FLORA OF TAROBA NATIONAL PARK

S.K. MALHOTRA & S. MOORTHY

BOTANICAL SURVEY OF INDIA
FLORA OF TAROBA NATIONAL PARK
A FLORISTIC ACCOUNT OF
TAROBA NATIONAL PARK AND ITS ENVIRONS,
CHANDRAPUR DISTRICT, MAHARASHTRA STATE

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&
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Cover Photos: Top: Careya arborea in full bloom.
Bottom: A flowering twig of Calycopteris floribunda.

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FOREWORD

The Botanical Survey of India has been entrusted with the major task of undertaking detailed floristic surveys and inventorisation of the rich plant-wealth of our country. During the course of the years since its reorganisation in 1954, the Survey has done commendable work in the fields of floristics, plant taxonomy, ecology, endemism and conservation of rare and threatened plants of the vegetation of India. The results are being published under the categories: Flora of India (Series 1), State Floras (Series 2), District Floras (Series 3) and Special Publications, Monographs pertaining to ecology, conservation, etc. (Series 4).

With the setting up of several biologically rich areas as National Parks, Biosphere Reserves, and Wildlife Sanctuaries of utmost Conservation concern by the Government of India, the Botanical Survey thought it prudent to diversify its research into the realms of conservation and bring out special publications on such areas documenting the floral wealth which forms the basic requirement for scientific management and conservation.

The present publication on the Flora of Taroba National Park is one such endeavour by the scientists of the Survey, based on detailed field work in the area. This provides details on the location, approach, historical and environmental aspects of the area followed by a graphic account on the vegetation. The flora enumerates 667 species under 393 genera belonging to 110 families of flowering plants and ferns, easily identifiable by means of taxonomic keys to the families, genera and species. For each species, up-to-date nomenclature, short description with flowering and fruiting periods and habitat notes are provided. At the end an index to scientific names is given for easy reference.

It is hoped that this synoptic flora of the Park area would be useful for biologists, teachers, students of botany, nature lovers and Park management authorities in getting to know of the plants of the area and in undertaking researches on plant-animal co-existence and better management of the Park.

I congratulate the authors for completing the assigned work and the Publication Section for processing its publication.

Botanical Survey of India
Calcutta
November, 9, 1992.
PLATE 1: Photograph of Taroba National Park forest area with thick forest cover of vegetation representing tall trees like *Tectona grandis*, *Terminalia* spp.; *Lagerstroemia* spp. etc. In the foreground *Costus speciosus* is present.
PLATE 2: Thick ground vegetation dominated by *Costus speciosus*, along with other herbs, climbers, grasses and sedges like *Triumfetta rhomboidea*, *Sida* spp., *Ampelocissus latifolia*, *Paspalidium flavidum*, *Scleria* spp. etc.
PLATE 3: General vegetation of dense forest with common tall trees like Anogeissus latifolia, Terminalia crenulata, T. chebula, Tectona grandis, Dalbergia latifolia, etc. In the foreground are Costus speciosus, Triumfetta rhomboidea, Paspalidium flavidum, etc.
INTRODUCTION

Taroba National Park situated at a distance of about 45 km from Chandrapur City is the most attractive spot in the heart of the reserve forests of West Chandrapur forest division. There is a motorable road, leading from Chandrapur City to the Taroba National Park. After covering about 12 km from Chandrapur, the road plunges into the forests making a zig-zag path. The protected boundary of the National Park begins after 10 km from Khatoda village. From Khatoda the forests of Taroba begin and at some places they are very dense. After crossing the ‘Kumbhi nala’ the road climbs up a hillock unfolding a beautiful view of a big lake with forested hills providing an excellent background. The lake is called the ‘Taroba lake’ and a few forest rest houses have been recently constructed by the forest department on the hillocks nearby, formed by a bunding up a stream and joining three hillocks which surround it. There is also a shrine of Taroba where on every Sunday of the Pausa (December-January) month a festival is held and many Adivasis visit the temple. There is also a shrine of Maruti. People still believe in the sanctity of the lake water and take it to sprinkle their crops with the belief that it would keep the crop pests away.

In 1905 the area surrounding the Taroba lake was restricted for entry and later in 1935 it was made a sanctuary. In 1955, it was declared a National Park and 116.5 sq. km belt with an additional buffer zone of 57 sq. km was created around the park where shooting is also prohibited. Visitors are not allowed to carry fire-arms inside and a mobile squad is posted to check any pilferage. Due to the various protective measures adopted by the forest department, the wildlife of both the animals and plants has increased much. Herds of cheetal, bison etc. are a common sight in the early mornings and evenings around the lake.

The lake itself contains a few crocodiles and a variety of fishes. In order to enlighten the tourists about the animals and plants of the area a network of 88 km of fair weather roads have been constructed recently in the park leading to different points, of these the most important is the circular road around the lake at whose vantage points ‘machans’ or towers have been erected from where tourists can observe the animals approaching the lake, drinking water and relaxing.
Materials and methods

The area was frequently visited to record in detail seasonal variations to collect plants in their different developmental stages. Special attention was paid to collect the ephemerals which complete the life cycle in a few days and vanish.

The specimens were identified with the help of available literature, proper dissections of the materials and finally comparing with the authentic herbarium sheets.

Geology

The greater part of the area surveyed is undulating. Geologically the area has varied rocks ranging from granite, quartz and quartzite on the upper and steeper slopes of the hills. The rocks are generally exposed resulting in denuded and shallow soils.

Climate

Weatherwise it is quite pleasant for the greater part of the year with only a short span of hot weather from April to May. The southwest monsoon is active from June to September. October and November constitute the post-monsoon season.

The air is generally dry except during monsoon when the humidity exceeds 70%, the summer months are the driest when the relative humidity in the afternoon is 20° to 25°.

Past work

Haines (1916) has mentioned a few plants from Taroba. There is no other published work except those of Malhotra and Moorthy (1972, 1973, 1974, 1977). In the present work, the authors have attempted to consolidate the vegetation of the area briefly in a floristic form in order to be of help to the National Park lovers, forest officers, research workers and general public.

Vegetation

The vegetation of the area is of mixed deciduous type. In the forests of Taroba lake vicinity at Pandarpani, Khantundi, Ramdegi, Kantejhari, Khatoda etc., the prominent tree species occurring frequently are Albizia lebbeck, Anogeissus latifolia, Bauhinia racemosa, Dalbergia latifolia, Diospyros melanoxylon, Haldina cordifolia, Mitragyna parvifolia, Sterculia urens, Tectona grandis, Terminalia bellirica, T. chebula, T. crenulata. The other small trees and shrubs are often represented by Acacia chundra, Bridelia retusa, Cleistanthus collinus, Semecarpus
anacardium, Xeromphis spinosa, etc. The lianas and slender climbers like Cissampelos pareira var. hirsuta, Cryptolepis buchananii, Mucuna pruriens, Pergularia daemia etc. are often noticed. Several trees are infested by stem parasites like Dendrophthoe falcata, Viscum nepalense etc., while on a few others orchids like Vanda tessellata occur as epiphytes.

The undergrowth is generally rich after the monsoon. In the deep interiors of the forests, herbs, grasses and a few under-shrubs like Abutilon indicum, Alternanthera sessilis, Andrographis paniculata, Barleria cristata, Biophyllum sensitivum, Canescor a diffusa, Cassia abscus, Chrysopogon fulvus, Coldenia procumbens, Corchorus aescuans, Costus speciosus, Cyperus cyprioides, C. iria, Dactyloltenium aegyptium, Desmodium triforum, Ecliptia prostrata, Goniotheca hitia, Hecropogon comitorius, Hibiscus lobatus, Launaea fallax, Paspalidium flavidum, Peristrophe paniculata, Phyllanthus maderaspatensis, Pupalia lappacea, Seleria spp., Siida spp., Triumfetta rhomboidea etc. are frequently met with.

On the hillocks a distinctive vegetation can be noticed along the base, slopes and the top. Amongst the plants at the base of hillocks are trees like Aegle marmelos, Melia azadirach, Tamorindus indica and shrubs like Adhatoda zeylanica, Calotropis procera, Dodonaea viscosa etc. Amongst the herbs like Cassia tora, Peristylus plantagineus, Sida acuta, Sphaeranthus indicus, Triumfetta rhomboidea are common.

The slopes of the hillocks harbour trees like Anogeissus latifolia, Buchanania lanzan, Mitragyna parvifolia; shrubs like Balanites aegyptiaca, Cleistanthus collinus, Ehretia laevis, Gardenia resinifera, Holarrhena antidysenterica, Woodfordia fruticosa, and herbs like Curculigo orchioides, Desmodium velutinum, Indigofera astragalina, Smithia conferta etc. The plants on the top of the hillocks are represented by trees like Bridelia retusa, Lannea coromandelica, Soymida febrifuga etc., shrubs like Clerodendrum multiflorum, Grewia hirsuta, G. rothii, Lagerstroemia indica etc., and herbs like Acrocephalus hispidus, Anisomeles heynana, Cassia pumila, Dipterocanthus prostratus, Trichodesma sedgwickianum, Turnera ulmifolia, Waltheria indica etc. Besides, Bamboos are also of not an uncommon occurrence in the area.

There are also ponds and ditches, at places stagnant waters where there is a distinct aquatic vegetation. The plant species frequently noticed are Blyxa octandra, Ludwigia hyssopifolia, Nympheae nouchali, Ottelia alismoides, Pistia stratoites etc. Roadside and avenue trees include Albizia lebbeck, Mangifera indica, Tamarindus indica, Tectona grandis etc.

At certain seasons when the green herbage is low, various domestic or wild animals such as buffaloes, goats, deers, bison, blue bulls etc.
brouse and graze down any green tree seedlings that may be available. In the shrub stratum grazing is concentrated on the palatable species which may be destroyed unless they are sufficiently thorny as in the case of Zizyphus and Acacia spp.

Most of the tree species in the area are used for shelter purposes. Bisons generally prefer a tree with a thick canopy of branches over it while a deer can avail even the tall gasses as its source of shelter. Some of the plants used as shelter by animals are Aegle marmelos, Albizia odoratissima, Bauhinia racemosa, Bridelia retusa, Cleistanthus collinus, Dalbergia latifolia, Diospyros melanoxylon, Mangifera indica, Sterculia urens, Tamarindus indica etc.

UTILITY OF THE MAJOR COMPONENTS

There are many plants which are used as forest products and also timber and are used by the residents of the area as follows:

(a) Timbers used for carpentry and cabinet work:

Some of the trees and shrubs which are used for carpentry and cabinet works are Albizia lebbeck, Anogeissus latifolia, Boswellia serrata, Gardenia latifolia, Lagerstroemia parviflora, Mangifera indica, Mitragyna parvifolia, Pterocarpus marsupium, Tectona grandis, Terminalia bellirica etc.

(b) Plants used in the manufacture of Bidis, Match boxes and in paper industry:

The leaves of Diospyros melanoxylon are extensively used for wrapping the Bidis. The collection of 'tendu' leaves as it is commercially known, is quite common and is a big trade in the area. The plants such as Bombax ceiba, Buchanania lanzan etc. are used in the manufacture of match boxes. Dendrocalamus strictus is extensively used in the manufacture of paper. The collection and sale of this bamboo also is a big trade in the area.

(c) Plants used for agricultural implements:

Trees such as Anogeissus latifolia, Bridelia retusa, Emblica officinalis, Lagerstroemia parviflora, Mitragyna parvifolia, Pterocarpus marsupium etc., are used for agricultural implements.

(d) Plants used for tanning:

Terminalia chebula is the main source for tanning purposes. However, the bark of the tree species such as Acacia chundra, Anogeissus latifolia, Boswellia serrata, Bridelia retusa, Cassia fistula, Cleistanthus collinus and Emblica officinalis is also used for such purposes.
(e) Gum and resin yielding plants:

Anogeissus latifolia, Bauhinia racemosa, Butea monosperma, Gardenia gummifera, Sterculia urens are some of the gum yielding plants. Resin is obtained from the trees of Boswellia serrata and Mitragyna parvifolia.

(f) Plants used for medicinal purposes:

Many plants in the area are used for medicinal purposes in one way or the other. Such important species are: Aegle marmelos, Cassia fistula, Emblica officinalis, Helicteres isora, Holarrhena antidysenterica, Mitragyna parvifolia, Tamarindus indica, Terminalia bellirica and Vitex negundo.

ANTHROPOGENIC EFFECT ON THE VEGETATION

Fire and grazing have played an extremely influential part in determining the forest type occupying the land. These practices invariably have the effect of rendering the site less favourable to tree growth through a reduction of moisture levels in air and soil and often through erosion of the top soil. Grazing has an indirect effect on the standing trees in that associated with it are the practices of lopping for fodder and burning both to reduce the density of the canopy cover and to induce grass growth. The vital direct effect is in the inhibition of regeneration.

The tree felling has become more significant as the human population pressures have increased and the demand for fuel and timber augmented correspondingly. Due to the road building and mining activities the vegetation is not just damaged in the direct vicinity but much additional damage is done in the hilly areas because of the necessary incision and soil accumulation.

In short, excessive felling of forests has a serious effect on the development of soil and regeneration in the area.

PRESENT WORK

Floristic analysis:

The following enumeration includes both Angiosperms and Pteridophytes comprising 667 species, 393 genera and 110 families. Keys to the families/genera/species are given. The correct binomial is followed by local names if any. Brief notes have been provided. Phenological data covering only the flowering, fruiting period has also been mostly followed by frequency of their occurrence within the area and the habitat. The specimens are deposited in the herbarium of the Botanical Survey of India, Pune (BSI). The ten dominant families in the area in the order of their highest representation of species are Fabaceae, Poaceae, Cyperaceae, Euphorbiaceae, Asteraceae, Acanthaceae, Rubiaceae, Scrophulari-
aceae, Lamiaceae and Amaranthaceae. The genera and species representation of the same is as follows:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the family</th>
<th>Genera</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fabaceae</td>
<td>32</td>
<td>77</td>
</tr>
<tr>
<td>2.</td>
<td>Poaceae</td>
<td>45</td>
<td>76</td>
</tr>
<tr>
<td>3.</td>
<td>Cyperaceae</td>
<td>11</td>
<td>37</td>
</tr>
<tr>
<td>4.</td>
<td>Euphorbiaceae</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>5.</td>
<td>Asteraceae</td>
<td>22</td>
<td>26</td>
</tr>
<tr>
<td>6.</td>
<td>Acanthaceae</td>
<td>16</td>
<td>26</td>
</tr>
<tr>
<td>7.</td>
<td>Rubiaceae</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>8.</td>
<td>Scrophulariaceae</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>9.</td>
<td>Lamiaceae</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>10.</td>
<td>Amaranthaceae</td>
<td>9</td>
<td>12</td>
</tr>
</tbody>
</table>

Fabaceae is represented by 77 species and is thereby the dominant family in the area and Amaranthaceae with only 12 species is less represented. The genera within the family and the species within the genus are arranged alphabetically.

ACKNOWLEDGEMENTS

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KEY TO ANGIOSPERMIC PLANT FAMILIES

1. Plants 2-cotyledonous, rarely one by reduction; vascular bundles usually arranged in a single ring; cambium present; leaves usually reticulately veined:

2. Perianth distinguishable into sepals and petals:

3. Petals free:

4. Sepals usually free:

5. Torus small or elongated but not expanded:

6. Flowers trimerous

6. Flowers not trimerous, usually 4-5-merous:

7. Stamens few, usually not more than 10:

8. Twining or sarmentose, rarely trailing herbs or shrubs; carpels free

8. Herbs, shrubs or trees; carpels united:

9. Flowers actinomorphic:

10. Placentation free-central

10. Placentation parietal:

11. Petals cruciform; stamens 6, tetradynamous; disc in the form of 4 glands opposite sepals

11. Petals not cruciform; stamens often indefinite and if 6, not tetradynamous; disc never in the form of glands

9. Flowers zygomorphic:

12. Inner 2 sepals enlarged, petaloid, stamens 8, filaments united at the lower half; placentation axile

ANNONACEAE

MENISPERMACEAE

CARYOPHYLLACEAE

BRASSICACEAE

CAPPARACEAE

POLYGALACEAE
12. Sepals 5, none specially enlarged but all are well developed; stamens 5, free or in two bundles; placentation parietal

7. Stamens numerous, often more than 15:

13. Carpels 2 or more syncarpous:

14. Placentation parietal:

15. Plants without sap; petals absent

15. Plants with yellow sap; petals bright yellow with maroon centre

14. Placentation not parietal:

16. Placentation free-central or basal-central

16. Placentation usually axile, sometimes basal:

17. Stamens distinct

17. Stamens monadelphous:

18. Anthers 1-celled

18. Anthers 2-celled

13. Carpels usually many (but sometimes reduced to one), apocarpous:

19. Terrestrial (plants) trees; leaves distinctly longer than broad

19. Aquatic plants; leaves more or less orbicular:

20. Leaves floating; ovules parietal; endosperm and perisperm present and sometimes arillate

20. Leaves above water; ovule pendulous; no endosperm or perisperm

5. Torus expanded or thickened into a fleshy disc:

21. Flowers zygomorphic
21. Flowers actinomorphic:

22. Styles 5, free or if solitary, with 5 linear stigmatose branches:

23. Plants usually woody, twining or sermentose; fruits winged

23. Plants neither twining nor sermentose; fruits not winged

MALPIGHIACEAE

OXALIDACEAE

22. Styles more or less connate or solitary:

24. Plants usually climbing or twining

VITACEAE

24. Plants not climbing, if climbing, armed or unarmed erect herbs, shrubs or trees:

25. Leaves gland-dotted, aromatic

RUTACEAE

25. Leaves not as above:

26. Stamens monadelphous

MELIACEAE

26. Stamens free:

27. Plants usually with acrid resinous juice; stamens bearing resinous passages

ANACARDIACEAE

27. Plants not as above:

28. Inflorescence leaf-opposed

LEGACEAE

28. Inflorescence not leaf-opposed:

29. Leaves simple:

30. Flowers in axillary fascicles; ovule one in each locule:

31. Stamens 3

31. Stamens 4-5

HIPPOCRATEACEAE

RHAMNACEAE

30. Flowers cymose; ovules 2 or more in each locule:

32. Calyx accrescent; stamens 3

32. Calyx not accrescent; stamens 4-5

OLACACEAE

CELASTRACEAE
29. Leaves compound:

33. Herbs or under-shrubs; ovules 2 in each locule \[**Zyophyllaceae**\]

33. Trees; ovules solitary in each locule \[**Simaroubaceae**\]

4. Calyx of united sepals:

34. Leaves usually simple:

35. Plants tendril bearing climbers \[**Cucurbitaceae**\]

35. Plants not bearing tendrils:

36. Plants aquatic:

37. Styles solitary; fruits indehiscent spinous \[**Trapaceae**\]

37. Styles 2 or 4; fruits 4-furrowed or separating into 4 cocci, not spinous \[**Haloragaceae**\]

36. Plants terrestrial:

38. Stamens usually definite, often not more than 12:

39. Ovary either inferior or at the most half-superior:

40. Calyx lobes imbricate \[**Melastomataceae**\]

40. Calyx lobes valvate at least in buds:

41. Fruit a capsule, not winged \[**Onagraceae**\]

41. Fruit usually an indehiscent coriaceous or drupaceous and frequently winged \[**Combretaceae**\]

39. Ovary superior:

42. Soft wooded trees with latex; leaves palmately fid to partite with long, hollow petioles \[**Caricaceae**\]
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42. Herbs or shrubs and if trees, not with latex; leaves and petioles not as above:

43. Placentation parietal:

44. Herbs, flowers white or pink, never yellow, plants insectivorous

DROSERAEC

44. Shrubs; flowers usually yellow; plants not insectivorous

TURNERACEAE

43. Placentation axile or basal:

45. Petals usually present, though minute, (rarely absent); seeds not reniform, smooth

LYTHRACEAE

45. Petals absent; seeds reniform, variously striate, rugulose or muricate

MOLLUGINACEAE

38. Stamens usually indefinite:

46. Leaves opposite, glandular-punctate with intra-marginal nerves

MYRTEAE

46. Leaves alternate, neither glandular-punctate nor with intra-marginal nerves:

47. Ovary 1-celled

ALANGIACEAE

47. Ovary more than 1-celled:

48. Locules of the ovary suppressed; flowers red or orange; fruit a berry with hard woody rind

PUNICEAE

48. Ovary 4-loculed; flowers white; fruit a fibrous drupe

LECYTHIDACEAE

34. Leaves mostly compound, rarely simple:

49. Flowers actinomorphic

MIMOSACEAE

49. Flowers zygomorphic:

50. Flowers with typical papilionaceous corolla

FABACEAE
50. Flowers not with papilionaceous corolla  Caesalpinaceae

3. Petals usually united :

51. Flowers epi or perigynous :

52. Inflorescence an involucrate head; calyx absent or variously modified pappus; ovary 1-celled  Asteraceae

52. Inflorescence not as above; calyx present; ovary 2 or more celled :

53. Leaves opposite; stipules inter or intra-petiolar  Rubiaceae

53. Leaves alternate; exstipulate :

54. Corolla equal or subequal; anthers free  Campanulaceae

54. Corolla distinctly 2-lipped; anthers connivent into a ring  Lobeliaceae

51. Flowers hypogynous :

55. Parasitic or insectivorous plants :

56. Parasitic plants  Cuscutaceae

56. Insectivorous plants  Lentibulariaceae

55. Neither parasitic nor insectivorous plants :

57. Carpels 2, if more than 2, then plants aquatic :

58. Plants with milky latex or greenish-yellow sap :

59. Anthers sagittate, pollen not formed into pollinia  Apocynaceae

59. Anthers not as above; pollen formed into pollinia :

60. Filaments free; anthers without horny wings  Periplocaeae

60. Filaments united; anthers with horny wings  Asclepiadaceae

58. Plants without any latex or greenish-yellow sap :

61. Flowers actinomorphic :
62. Floating herbs with flowers terminating on apparent petioles

**Menyanthaceae**

62. Plants not as above:

63. Inflorescences one sided cymes (secund):

64. Ovules indefinite in each locule; fruit a capsule

**Hydrophyllaceae**

64. Ovules definite in each locule; fruit a drupe or of four nutlets:

65. Ovary deeply 4-lobed; style gynobasic (except in *Trichodesma* L.)

**Boraginaceae**

65. Ovary entire or slightly 4-lobed; style terminal:

66. Style solitary

**Heliotropiaceae**

66. Styles 2-4:

67. Styles 2

**Ethretiaceae**

67. Styles 4

**Cordiaceae**

63. Inflorescences not as above:

68. All or atleast lower leaves opposite:

69. Stamens 2

**Oleaceae**

69. Stamens 4-5:

70. Ovary 1-celled; placentation parietal or free-central

**Gentianaceae**

70. Ovary 2-celled; placentation axile:

71. Stipules absent

**Scrophulariaceae**

71. Stipules present or represented by a raised line joining the bases or petioles

**Loganiaceae**
68. Leaves usually alternate:

72. Plants erect or diffuse but not twining; ovary 2-celled, ovules many in each locule

72. Plants chiefly twining, at times trailing, diffuse or erect; ovary 2-celled; ovules 2 in each locule or 4-celled with one ovule in each locule

Solanaceae

Convolvulaceae

61. Flowers zygomorphic:

73. Fruits opening elastically from the apex of 2 loculicidal valves; seeds usually supported or on upcurved process from the placentas

Acanthaceae

73. Fruits not opening elastically, rarely indehiscent.

74. Leaves usually compound, if simple, seeds winged; fruits much elongated

Bignoniaceae

74. Leaves usually simple; seeds not winged; fruits not as above:

75. Flowers with extra floral glands at the base of the pedicels:

76. Placentation axile; fruit a capsule or indehiscent and spinous

Pedaliaceae

Martyriaceae

76. Placentation parietal; fruits with hooked prongs

75. Flowers without extra floral glands at the base of the pedicels:

77. Plants often aromatic; inflorescence a verticillaster; style gynobasic

Lamiaceae

77. Plants usually non-aromatic; inflorescence not as above; style terminal

Verbenaceae
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57. Carpels more than 2 :  

78. Flowers usually unisexual; stamens inserted on the receptacle (not epipetalous)  

78. Flowers bisexual; stamens epipetalous:  

79. Calyx often with stipitate glands; styles 5 or if one, then with 5 terminal stigmatose branches  

79. Calyx without stipitate glands; style 1  

2. Perianth not distinguishable into sepals and petals:  

80. Flowers epigynous:  

81. Parasitic plants; flowers actinomorphic; fruits drupes or berries  

81. Non-parasitic plants; flowers zygomorphic; fruits capsules  

80. Flowers hypogynous:  

82. Flowers unisexual or polygamous:  

83. Ovary 3-celled  

83. Ovary 1-celled:  

84. Filaments not inflexed  

84. Filaments inflexed (in bud):  

85. Style undivided  

85. Style branches 2  

82. Flowers usually bisexual:  

86. Parasitic or non-parasitic plants; anthers with valvular dehiscence:  

87. Parasitic twining herbs; often leafless or with minute scales  

87. Non-parasitic trees or shrubs; leaves well developed  

86. Non-parasitic plants; dehiscence of anthers not so:  

88. Leaves stipulate, stipules ochraceate  

88. Leaves exstipulate:  

89. Perianth petaloid  

89. Perianth not petaloid; if petaloid, bracts and bracteoles scarious
1. Plants 1-cotyledonous: vascular bundles scattered, not in a ring; cambium absent; leaves mostly parallel veined:

90. Perianth absent; flowers subtended, dry, chaffy, usually inflorescence various of spikelets, imbricating glumes (bracts):

91. Stems mostly hollow, cylindrical or flattened; leaves ligulate, leaf sheaths split; fruit a caryopsis

91. Stems obtusely to distinctly trigonous, usually solid; leaves not ligulate, sheaths not split; fruit a compressed or trigonous nut

90. Perianth present; inflorescence not of spikelets; flowers not subtended as above:

92. Perianth represented only by scales or bristles:

93. Flowers and fruits (inflorescence) densely pappose and drying

93. Flowers and fruits (inflorescence) glabrous and fleshy

92. Perianth present but not as above:

94. Perianth uniseriate

94. Perianth biseriate:

95. Only outer perianth corolline:

96. Ovary inferior

96. Ovary superior

95. Both series of perianth corolline:

97. Flowers epigynous:

98. Flowers usually actinomorphic; stamens 3 or more, petaloid, staminodes absent:

99. Twining or climbing plants; leaves simple or compound but reticulately veined; flowers unisexual; capsules winged or not but seeds winged

99. Plants not as above; leaves parallel veined; if reticulate, leaves much lobed; flowers bisexual; fruits and seeds not winged:

100. Leaves reticulately veined, variously lobed; placentation parietal

TACCACEAE
100. Leaves parallel veined, entire; placentation axile

HYPOXIDACEAE

98. Flowers strongly zygomorphic; fertile stamens 1-2, at times only 1/2 stamens (anther lobe) fertile, the other being transformed into petaloid staminodes:

101. Stems spirally twisted

COSTACEAE

101. Stems not so:

102. Corolla spurred; pollen often agglutinated into pollinia; gynostegium typical; ovary spirally twisted

ORCHIDACEAE

102. Corolla not spurred; pollinia and gynostegium absent; ovary not as above:

103. Sepals free; only 1/2 stamen (anther lobe) fertile

CANNACEAE

103. Sepals connate; 1 stamen fertile

ZINGIBERACEAE

97. Flowers hypogynous:

104. Leaves reduced to cladodes

ASPARAGACEAE

104. Leaves well developed:

105. Plants climbing or twining

LILIACEAE

105. Plants not as above;

106. Plants radical; flowers in terminal, compact, solitary heads

ERIOCAULACEAE

106. Leaves and flowers not as above

COMMELINACEAE
1. Sporangia in sporocarps born at the bases of leaves  
   
   **Marsileaceae**

1. Sporangia not in sporocarps:

2. Sporangia are sunk in leaf-bases; outer leaves have 
   megasporangia and the inner microsporangia  
   
   **Isoetaceae**

2. Sporangia are not sunk in leaf-bases and they are 
   otherwise:

3. Sporangia initiating from a group of cells; 
   sporangial walls more than 1-cell thick; annulus 
   absent, dehiscing by a slit into 2 valves  
   
   **Ophioglossaceae**

3. Sporangia initiating from a single cell; sporangial 
   walls 1-cell thick; annulate; dehiscence irregular  
   
   **Adiantaceae**
DILLENIACEAE

Dillenia L.

Dillenia pentagyna Roxb. Kankera.

Trees. Flowers yellow. Fruits pendulous.

Fl. & Fr.: March May. Infrequent in dense forests.

ANNONACEAE

Annona L.


Fl. & Fr.: June December. Infrequent as an escape in open forests. Also planted.

MENISPERMACEAE

1. Inflorescence supported by foliar bracts; carpels solitary
   Cissampelos

1. Inflorescence not supported by foliar bracts; carpels 3 or more:
   2. Leaves glabrous; seeds oblong or globose
      Tinospora
   2. Leaves densely pubescent; seeds horse-shoe shaped
      Cocculus

Cissampelos L.

Cissampelos pareira L. var. hirsuta (Buch.-Ham. ex DC.) Forman Pahadmul. False Pareira Brava.

Climbing shrubs. Flowers pale white. Drupes scarlet.

Fl. & Fr.: Greater part of the year. Frequent in open forests.

Cocculus A.P.D.C. nom. cons.

Cocculus hirsutus (L.) Diels, Vasanvel.

Climbing undershrubs. Flowers dirty white. Fruits black.

Fl. & Fr.: Greater part of the year. Frequent in open forests.
Tinospora Miers

_Tinospora cordifolia_ (Willd.) Miers ex Hook. f. & Thoms. *Gulancha tinospora.*

Climbing shrubs. Flowers yellow. Drupes red.

*Fl. & Fr.*: August November. Infrequent in open forests.

NYMPHAEACEAE

_Nymphaea L._

1. Leaves sharply toothed; anthers without appendages _N. nouchali_
2. Leaves entire or wavy; anthers with long appendages _N. stellata_


Aquatic herbs. Flowers blue or violet. Berries globose.

*Fl. & Fr.*: Greater part of the year. Frequent in ponds.

_N. stellata_ Willd. *Lahan kamal.* Indian blue water lily.

Floating aquatic herbs. Flowers light blue, purple or violet. Fruits globular.

*Fl. & Fr.*: August November. Frequent in ponds.

NELUMBONACEAE

_Nelumbo_ Adans.


Aquatic herbs. Flowers pink. Fruits ovoid.

*Fl. & Fr.*: August November. Frequent in ponds and pools.

PAPAVERACEAE

_Argemone L._

_Argemone mexicana_ L. Prickly Poppy.


*Fl. & Fr.*: Greater part of the year. Frequent weed in wastelands.
FLORA OF TAROBA NATIONAL PARK

BRASSICACEAE
(nom. alter. CRUCIFERAE)

1. Pods dehiscent
   1. Pods indehiscent

Brassica L.

Annuals. Flowers yellow. Pods subulate, torulose.
Fl. & Fr.: September February. Infrequent as an escape.

Raphanus L.

Raphanus sativus L. Moola. Radish.
Fl. & Fr.: September December. Infrequent as an escape.

CAPPARACEAE

1. Shrubs or trees
   1. Herbs

Cleome L.

1. Flowers white; andro and gynophores present
   1. Flowers yellow; andro and gynophores absent

Cleome gynandra L.
Fl. & Fr.: Greater part of the year. Frequent weed in cultivated fields and wastelands.

C. viscosa L.
Annual herbs. Flowers yellow. Capsules rigid.
Fl. & Fr.: Greater part of the year. Frequent weed in cultivated fields.
Crataeva L.

Crataeva nurvala Buch.-Ham.
Trees. Flowers yellow or white. Berries papillate.

Fl. & Fr.: March - June. Infrequent in open forests. Also planted.

Violaceae

Hybanthus Jacq. nom. cons.

Hybanthus enneaspermus (L.) F.v. Muell. Rathanparas.
Herbs. Flowers red. Capsules yellow.

Fl. & Fr.: Greater part of the year. Frequent as forest undergrowth.

Flacourtia L. Herit.

Flacourtia indica (Burm. f.) Merr. Kutian.

Fl. & Fr.: March - June. Infrequent in open forests.

Polygalaceae

Polygala L.

1. Racemes 0.5-1.5 cm long; capsules densely ciliate

P. arvensis

1. Racemes 5-15 cm long; capsules ciliate

P. elongata

Polygala arvensis Willd. auct. non. L. Bijnori.
Herbs. Flowers yellow. Capsules didymous.

Fl. & Fr.: May - November. Frequent in moist habitats.

P. elongata Klein ex Willd.
Herbs. Flowers yellow. Capsules oblique.

Fl. & Fr.: July - November. Frequent in moist habitats.
CARYOPHYLLACEAE

Polycarpacea Lam.

Polycarpacea corymbosa (L.) Lam. Bhiska.

Herbs. Flowers white. Capsules 3-nerved.

Fl. & Fr. : August December. Frequent in open forests.

PORTULACACEAE

Portulaca L.


Herbs. Flowers yellow. Capsules ovoid.

Fl. & Fr. Greater part of the year. Frequent weed in cultivated fields and moist situations.

MALVACEAE

1. Fruits dehiscent capsules:
   2. Calyx spathaceous, deciduous
   2. Calyx not spathaceous :
      3. Style branches 5
      3. Style not branched

1. Fruits indehiscent or schizocarps of 5 or more cocci separating from the central axis :
   4. Epicalyx present :
      5. Epicalyx foliaceous; flowers in capitate inflorescence
      5. Epicalyx not foliaceous; flowers not in capitate inflorescence :
         6. Epicalyx 5; fruits glochidiate
         6. Epicalyx more than 5; fruits not glochidiate
   4. Epicalyx absent :
      7. Carpels 1-seeded
      7. Carpels 2 or more seeded
ABELMOSCHUS Medic.

1. Stems hispid; epicalyx segments 6-16  
   \( A. \text{moschatus} \)
1. Stems not hispid; epicalyx segments 4-8:
   2. Epicalyx segments small, linear-lanceolate, deciduous  
      \( A. \text{ficusneus} \)
   2. Epicalyx segments large, ovate, persistent  
      \( A. \text{manihot} \)

**Abelmoschus ficulneus** (L.) Wight & Arn. ex Wight


*Fl. & Fr.*: September December. Frequent weed in cultivated fields.

**A. manihot** (L.) Medic.

Herbs or undershrubs. Flowers yellow or purple. Capsules hispid, 5-angled.

*Fl. & Fr.*: September - December. Frequent in wastelands.

**A. moschatus** (L.) Medic. *Kapuskanda*.

Herbs. Flowers yellow. Capsules globose, hispid.

*Fl. & Fr.*: September - November. Infrequent in open forests.

ABUTILON Mill.

1. Ripe carpels obtuse, awned or mucronate  
   \( A. \text{pannosum} \)
1. Ripe carpels awned or mucronate  
   \( A. \text{indicum} \)


Undershrubs. Flowers yellow. Fruits (carpels) awned.

*Fl. & Fr.*: Greater part of the year. Infrequent in open forests.

**A. pannosum** (Forst. f.) Schlect.


*Fl. & Fr.*: August - December. Frequent in open forests.
FLORA OF TAROBA NATIONAL PARK

HIBISCUS L.

1. Flowers yellow with deep purple or chocolate brown at the centre
   \( H. \) \( \text{vitifolius} \)

1. Flowers white or pale to deep pink
   \( H. \) \( \text{lobatus} \)

\textbf{Hibiscus lobatus} (J.A. Murr.) Kuntze

Herbs. Flowers white. Capsules slightly longer than calyx.

\textit{Fl.} \\ & \textit{Fr.} : August - December. \textit{Frequent as forest undergrowth}.

\textbf{H. vitifolius} \( L. \)

Herbs. Flowers yellow. Capsules winged, hairy.

\textit{Fl.} \\ & \textit{Fr.} : March November. \textit{Frequent along water courses}.

MALACHRA L.

\textbf{Malachra capitata} (L.) \( L. \)

Herbs. Flowers yellow. Fruits subglobose.

\textit{Fl.} \\ & \textit{Fr.} : August December. \textit{Frequent in open forests}.

PAVONIA Cav. \textit{nom. cons}.

1. Capsules slightly winged ; cocci glabrous
   \( P. \) \( \text{zeylanica} \)

1. Capsules not winged ; cocci hairy
   \( P. \) \( \text{odorata} \)

\textbf{Pavonia odorata} Willd.


\textit{Fl.} \\ & \textit{Fr.} : Greater part of the year. \textit{Frequent in open forests}.

\textbf{P. zeylanica} (L.) Cav.

Suffruticose herbs. Flowers white to light pink. Fruits globose.

\textit{Fl.} \\ & \textit{Fr.} : November. \textit{Frequent in open forests}.
SIDA L.

1. Cocci aristate
2. Pedicels jointed below the middle
3. Pedicels longer than the leaves
4. Flowers solitary, axillary
   \[ S. cordifolia \]

1. Cocci not aristate, merely acute:
2. Pedicels jointed above the middle:
3. Pedicels shorter than the leaves:
4. Flowers in axillary panicles
   \[ S. acuta \]

Sida acuta Burm. f.
Suffrutescent herbs. Flowers yellow. Fruits awned.

Fl. & Fr.: Greater part of the year. Frequent along roadsides of the forests.

S. cordata (Burm. f.) Boiss.

Fl. & Fr.: Greater part of the year. Frequent as forest undergrowth.

S. cordifolia L. Chikna.
Herbs. Flowers yellow. Fruits aristate.

Fl. & Fr.: Greater part of the year. Frequent in open forests.

S. mysorensis Wight & Arn.

Fl. & Fr.: Greater part of the year. Frequent in open forests.

S. rhombifolia L. Guleatada.

Fl. & Fr.: August April. Frequent as forest undergrowth.

THESPESIA Soland. ex Corr. nom. cons.

Thespia lampas (Cav.) Dalz. & Gibs.
Undershrubs. Flowers yellow. Capsules ovoid.

Fl. & Fr.: August April. Frequent in open forests.
URENA L.

Urena lobata L.


Fl. & Fr.: September May. Frequent in wastelands and also as forest undergrowth.

STERCULIACEAE

1. Flowers unisexual; petals absent
   Sterculia

1. Flowers bisexual; petals present:

2. Ovary raised on a gynophore; follicles spirally twisted
   Helicteres

2. Ovary not raised on a gynophore; follicles not spirally twisted:

3. Petals deciduous, appendaged
   Byttneria

3. Petals persistent, not appendaged:

4. Flowers yellow, ovary 1-celled
   Waltheria

4. Flowers rosy, ovary 5-celled
   Melochia

BYTTNERIA LOESL. NOM. CONS.

Byttneria herbacea Roxb.


Fl. & Fr.: July - December. Frequent in gravelly soils of hillocks.

HELICTERES L.

Helicteres isora L. Murudphal, Murudseng. East Indian Screw Tree.


Fl. & Fr.: July December. Frequent in open forests.

MELOCHIA L.

Melochia corchorifolia L.

Erect herbs. Flowers white or pink. Capsules globose.

Fl. & Fr.: Greater part of the year. Frequent near marshy places.
STERCULIA L.

1. Leaves entire, not lobed
   1. Leaves palmately lobed :
      2. Panicles erect; follicles with irritant hairs
      3. Panicles drooping; follicle hairs not irritant

Sterculia guttata Roxb.

Trees. Flowers pale brown. Follicles woody.

Fl. & Fr.: January June. Infrequent in dense forests.

S. urens Roxb. Karu.


Fl. & Fr.: November - March. Infrequent in open forests.

S. villosa Roxb.


Fl. & Fr.: December March. Infrequent in open forests.

WALTERIA L.

Walteria indica L.

Herbs. Flowers yellow. Capsules membranous.

Fl. & Fr.: Greater part of the year. Frequent in open forests.

TILIACEAE

1. Fruits echinate or bristly
   1. Fruits not echinate, not bristly :
      2. Petals glandular at base; fruits drupaceous, often 2-4-lobed
      3. Petals eglandular at base; fruits capsular, elongate or globose
Corchorus L.

1. Capsules globose
   \[ C. \textit{capsularis} \]

1. Capsules elongate:

2. Capsules 3-winged
   \[ C. \textit{aestuans} \]

2. Capsules not winged:

3. Beak of capsules 3-nid, spreading
   \[ C. \textit{tridens} \]

3. Beak of capsules entire:

4. Capsules scabrous or aculeate, 3 winged, beak short
   \[ C. \textit{trilocularis} \]

4. Capsules glabrous, 10-ribbed, beak long
   \[ C. \textit{olitorius} \]

Corchorus \textit{aestuans} L.

Herbs. Flowers yellow. Capsules winged.

\textit{Fl. & Fr.}: September March. Frequent in moist or marshy places.

\textit{C. capsularis} L.

Herbs. Flowers yellow. Capsules subglobose.

\textit{Fl. & Fr.}: September December. Frequent weed in wastelands.

\textit{C. olitorius} L.


\textit{Fl. & Fr.}: July December. Frequent weed in cultivated fields.

\textit{C. tridens} L.

Herbs. Flowers yellow. Capsules subcylindric.

\textit{Fl. & Fr.}: August October. Infrequent weed in cultivated fields.

\textit{C. trilocularis} L.

Herbs. Flowers yellow. Capsules hairy.

\textit{Fl. & Fr.}: August - October. Frequent in moist places.
Grewia L.

1. Subscandent shrubs; leaves 3-ribbed
   \[ G. \text{ flavescens} \]

1. Erect shrubs; leaves 3-5-ribbed:
   2. Peduncles shorter than petioles
      \[ G. \text{ abutilifolia} \]
   2. Peduncles longer than petioles:
      3. Flowers white
         \[ G. \text{ hirsuta} \]
      3. Flowers pale yellow
         \[ G. \text{ rothii} \]

**Grewia abutilifolia Vent. ex Juss.**

Shrubs. Flowers whitish-green. Drupes fleshy.

*Fl. & Fr.*: August December. Frequent in open forests.

**G. flavescens** A. Juss.

Subscandent shrubs. Flowers yellow. Drupes 1 4-lobed.

*Fl. & Fr.:* June October. Infrequent in open forests.

**G. hirsuta** Vahl, *Chatrani*.

Shrubs. Flowers whitish. Drupes wrinkled.

*Fl. & Fr.:* July November. Frequent in open as well as dense forests.

**G. rothii** DC.


*Fl. & Fr.:* May - October. Frequent in open forests.

**Triumfetta L.**

1. Leaves 3-5-lobed; bristles of capsules short, glabrous
   \[ T. \text{ rhomboidea} \]

1. Leaves orbicular; bristles of capsules puberulous
   \[ T. \text{ rotundifolia} \]


*Fl. & Fr.:* Greater part of the year. Frequent as forest undergrowth.
Triumfetta rotundifolia Lam.

Fl. & Fr.: Greater part of the year. Frequent as forest under-
growth.

MAIPIGHIACEAE

ASPIDOPTERIS A. Juss.

Aspidopteris cordata (Heyne ex Wall.) A. Juss.

Fl. & Fr.: August December. Frequent in open forests.

ZYGOPHYLLACEAE

TRIBULUS L.

Tribulus terrestris L. Gokhru. Puncture Vine.

Trailing herbs. Flowers yellow. Fruits globose.

Fl. & Fr.: August March. Frequent weed in cultivated fields.

OXALIDACEAE

BIOPHYTUM DC.

1. Pedicels as long as or longer than calyx; seeds spirally
 wartyed

B. candolleianum

1. Pedicels much shorter than calyx; seeds transversely
 ridged or striate

B. sensitivum

Biophytum candolleianum Wight

Herbs. Flowers yellow. Capsules ovoid.

Fl. & Fr.: August December. Infrequent weed in wastelands.

B. sensitivum (L.) DC.

Herbs. Flowers yellow. Capsules ovoid.

Fl. & Fr.: September December. Frequent weed in cultivated fields
and wastelands.
RUTACEAE

1. Leaflets 3, rachis not winged; stamens numerous  
   **Aegle**

1. Leaflets more than 3, rachis winged; stamens less than 15  
   **Limonia**

**Aegle** corr. nom. cons.

**Aegle marmelos** (L.) corr. Bel. The Bael Tree.


*Fl. & Fr.*: April October. Frequent in outskirts of villages, usually planted.

**Limonia** L.

**Limonia acidissima** L. Kawit.

Trees. Flowers greenish yellow. Fruits ovoid or globose.

*Fl. & Fr.*: May December. Frequent in wastelands, especially in the village outskirts.

SIMAROUBACEAE

**Balanites** Delile nom. cons.

**Balanites aegyptiaca** (L.) Delile, Hingan.


*Fl. & Fr.*: February June. Frequent along water courses.

MELIACEAE

1. Seeds not winged:

2. Leaves 2 or 3 pinnate  
   **Melia**

2. Leaves once pinnate  
   **Azadirachta**

1. Seeds winged:

3. Filaments united into a tube  
   **Soymida**

3. Filaments distinct  
   **Chloroxylon**
AZADIRACHTA A. Juss.


Trees. Flowers white. Fruits greenish.

*Fl. & Fr.*: January - June. Frequent along the fields as well as roadsides in the villages.

CHLOROXYLON A.P. DC. *nom. cons.*

Chloroxylon swietenia DC. *Bhirra*. East Indian Satin Wood.

Trees. Flowers white. Capsules ovoid.

*Fl. & Fr.*: March June. Frequent in open forests.

MELIA L.

Melia azadirach L. Bead Tree.


*Fl. & Fr.*: March June. Frequent near habitations.

SOYMIDA A. Juss.


*Fl. & Fr.*: Greater part of the year. Frequent in open and dense forests.

OLACACEAE

OLAX L.

1. Armed shrubs, drupes *ca* 1 cm long
   - *O. scandens*

1. unarmed shrubs, drupes *ca* 2 cm long
   - *O. imbricata*

Olax imbricata Roxb.


*Fl. & Fr.*: February June. Infrequent in open and dense forests.
Olax scandens Roxb.
Fl. & Fr. : February June. Frequent in open forests.

CELASTRACEAE

1. Leaves alternate:
   2. Unarmed, shrubby climbers, ovary free from disc Celastrus
   2. Armed erect shrubs, ovary embedded in disc Maytenus
1. Leaves opposite Cassine

Cassine L.

Cassine glauca (Rottb.) Kuntze, Arar.
Fl. & Fr. : September February. Frequent in dense forests.

Celastrus L.

Celastrus paniculata Willd. Dhimarbel.
Straggling shrubs. Flowers yellow. Fruits subglobose.
Fl. & Fr. : April November. Frequent in open as well as dense forests.

Maytenus Molina emend. Bose

1. Scendent, evergreen shrubs; flowers sessile and fascicled M. rothiana
1. Erect, deciduous shrubs; flowers peduncled in cymes M. emarginata

Maytenus emarginata (Willd.) Ding Hou
Armed shrubs. Flowers white. Capsules purple when ripe.
Fl. & Fr. : September December. Frequent in open forests.

M. rothiana (Walp.) Lobreau-Callen
Unarmed scandent shrubs. Flowers white. Fruits bright red.
Fl. & Fr. : March June. Frequent in open forests.
FLORA OF TAROBA NATIONAL PARK

HIPPOCRATEACEAE

REISSANTIA Halle

**Reissantia indica** (Willd.) Halle

Climbing shrubs. Flowers yellow. Carpels ellipsoid.

*Fl. & Fr.*: April June. Infrequent in open forests.

**RHAMNACEAE**

1. Unarmed climbers; fruits samaroid
   - **Ventilago**
2. Armed erect or scandent shrubs; fruits drupaceous
   - **Ziziphus**

**Ventilago Gaertn.**

**Ventilago denticulata** Willd.


*Fl. & Fr.*: October February. Frequent in dense forests.

**Ziziphus Tourn. ex Mill.**

1. Styles distinct or nearly so
   - **Z. xylopyra**
2. Styles connate to the middle:
   1. Fruits more than 1 cm across
      - **Z. mauritiana**
   2. Fruits less than 1 cm across
      - **Z. oenoplia**

**Ziziphus mauritiana** Lam. *Ber.* Indian Jujube.


*Fl. & Fr.*: September December. Frequent in open forests.

**Z. oenoplia** (L.) Mill.

Straggling shrubs. Flowers greenish yellow. Fruits ovoid.

*Fl. & Fr.*: August December. Frequent in open as well as dense forests.

**Z. xylopyra** (Retz.) Willd. *Ghat Bor.*

Fl. & Fr.: May October. Frequent in open as well as dense forests.

VITACEAE

1. Inflorescence tendril-bearing

*Ampelocissus*

1. Inflorescence not tendril-bearing:
   2. Leaves not lobed; berry 1-seeded
   2. Leaves pedately 3-many lobed; berry 2-4-seeded

*Vitis*

**Ampelocissus** Planch. nom. cons.

*Ampelocissus latifolia* (Roxb.) Planch. *Gelinda*.

*Fl. & Fr.:* July October. Frequent in open forests.

*Cayratia* A. Juss. nom. cons.

*Cayratia trifolia* (L.) Domin. *Foxgrape*.

*Fl. & Fr.:* May October. Frequent on thorny bushes in open forests.

*Cissus* L.

1. Erect shrubs; tendrils 0

1. Scandent shrubs; tendrils leaf opposed:
   2. Leaves palmately 3-5-lobed
   2. Leaves ovate or orbicular not lobed

*Cissus pallida* (Wall. ex Wight & Arn.) Steud.

*Fl. & Fr.:* March June. Frequent in open forests.

*Cissus vitigenia* L.

*Fl. & Fr.:* May October. Frequent on hedges.
FLORA OF TAROBA NATIONAL PARK

Cissus woodrowii (Stapf ex Cooke) Sant.
Shrubs. Flowers green with red tinge at apex. Berries globose.

Fl. & Fr.: July September. Frequent in open forests.

LEEACEAE

Leea L.

Leea asiatica (L.) Ridsd.
Undershubs. Flowers white or greenish-white. Berries green.

Fl. & Fr.: July October. Frequent as forest undergrowth.

SAPINDACEAE

1. Climbing herbs; fruits inflated
   1. Shrubs or trees; fruits not inflated

CARDIOSPERMACEAE

Cardiospermum L.

Cardiospermum halicacabum L. Kanphuti. Balloon Vine Hearted.
Climbers. Flowers white. Fruits inflated, pyriform.

Fl. & Fr.: Greater part of the year. Frequent in open forests.

DODONAEA L.

Dodonaea viscosa (L.) Jacq. Kharata.
Shrubs. Flowers pale white. Fruits winged.

Fl. & Fr.: Greater part of the year. Frequent in open forests.

ANACARDIACEAE

1. Leaves compound
   1. Leaves simple:
   2. Styles 3 or more:
      3. Flowers unisexual, stamens as many as petals
      3. Flowers bisexual, stamens twice as many as petals
   2. Styles 1:
      4. Stamens twice as many as petals, all fertile
      4. Stamens rarely 4, one fertile others sterile

LANNEA

Semecarpus
Buchanania

Anacardium
Mangifera
Anacardium L.

Anacardium occidentale L. Kaju. Cashewnut Tree.
*Fl. & Fr.* : February May. Infrequent as an escape, planted.

Buchanania Spreng.

Buchanania lanzan Spreng. Charoli.
Trees. Flowers white. Fruits green turning brownish-red.
*Fl. & Fr.* : January June. Frequent in open forests.

Lannea A. Rich.

Lannea coromandelica (Houtt.) Merr. Mowai.
*Fl. & Fr.* : February June. Frequent in open and dense forests.

Mangifera L.

Mangifera indica L. Amba. Mango.
*Fl. & Fr.* : February July. Infrequent as an escape, planted.

Semecarpus L. f.

Trees. Flowers pale white. Fruits black when ripe.
*Fl. & Fr.* : May - October. Frequent in open as well as dense forests.

Fabaceae

1. Flowers white, yellow or blue :

2. Trees or shrubs :
   3. Leaflets opposite, 22-30

3. Leaflets alternate, 3-7 : 

Sesbania
4. Leaflets 3-5; pods strap shaped
   *Dalbergia*

4. Leaflets 5-7; pods orbicular, winged
   *Pierocarpus*

2. Herbs or climbers:

5. Marshy herbs
   *Aeschynomene*

5. Terrestrial plants:

6. Erect trees
   *Pongamia*

6. Plants not erect:

7. Climbing or twining herbs or shrubs:

8. Leaflets 9-13; pods flat, narrowly winged
   *Derris*

8. Leaflets 3-7; pods linear, not winged:

9. Stamens monadelphous:

10. Anthers alternately fertile; pods beak narrowly incurved
    *Teramnus*

10. Anthers all fertile; pods beak if present, not so
    *Canavalia*

9. Stamens diadelphous:

11. Leaves not gland dotted:

12. Calyx teeth not distinct; pods flattened
    *Galactia*

12. Calyx teeth distinct; pods subterete
    *Vigna*

11. Leaves gland dotted:

13. Ovules 1-2
    *Atylosia*

13. Ovules 3 or more:

14. Leaflets modified into tendrils
    *Lathyrus*

14. Leaflets not modified into tendrils:

15. Calyx teeth accrescent
    *Paracalyx*

15. Calyx teeth not accrescent:

16. Leaves pinnate; pods compressed
    *Rhynchosia*
16. Leaves
digitate; pods turgid

FLEMINGIA

7. Erect or prostrate herbs or shrubs:

17. Leaves pinnately compound; leaflets 2-8 pairs

SMITHIA

17. Leaves simple, bifoliate or 3-7-foliately compound, but not pinnately compound:

18. Leaves bi- or trifoliately compound:

19. Leaves bifoliately compound

ZORNA

19. Leaves trifoliately compound

CAJANUS

18. Leaves simple or 3-7-foliately compound:

20. Leaves either simple or 3-7-foliately compound

CROTALARIA

20. Leaves simple:

21. Flowers solitary, axillary

GONIOGyna

21. Flowers in subcapitate heads

PSORALEA

1. Flowers orange, pink, purple, violet or lilac (rarely white in Desmodium and Tephrosia):

22. Leaves 1-3-foliolate (except in Clitoria):

23. Trees

BUTBA

23. Herbs, shrubs or climbers:

24. Climbing shrubs:

25. Leaflets 3, pods 'S' shaped with irritant bristles

MUCUNA

25. Leaflets 5-7, pods nearly straight, sparsely hairy

CLITORIA

24. Erect or prostrate herbs, undershrubs or shrubs:

26. Herbs:

27. Pods linear, jointed, turgid

ALYSICARPUS

27. Pods boat-shaped, flat

FLEHOTIS
FLORA OF TAROBA NATIONAL PARK

26. Under shrubs or shrubs (except Desmodium trifolium DC.):

28. Pods not jointed, viscid

28. Pods jointed, not viscid:

29. Loments of the pod not folded on one another but separating into one seeded bits at maturity

29. Loments of the pod folding on one another, included in the calyx even at maturity

21. Leaves 3-13-foliolate or more:

30. Climbing herbs

30. Erect herbs or understubs:

31. hairs on leaves medi-fixed; anthers apiculate

31. hairs on leaves basi-fixed; anthers obtuse

ABRUS Adans.

Abras precatorius L. Gunj. Indian Liquorice.

Climbers. Flowers white. Fruits oblong, turgid.

Fl. & Fr.: August March. Frequent in open forests.

AESCHYNOMENE L.

1. Stems spongy; calyx hispid

1. Stems woody; calyx glabrous

Aeschynomene aspera L. The Sola Pith Plant.


Fl. & Fr.: January May. Infrequent in moist shady places.

A. indica L.

Procumbent herbs. Flowers yellow. Fruits curved.

Fl. & Fr.: August January. Frequent in moist shady places.