminodes, exserted or included; anthers of stamen pairs usually unequal, cells parallel, divergent or superposed, appendaged or bearded, basifixed, introrse, sometimes 1 cell remote. *Ovary* superior, conic or oblong-cylindric, 2-locular; ovule(s) 1, 2, 4 or more in each cell, axile, in 1 or 2 vertical rows, rarely collateral; style generally as long as corolla, minutely 2-fid, capitellate or lamellate. *Disc* annular or cupular, 0 in *Acanthus*. *Capsule* loculicidal, ellipsoid, ovoid or oblong-cylindric, often compressed at right angles to the septum, beaked or not, splitting through the septum; seeds ovoid, or compressed and orbicular, rarely angular, supported by upcurved retinacula, reduced and papillate; testa smooth, echinate, tuberculate, papillose or appressed-hairy; albumen scanty; cotyledons flat. [cit 34]

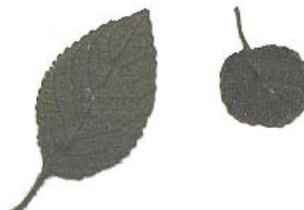


USAGE / IMPORTANCE: [see page 34]

BOTANICAL DESCRIPTION:

Strobilanthes Blume Bijdr. 781, 796. 1826.

Gregarious (*sub*)shrubs; tender parts (*sub*)quadrangular. *Leaves* elliptic-ovate to obovate, thick-chartaceous to coriaceous, penninerved, margin crenulate to serrate, petiolate. *Inflorescence* an axillary and/or terminal, lax or condensed spike, sometimes subtended by leafy bracts; bract 1, ovate, oblong, rarely crested; bracteoles 2, narrower; flowers (*sub*)sessile. *Calyx*-lobes 5, (un)equal, free or basally connate, valvate, herbaceous, acute to acuminate. *Corolla* tubular, usually ventricose above, straight or curved; lobes 5, subequal, twisted to left in bud, spreading or reflexed. *Stamens* 2, equal, or when 4, monadelphous, attached at the tube, included or exerted; anthers cells oblong, parallel, mucous. *Ovary* oblong-globular, 2- or 4-ovuled; style filiform. *Capsule* oblong, apically ciliate or not; seeds 2 or 4, glabrous or appressed-hairy; retinacula long, curved. [cit 35]



36. Kaitthor

(other significance / buffalo-related)

36



USAGE / IMPORTANCE: [see page 34]



Kaitthor [Toda name for the entire *Strobilanthes* genus] - *Strobilanthes* [species unknown] (see p. 35) - Acanthaceae (see p. 34)



USAGE / IMPORTANCE: A spiderwort eaten by buffalo.



USAGE / IMPORTANCE:

Leaves are crushed and used to clean buffalo wounds.

BOTANICAL DESCRIPTION:**Campanulaceae**

Herbs with alternate leaves. Flowers monopetalous with an inferior ovary typically of three cells and style with three stigmas, rather long persistent sepals, stamens attached at the base to the corolla, and very numerous small seeds with erect embryo in endosperm.

Species about 1,000, all over the world. [cit 38a]

Lobelia

Corolla two-lipped; upper lip split down the back; lower three-lobed spreading. Herbs tall or quite low, with alternate usually toothed leaves. Flowers solitary in the axils of leaves or of bracts, and then often in a dense terminal spike. Stamens five, anthers connate, the two upper (dorsal) tipped with bristles, the three lower naked. Ovary inferior, two-celled, surmounted by three long sepals: style single, with bifid stigma. Fruit a capsule opening in two valves between the calyx teeth.

Species 200, in temperate and sub-tropical regions. [cit 38b]

Lobelia excelsia Lesch.; F.B.I. iii 427, II 15; Giant Lobelia.

Tall coarse herbs, stem usually simple. Leaves oblanceolate obovate or elliptic, very large at base, smaller above, soft, finely toothed. Flowers in a dense purplish brown spike, 12 inches by 1.5 to 3 inches. Calyx tube campanulate, 1/6 inch, tomentose; sepals 5/8 inch, narrow acute. Corolla about twice as long, split down the back, so that it falls down exposing the stamens.

Filaments twice as long as the sepals: anthers 3/10 inch, oblong, glabrous. Fruit globular, enclosed in the calyx tube. t. 304. Wight Ic. t. 1172.

At high levels round sholas, etc. Nilgiris: Ootacamund. Pulneys: Kodaikanal and above.

Gen. Dist. Mountains of South India. The Giant Lobelias occur on tropical mountains in Asia and Africa.]

Lobelia nicotianaefolia Heyne; F.B.I. iii 427, II 14.

Very similar to the last [see *Lobelia excelsia* above], but the leaves thinner and less hairy, the spikes looser and the flowers larger and white, and anthers with a few long hairs on the backs.

Nilgiris and Pulneys at rather lower levels than the last, e.g., Shembaganur.

Var. tricantha--spike slender, branched, anthers with white hairs. In similar situations. [cit 38c]





USAGE / IMPORTANCE:

These ferns are plucked whole and placed on the ground inside calf houses to serve as beds for the young buffalo.



**USAGE / IMPORTANCE:**

When a female buffalo is in heat, she is too restless to stand for milking. In order to solve this problem (when no male buffalo are present), this plant is inserted into the buffalo's vagina. According to Vasamalli this is done "not only for milking, buffalo needs sexual life." Pothili, disagreeing, says it is for punishment. This fern is also used to tickle the buffalo's breast, but I could not uncover a reason why.



USAGE / IMPORTANCE:

Although not used by the Todas, this European introduction is used as firewood by town dwelling non-tribals because of its abundance on roadsides.

**BOTANICAL DESCRIPTION:**

Cestrum aurantiacum Lindl. in Edward's Bot. Reg. 30: 71. n. 65. 1844; Matthew in Rec. Bot. Surv. India 20(1): 166. 1969.

An erect evergreen shrub, sometimes cultivated as an ornamental. E. [cit 41]



USAGE / IMPORTANCE: No known use.



BOTANICAL DESCRIPTION:

Dahlia Cavanilles Icon. 1: 56. t. 80. 1791.

Dahlia imperialis Roezel ex. E. Ortgies, Gartenflora 12: 243. tt. 407 & 408. 1863; Matthew, Rec. Bot. Surv. India 20: 144. 1969 & Mat. Fl. Tamilnadu Carnatic 241. 1981.

Servarayans (Yercad). Planted or an escape.

Shrubby to 4m. Flowers rose, pink or purple, October-November.

Distribution: Indigenous to Mexico; naturalized on hill stations in India (Matthew, 1969, l.c.).

[cit 42]

**USAGE / IMPORTANCE:**

No known use.

**BOTANICAL****DESCRIPTION:*****Solanum mauritianum***

Scop. Delic. Fl. Faun. Insubr. 3:116. 1788. *S. auriculatum* Ait. Hort. Kew. ed. 1. 1: 246. 1789; Fyson, Fl. South Indian Hill St. 2: t. 356. 1932.

Densely stellate-tomentose shrub.

Distrib.: Nilgiri. [cit 43]

Collection Information

Pictures of plants and specimens for this report were taken at Karsh mund (aka Kandal mund) and Arsh mund (aka Annakal mund) between 16 November and 2 December, 1998.



Pic xi: Karsh mund



Pic xii: View from Arsh mund

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- 38c. Hooker, I 359-60
41. Henry and Kumari, 112
42. Matthew, I 781
43. Henry and Kumari, 116

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Organizational Resources Used:

Nilgiri Library, Ooty

Tribal Research Center, M. Palada

Survey of Medicinal Plants and Collection Unit, Ooty