hooked bristles; bisexual heads many flowered, bracts small; corolla tubular.

Flowers: Aug. - Nov.

Sivarajan 733.

Eclipta Linn. (nom.cons.)


Diffuse annuals, strigosely hairy; leaves opposite, oblong-lanceolate, acute; heads heterogamous, rayed; outer ray-florets female, white, inner bisexual and tubular; achenes obovoid, subcompressed; pappus 0.

Flowers: Nov. - Mar.

Sivarajan 89, 1571.

Ageratum Linn.

A. conyzoides Linn. Sp. Pl. 339. 1753; Cl. Comp. Ind. 30. 1876; FBI. 3:243. 1883; Sant. 110. 1960; Gamb. 476.
Rarely branched annuals; leaves ovate-acute, crenate, long-petioled; heads homogamous, not rayed; corolla tubular, 5-toothed, pale blue; achenes glabrous; 5-angled; pappus of 5 scales, lacerate at base.

A very common weed on grassy slopes. Very often the plants display variegated leaves.


Sivarajan 361.

**Eupatorium** Linn.


Much branched, scandent shrubs; leaves ovate-lanceolate, crenate-serrate; heads white, homogamous, not rayed, 1.5 cm long; achenes 5-angled.

A profuse, exotic weed, now naturalised and spreading throughout India.

Flowers: Mar. - May

Sivarajan 1043.
**Epaltes** Cass.

*E. divaricata* Cass. in Bull. Soc. Phil. 139. 1818; Cl. Comp. Ind. 96. (excl. syn. *E. pygmaea*) 1876; FBI. 3:274. 1881; Sant. 116. 1960; Gamb. 486.

An erect or diffuse herb; stem winged; leaves narrow, oblanceolate, shortly dentate; heads pink or rose, subglobose, not rayed, heterogamous; outer flowers female, fertile, inner bisexual, sterile; anthers shortly tailed at base; achenes obovoid, ribbed.

Flowers: Sept. - Nov.

Sivarajan 512, 586.

**Erigeron** Linn.

Key to the species

1. Heads in corymbs ......................... asteroides
1. Heads in panicles ....................... canadensis


Fl. Ind. 2:432. 1824; Cl. Comp. Ind. 55. 1876; FBI. 3:254. 1881; Gamb. 479.

Tall, villous herbs; leaves lanceolate or oblanceolate, entire or toothed; heads in corymbose
panicles, rayed, heterogamous; the outer flowers female, inner hermaphrodite; achenes compressed, minutely villous; pappus feathery.

Flowers: Dec. – Mar.

Sivarajan 947.


Woody herbs; leaves lanceolate, dentate, villous on both surfaces; heads in large panicles, heterogamous and rayed; achenes compressed and margined.

Flowers: Dec. – Mar.

Sivarajan 862.

_Blumea_ DC. (nom. cons.)

Key to the species

1. Prostrate herbs ......................... _oxyodonta_

1. Erect herbs ............................. _mollis_


Cl. Comp. Ind. 85. 1876; FBI. 3:266. 1881; Sant. 114. 1960; Randeria in Blumea 10:280. 1960; Gamb. 482.
Prostrate, scabrid herbs; radical leaves ob lanceolate, serrate, cauline ones much smaller; flowering stems creeping; heads orange-yellow, not rayed, heterogamous; outer flowers female, inner hermaphrodite; achenes 4-angled; pappus hairs uni-seriate, caducous.

Flowers: Dec. - May

Sivarajan 3.


Erect, villous herbs; leaves ovate-dentate; heads in panicles or racemes, not rayed, heterogamous; achenes hairy.


Sivarajan 1041.
**Crassocephalum Moench.**

_C. crepioides_ (Benth.) Moore in J. Bot. 50:211. 1912;

Erect, fleshy herbs; leaves large, ovate-acuminate, simple or 2-3-lobed, serrate; heads cylindric, orange-yellow, not rayed; achenes cylindric, faintly ribbed.

Flowers: Mar. - July

Sivarajan 162.

Note: van Steenis (loc.cit.) has given a critical account and bibliography on the introduction of this weed into S.E.Asia, Malesia and Australia. As pointed out by Raju (Trop. Ecol. 7:171. 1966) this is very often confused with _Erichthites valerianifolia_ (Wolf.) DC. However the uniformly cylindric, weakly ribbed achene is characteristic of _C. crepioides_, and this differs from _Gynura_ by the quite different stylar arms and the scarcely widened corolla tube.
Emilia Cass.


Annual, hispid herbs; leaves mainly radical, ob lanceolate-obtuse, lyrate towards the base, glaucous, cauline ones amplexicaule, lanceolate; heads oblong, few-flowered, homogamous and not rayed; corolla tubular; achenes 5-ribbed, villous on the angles.

Flowers: July – Mar.

Sivarajan 21.

Vernonia Schreb. (nom.cons.)

1. Climbers ........................................... *eleagnifolia*
1. Erect herbs ..................................... *cinerea*

*V. eleagnifolia* DC. *Prod.* 5:22. 1836; *Cl. Comp. Ind.* 24. 1876.

Climbing shrubs with divaricate branches; leaves oblong-obtuse, minutely silky pubescent below; heads white in terminal panicles, not rayed, homogamous; achenes angled; pappus 2-seriate.
Commonly called the "Curtain plant", this is often cultivated in gardens. Seen as escape also.


Sivarajan 933.

\[ V. \text{cinerea} \] (Linn.) Less. in Linnaea 4:291. 1829; Cl. Comp. Ind. 20. 1876; Koster in Blumea 1:410. 1935; Gamb. 475. Conyza \text{cinerea} \text{Linn. Sp. Pl. 862. 1753.}

Erect herbs; leaves ovate or elliptic, entire or irregularly toothed; heads in terminal panicles; homogamous, not rayed; flowers blue; achenes 5-angled with adpressed hairs; pappus 2-seriate, the outer much longer and feathery.

Flowers: July - Mar.

Sivarajan 1219.

GOODENIACEAE R. Br.

\[ \text{Scaevola Linn. (nom.cons.)} \]

Branched shrubs; branches thick; leaves alternate, entire, oblanceolate-spathulate, up to 13 x 6 cm, fleshy; flowers in axillary cymes; pedicels short; calyx lobes distant; corolla rose-pink or white, split on one side, tube about 2 cm long, lobes fimbriate; stamens free; drupes with solitary seeds.


Sivarajan 1521.

LOBELIACEAE R.Br.

Lobelia Linn.

Diffuse herbs; stem angled; leaves ovate-acute or obtuse, entire or serrate, basally 3-5-nerved, up to 2 x 1.5 cm; flowers violet, long-pedicelled; calyx tube campanulate, lobes lanceolate, distant; corolla 2-lipped; stamens connate in a column, anthers bristled; capsules many-seeded; seeds lenticular, smooth.

In wet or moist fields, also as a weed in wetland cultivations.

Flowers: Sept. - Nov.

Sivarajan 492.

**SPHENOCLEACEAE** DC.

*Sphenoclea* Gaertn. (nom.cons.)

*S. zeylanica* Gaertn. Fruct. 1:113, t. 24, f. 5. 1788;
Blume Bijdr. 16:1138. 1826; Moritzi Syst. Verz. 66. 1845-46; Merr. Fl. Man. 462. 1912; Airy Shaw in Fl. Wales. 1:27. 1954; Gamb. 520.

Erect, branched herbs; leaves petioled, elliptic or lanceolate, acute, penninerved, up to 8 x 2.5 cm; flowers white in oblong, terminal spikes; calyx lobes ovate-obtuse; corolla campanulate; stamens as many as
corolla lobes, free; capsules circumscissile; seeds oblong, tuberculate.

Flowers: Nov. - Mar.

Sivarajan 103.

PLUMBAGINACEAE Juss.

Plumbago Linn.

1882; Steenis in Fl. Males. 4(2):109. 1949;
Sant. 124. 1960; Gamb. 524.

Woody herbs; leaves ovate or elliptic, acute or obtuse, subsessile; flowers in terminal spikes;
calyx long, tubular, shortly 5-toothed and 5-ridged,
glandular bristly outside; corolla white, tube slender,
up to 2 cm long, lobes obovate, spreading; stamens 5;
capsules oblong.

Flowers: Jan. - May

Sivarajan 115, 453, 496.
Sapotaceae Juss.

Key to the genera

1. Leaves golden silky-pubescent beneath .... Chrysophyllum
1. Leaves glabrous:
   2. Fruits large, subglobose ............... Manilkara
   2. Fruits small, ovoid .................. Mimusops

Chrysophyllum Linn.


Small trees; leaves elliptic, abruptly acuminate at apex, glabrous above, lateral veins close and parallel; flowers greenish yellow, campanulate in axillary fascicles; calyx lobes 5; corolla 5-lobed; stamens 5; staminodes 0, fruits globose.


Sivarajen '1354.

Manilkara Adans. (nom. cons.)

M. achrasi (Mill.) Fosberg in Taxon 13:255. 1964. Sapota
Sp. Pl. (ed.2)469. 1762; FBl.3:534. 1882; Gamb. 533.
Trees; leaves elliptic-lanceolate, acute or shortly acuminate; flowers white, solitary in the axils; calyx pubescent; corolla campanulate; staminodes 6, petalloid, alternating with the stamens; berries sub-globose.

Flowers: Sept. - Nov.

Sivarajan 1850.

Mimusops Linn.


Trees; leaves elliptic, acute or acuminate, coriaceous; flowers white, fragrant; calyx deeply 8-lobed, pubescent; corolla rotate, lobes many, acute at tips; stamens 8, filaments connate at the base with the staminodes, forming a tube; berries 1-seeded.

Flowers: Jan.- Mar.

Sivarajan 146, 1054.
EBENACEAE Gurke

Diospyros Linn.

Key to the species

1. Flowers pedicellate ...................... peregrine
1. Flowers sessile ......................... candolleana


Trees; branches spreading; leaves distichous, broadly oblong-obtuse, leathery, prominently reticulate, up to 20 x 10 cm; petiole short; flowers unisexual in axillary cymes; calyx much enlarged in fruits; corolla urceolate, stamens many; ovary 8-loculed; styles 4; fruits large, subglobose.


Sivarajan 1671.

*D. candolleana* Wt. Ic. t. 1221. 1848; FBI. 3:566. 1882;
Sant. 127. 1960; Gamb. 543.
Trees with spreading branches; leaves distichous, oblong, acute or obtusely acuminate, up to 15 x 5 cm, reticulation not prominent; petiole short; flowers unisexual, sessile, clustered in the axils, adpressed pubescent; corolla slender, longer than the calyx; stamens 10, paired; fruit globose or ellipsoid; fruiting calyx lobes with reflexed margins.


Sivarajan 149.

OLEACEAE Hoffm. & Link.

Key to the genera

1. Corolla tube not distinct ............. Linociera
1. Corolla tube distinct:
   2. Corolla lobes minute, erect ......... Olea
   2. Corolla lobes large, spreading ..... Jasminum

   Linociera Sw. ex Schreb.

L. malabarica Wall. [Cat. 2828. 1831, nom.nud.] ex
   Don, Syst. 4:53. 1838; FBI. 3:607. 1882; Gamb. 558.

   Trees; leaves elliptic-oblong, coriaceous, up to 11 x 5 cm; flowers yellowish white, capitate on short,
axillary peduncles; calyx minute; corolla cohering at base, lobes linear-lanceolate; anthers sessile, one at the base of each pair of petals; drupes ellipsoid.

Collected from the banks of Kunnamangalam river.


Sivarajan 970.

Olea Linn.

O. dioica Roxb. (Hort. Beng. 3. 1814, nom. nud.) Fl. Ind. 1:106. 1832; FBI. 3:612. 1882; Sant. 128. 1960; Gamb. 559.

Trees; leaves elliptic-oblong, acuminate, entire or serrate; flowers small, greenish white in axillary panicles; drupes ellipsoid.

Flowers: Jan. - Feb.

Sivarajan 70.

Jasminum Linn.
2. Leaflets usually 3:

3. Leaflets acuminate ................ flexile

3. Leaflets obtuse or subacute ...... calophyllum

1. Leaves simple:

4. Calyx glabrous ....................... angustifolium

4. Calyx pubescent:

5. Bracts ovate-lanceolate, green ... multiflorum

5. Bracts linear:

6. Calyx lobes as long as the tube .... arborescens

6. Calyx lobes much longer than the tube:

7. Plants glabrous ...................... malabaricum

7. Plants pubescent .................... sambac


Scandent shrubs; leaves imparipinnate, 7-9-foliolate; flowers white in lax, terminal cymes; calyx
lobes linear; corolla lobes spreading lanceolate-acute, reddish beneath.

Flowers: most part of the year.

Sivarajan 1759.

Note: Kobuski (loc.cit.) has reduced this as a form of *J. officianale* Linn., since he found "no character or group of characters consistent enough for specific separation". However Green (loc.cit.) has found that this could clearly be separated into a distinct species based on the following key.

Inflorescence subumbellate,
  corolla tube 15-17 mm long,
  lobes 9-12 mm long and
  5-8 mm broad .................... *J. officianale*

Inflorescence cymose with
  stalks of lateral flowers
  exceeding that of the
  central ones, corolla
  tube 15-23 mm long, lobes
  15-20 mm long, 8-14 mm broad ......*J. grandiflorum*
1882; Cooke 175; Gamb. 556.

Woody climbers; leaves trifoliolate; leaflets elliptic to lanceolate; flowers white in lax, axillary, clustered cymes; fruits ellipsoid.

*Flowers:* Dec. – Mar.

Sivarajan 54, 943.

Note: Inamdar and Suryanarayana (Bull. Bot. Sur. Ind. 9:299. 1967 ('68) have investigated the floral variations of the species and have recorded up to 6 petals and 9 sepals in its flowers.

J. *calophyllum* Wall. (Cat. 2889. 1831, nom. nud.) ex DC.
Prod. 8:310. 1834; *FBI.* 3:602. 1882; Gamb. 556.

Climbing shrubs; leaves 3-foliolate; leaflets ovate-lanceolate, up to 7 x 3 cm; flowers white in axillary or terminal trichotomous cymes; berries, subglobose.

*Flowers:* throughout the year.

Sivarajan 911.
**J. angustifolium** Vahl, En. 1:29. 1804; Roxb. Fl. Ind. 1:95. 1820; FBI. 3:598. 1882; Gamb. 555.

Pubescent climbers; leaves simple, ovate to lanceolate, acute at apex, glabrous, up to 3 x 2 cm; flowers white in terminal 1-3-flowered cymes; calyx lobes 3-4 mm long; corolla tube 2-2.5 cm long, lobes lanceolate-acuminate; berries ellipsoid.

Flowers: throughout the year.

Sivarajan 1118.


Climbing shrubs; leaves simple, ovate to elliptic, acute or acuminate, pubescent; flowers white in sub-capitate, terminal cymes; bracts green, up to 18 x 8 mm; calyx lobes linear, 6-8 mm long; corolla lobes elliptic-oblong, acute; berries ellipsoid.

Flowers: Apr. - May

Sivarajan 1153, 1649, 1778.
J. arborescens Roxb. ex Hort. Beng. 3. 1814, nom. nud.

Fl. Ind. 1:95. 1820; FBL. 3:594. 1882; Gamb. 554.

Glabrous shrubs, sometimes climbing; leaves ovate-acuminate; flowers white in terminal, trichotomous, pubescent cymes; pedicels long, slender; calyx lobes about 2 mm long, erect; corolla lobes oblong-acute; berries ellipsoid.

Flowers: Jan. - May

Sivarajan 1201, 1607.

J. malabaricum Wt. Tc. t. 1250. 1850; FBL. 3:554. 1882;

Climbing shrubs; leaves simple, ovate-acuminate; flowers white in lax, terminal, trichotomous, tomentose cymes; calyx lobes linear, 5 mm long, reflexed later; berries ellipsoid.

Flowers: Mar. - May

Sivarajan 999.

J. sambac (Linn.) Ait. Hort. Kew 1:8, 1789; FBl. 3:591.
1882; Bailey 798; Mahes. 208; Green in Bailey
Sp. Pl. 6. 1753.
Climbing shrubs; leaves ovate-elliptic, obtuse or sub-acute; cymes terminal, few-flowered; corolla tube short, lobes orbicular, white.

Flowers: throughout the year.

Sivarajan 1777.

Note: Green (loc.cit.) has reported 3 cultivars of this species throughout the tropics, (1) Double (2) Semi-double and (3) Single flowered forms and all these are cultivated in this locality.

NYCTANTHACEAE J.G. Agardh.

Nyctanthes Linn.

1882; Sant. 128. 1960; Gamb. 556.

Small trees; branches angled; leaves ovate, acute or acuminate, entire or deeply serrate, scabrid on both surfaces; flowers in capitulate clusters on axillary peduncles; calyx truncate or minutely toothed; corolla white, lobes 5, slightly obcordate; stamens 2, inserted at the middle of the tube.


Sivarajan 1405.
1. Plants climbing:

2. Flowers large and showy:
   3. Flowers yellow .................... **Allamanda**
   3. Flowers white .................... **Chonemorpha**

2. Flowers small:
   4. Corolla tube about 1 cm long ..... **Ellertonia**
   4. Corolla tube much shorter:
      5. Corolla lobes orbicular ....... **Vallaris**
      5. Corolla lobes lanceolate ...... **Ichnocarpus**

1. Plants not climbing:

6. Leaves alternate:
   7. Flowers yellow ..................... **Thevetia**
   7. Flowers white:
      8. Calyx lobes 1 cm long .......... **Cerbera**
      8. Calyx lobes minute ............. **Plumeria**

6. Leaves opposite or whorled:

9. Lateral veins almost vertical
   to the mid vein:
   10. Leaves obtuse at tip ............ **Alstonia**
   10. Leaves acute at tip ............. **Nerium**

9. Lateral veins arched or ascending:

11. Fruits drupaceous ............... **Rauvolfia**
11. Fruits follicular:
12. Follicles linear:

13. Seeds with a tuft of silky hairs at the top ...... *Holarrhena*

13. Seeds without silky hairs ...... *Catharanthus*

12. Follicles obliquely ovoid ...... *Tabernaemontana*

**Allamanda** Linn.

*A. cathartica* Linn. Mant. 2:214. 1771; Sant. 133. 1960;


Straggling shrubs; leaves opposite or whorled, ob lanceolate or elliptic-oblong, acuminate, up to 12 x 5.5 cm; flowers bright yellow in axillary racemes; corolla tube inflated above the base.

Common on hedges and usually cultivated in gardens.

**Flowers:** throughout the year.

Sivarajan 1154, 1182.

**Chonemorpha** G. Don (nom. cons.)


11:203. 1929; Chatterjee in Kew Bull. 1948:68. 1948;

Rolla Rao in J. Ind. bot. Soc. 32:36. 1953; Sant.


*Chonemorpha macrophylla* (Roxb.) G. Don in Gen. Syst. 4:76. 1837; FBI. 3:661. 1882; Gamb. 575;

Climbing shrubs, covered with dense, rusty tomentum; leaves large, ovate, acute or subacute at apex, subcordate at base, tomentose, more densely beneath; flowers large, white, fragrant; follicles about 25 cm long.

Flowers: Mar. — May

Sivarajan 150, 1181.
slopes.

Flowers: July - Aug.

Sivarajan 404.

**Vallaris** Burm. f.

*V. solanacea* (Roth) Kuntze, Rev. Gen. 2:417. 1891;


Climbing shrubs; leaves opposite, elliptic-oblung or lanceolate, acuminate; flowers yellowish white in axillary cymes; calyx 5-lobed; corolla rotate, tube very short; stamens inserted at the top of the tube; anthers connate by their connectives around the stigma; follicles about 12 cm long.

Flowers: Jan. - May

Sivarajan 158.

**Ichnocarpus** R. Br. (nom. cons.)

Slender climbers; leaves ovate or elliptic, obtuse or acute; flowers small, white in terminal or axillary, paniculate cymes; calyx 5-lobed; corolla tube constricted below the mouth, lobes lanceolate; stamens connivent around the stigma, included; follicles linear.

Flowers: Nov. - Feb.

Sivarajan 41, 539.

Thevetia Linn. (nom.cons.)


Small trees; leaves alternate, linear-lanceolate, glabrous, up to 14 x 1 cm; flowers large, bright yellow in terminal, peduncled cymes; corolla tube much inflated above the base; stamens included; fruits drupaceous, slightly compressed, about 3 cm across.

A native of south America, this plant is naturalized in India; seen wild and also cultivated
in gardens and on hedges.

Flowers: May - Dec.

Sivarajan 1205.

**Cerbera Linn.**

*C.manghas Linn.* Sp. Pl. 208. 1753; Gamb. 566.


Small trees with an acrid, milky latex; leaves alternate, oblanceolate, abruptly acuminate; flowers white in terminal or subterminal, paniculate cymes; calyx 5-partite; corolla tube short, lobes spreading; stamens included; drupes usually globose, large.

This species is characteristic of salt-marshes and back waters. But a few trees are seen along the road sides near Ramanattukara, in the fresh water areas. Fruits are highly poisonous.

Flowers: June - Dec.

Sivarajan 1205.
Plumeria Linn.


Deciduous trees; bark grey; leaves elliptic to oblanceolate, acute, up to 30 x 10 cm, lateral veins many, parallel, joined in a submarginal vein; flowers white with a yellow centre, borne in terminal panicles; calyx minute; corolla tube short, slender, green, lobes obovate, rounded at apex; stamens included.

This is usually seen on hedges and in the premises of temples, does not set fruits, and the propagation is by vegetative methods.

Flowers: Feb. – Mar.

Sivarajan 877.
Trees; leaves in whorls of 7 or less, oblanceolate-obtuse; flowers fragrant in sub-terminal, corymbose cymes; greenish yellow; follicles linear, up to 25 cm long.


Sivarajan 735.

**Nerium Linn.**


Shrubs; leaves whorled, leathery, elliptic-oblong, up to 15 x 2.5 cm; flowers red, single or double in terminal cymes.

Flowers: throughout the year.

Sivarajan 1518.

**Rauwolfia Linn.**

Key to the species

1. Plants glabrous ......................... *serpentina*
1. Plants dense-tomentose .................. *tetraphylla*


Woody herbs or undershrubs; leaves elliptic-oblong, acuminate, glabrous, up to 13.5 x 6.2 cm; flowers white or pinkish in terminal or axillary sub-umbellate cymes; pedicels and calyx red; corolla tube 1.5 cm long, slender, lobes spreading; stamens included; drupes 2, distinct, purplish black.

Seen on the grassy slopes among bushes. Cultivated for medicine.

Flowers: Mar. – May

Sivarajan 378.


Pubescent shrubs; leaves in whorls of 4, unequal, elliptic, pubescent on both surfaces; flowers white, about 5 mm long in tomentose, terminal cymes;
corolla tube 2-2.5 mm long, lobes rounded; drupes purple when ripe, almost completely connate.

Seen along the rocky coast at Kadalundi.

Flowers: throughout the year.

Sivarajan 1069.

Holarrhena R. Br.


Shrubs or small trees; leaves ovate-oblong or elliptic, pubescent; flowers white in axillary cymes; corolla tube long, narrow, cylindric, lobes obovate, rounded at apex; follicles linear, pendulous.

Flowers: Dec. - May

Sivarajan 133.

Catharanthus G. Don

Note: The names Catharanthus, Lochnera and Vinca are very often used as synonyms. In 1828, Reichenbach (consp. Reg. Veg. 134) split the genus
Vinca into Vinca proper and Lochnera, but did not give a description to Lochnera. In 1838, Endlicher (Gen. Pl. 583) gave a description, and validated Lochnera, an otherwise nomen nudum. But by this time, the name Lochnera became superfluous, since the genus has been properly and validly published by G. Don (Gen. Syst. Gard. Bot. 4:95. 1837) under the name Catharanthus.

Key to the species

1. Leaves elliptic-lanceolate, acute at apex ....... pusillus
1. Leaves obovate, rounded at apex ............. roseus

*C. pusillus* (Murr.) G. Don, Gen. Syst. 4:95. 1836.


Herbs, 20-25 cm tall; leaves elliptic-lanceolate, acuminate, membraneous; flowers 1-3 in the axils, white; calyx 5-lobed; corolla tube cylindrical, slender, constricted at mouth, lobes spreading, 3 mm long; stamens included; follicles linear, about 5 cm long.

Flowers: Sept. - Nov.

Sivarajan 321.
C. roseus (Linn.) G. Don, Gen. Syst. 4:95. 1837; Sant.
Syst. (ed.10) 944. 1759; FBI. 3:640. 1882. Lochnera

Branched undershrubs; leaves obovate, rounded
at apex, up to 5 x 3 cm, lateral veins whitish; flowers
white, pink or blue, 1-2 in the axils; calyx 5-lobed;
corolla tube narrowly cylindric, 2-2.5 cm long, lobes
spreading, obovate, obtuse or retuse, about 2 cm long;
follicles linear.

Common on the sandy coast near West Hill and
also cultivated in gardens:

Flowers: Mar. - Dec.

Sivarajan 98, 223.

Tabernaemontana Linn.

Note: Stapf (in Dyer, Fl. Trop. Afr. 4:25. 1902)
has split the genus Tabernaemontana into several new
genera, and the genus Tabernaemontana proper has been
practically excluded from the Old World. Subsequently all species of *Tabernaemontana* in India were transferred to the new genus *Ervatamia* Stapf. But Merril (Contr. Arn. Arb. 8:140. 1934) has established that the generic distinction of *Ervatamia* was not on sound basis. In this work, the author has followed Merril in keeping the available species under the generic name *Tabernaemontana* Linn.

**Key to the species**

1. Corolla lobes overlapping to right ..... *heyneana*
1. Corolla lobes overlapping to left ..... *divaricata*


Small trees with grey bark; leaves elliptic-oblong, acuminate, glabrous; flowers white in corymbose cymes; calyx lobes 5; corolla tube cylindric, about 2.5 cm long, lobes spreading; stamens included; follicles orange-yellow, divaricate, angled, tips recurved; seed-arils red.


Sivarajan 95.

Shrubs; leaves elliptic-oblong, acuminate; flowers white in axillary cymes; calyx lobes 5; corolla tube thick, 2-2.5 cm long, lobes spreading; stamens included; usually does not produce fruits.

Very often cultivated in gardens. Propagation is by stem-cuttings. Both single-flowered and double flowered forms are cultivated.

Flowers: throughout the year.

Sivarajan 908.

ASCLEPIADACEAE R.Br.

Key to the genera

1. Plants climbing:

2. Leaves deeply cordate:

3. Leaves oblong to lanceolate ...... Holostemma
3. Leaves ovate-orbicular, acuminate:
   4. Peduncles longer than the leaves .. *Pericentralia*
   4. Peduncles shorter than leaves ..... *Telosma*

2. Leaves not cordate:
   5. Flowers in racemes ................. *Cosmostigma*
   5. Flowers in umbels:
      6. Corolla lobes connate by their tips ..... *Ceropegia*
      6. Corolla lobes not as above:
         7. Pedicels capillary ............... *Tylophora*
         7. Pedicels not capillary:
            8. Plants dense-tomentose ...... *Gymnema*
            8. Plants glabrous .............. *Dregea*

1. Plants erect:
   9. Flowers red-orange ................. *Asclepias*
   9. Flowers purplish .................... *Calotropis*

*Holostemma* R. Br.

Large climbers; leaves ovate-oblance, lanceolate, acute or obtuse, deeply cordate at base; flowers large, purple in axillary cymes; calyx eglandular; corolla deeply 5-lobed; corona annular, adnate with the base of the winged staminal column; anthers with a membranous appendage at tip; pollinia solitary in each cell, clavate; caudicle slender; follicles lanceolate.

Flowers: July - Aug.

Sivarajan 401, 1402.

Pergularia Linn.


Hispid climbers; leaves broadly orbicular, acuminate, deeply cordate at base; flowers greenish
PLATE 10

Pergularia daemia (Forsk.) Choiv.

Fig.1. Flowering branch. Fig.2. Flower
Fig.3. Pollinia.
white in axillary racemes or corymbs; pedicels long; calyx 5-lobed, glandular within; corolla tube short, lobes lanceolate-acute; corona double, the outer 5 lobes entire and the inner squarrose; filaments connate; anthers with a membraneous appendage at the tip; pollinium one in each cell; follicles 2, lanceolate, echinate. (Plate 10)


Sivarajan 1580.

Telosma Coville

_T. pallida_ (Roxb.) Craib. in Kew Bull. 1911:418. 1911;

Climbers; leaves ovate or sub-orbicular, acuminate, deeply cordate at base; flowers greenish in lateral, umbellate cymes; pedicels and calyx pubescent; corolla tube constricted at the throat; lobes oblong, spreading; corona single, adnate to the staminal column, lobes linear; anthers with membraneous tips; pollinium solitary in each cell, oblong; follicle lanceolate, terete;
seeds with a silky coma.

Flowers: Apr. - May

Sivarajan 255.

**Cosmostigma** Wt.

*C. racemosa* Wt. Contr. Bot. Ind. or. 42. 1834; FBI. 4:46. 1883; Sant. 155. 1967; Gamb. 595.

Glabrous climbers; leaves ovate-acuminate, truncate or rounded at base; flowers in lateral corymbs; calyx lobes with pairs of glands in between them; corolla lobes acute, blotched with brown within; corona scales notched at the tips, adnate with the base of the staminal column; anthers with membraneous tips; follicles large, oblong; seeds flat, with a tuft of silky hairs at the tip.


Sivarajan 313.

**Ceropegia** Linn.

*C. candelabrum* Linn. Sp. Pl. 211. 1753; FBI. 4:70. 1883; Gamb. 603.
PLATE 11

*Ceropegia candelabrum* Linn.

Fig. 1. A flowering branch. Fig. 2 Flower.

Fig. 3. Top-view of the staminal column, after the removal of the inner corona.

Fig. 4. Staminal column with both the whorls of corona. Fig. 5. Pollinia.

Fig. 6. L.S. of pistil.
Slender climbers; leaves ovate to elliptic, acute; flowers umbellate on slender peduncles; calyx deeply lobed, lobes minute, linear; corolla tube inflated below, prominently veined, lobes lanceolate, connate by their ciliate tips, margins reflexed; corona double, outer with minute, triangular lobes, inner spathulate; staminal column short; anthers without membraneous appendages; follicles linear; seeds with a tuft of hairs at the tips. (Plate 11).


Sivarajan 375, 1768

*Tylophora* R. Br.

Key to the species

1. Plants glabrous ........................ pauciflora
1. Plants tomentose ........................ indica


Trailing or climbing herbs; leaves ovate-lanceolate, acute or acuminate; flowers greenish,
umbellate on short peduncles; pedicels filiform; calyx 5-partite, glandular; corolla purplish, deeply 5-lobed; corona of 5 fleshy lobes; anthers with membranous tips; follicles, lanceolate; seeds flat, ending in a tuft of hairs.

Flowers: Sept. - Nov.

Sivarajan 600.

_T._*indica* (Burm. f.) Merr. in Philip. J. Sci. 19:373.


Slender, pubescent climbers; leaves ovate to oblong, acute or acuminate, pubescent, up to 5.8 x 2.6 cm; flowers greenish purple in umbellate-cymes; calyx deeply 5-partite, pubescent; corolla lobes oblong-acute; corona single, lobes acuminate at tip; follicles tapering.

Flowers: Nov. - Dec.

Sivarajan 821.
Gymnema R. Br.


Tomentose climbers; leaves ovate, shortly acuminate, densely tomentose; flowers in lateral short-peduncled umbels, greenish yellow; calyx lobes ovate; corona of 5 fleshy lobes, corolline; anthers with membranous appendages; pollen mass solitary in each cell; follicles slender; seeds ovate, ending in a coma, strongly margined.

Flowers: July - Aug.

Sivarajan 1742.

_Dregea_ E. Mey. (nom.cons.)

Glabrous climbers; leaves broadly ovate-acuminate, rounded or subcordate at base; flowers greenish yellow in axillary, pendulous umbels; peduncles and pedicels long; calyx 5-partite; corolla rotate, lobes obtuse; corona of 5 rounded, fleshy lobes; anthers with membraneous tips; follicles lanceolate, seeds flattened, ending in a coma.

Flowers: Mar. - April

Sivarajan 1105.

\textit{Asclepias} Linn.


Erect herbs; leaves narrowly oblong or lanceolate, acuminate, up to 12.5 x 2.6 cm; flowers orange-red in terminal or axillary umbels; calyx small; corolla deeply 5-lobed, red, lobes acute; corona of 5 erect, horned lobes; anthers with membraneous tips; follicles lanceolate.


Sivarajan 820.
Calotropis R. Br.


Much branched, succulent shrubs covered with a cottony pubescens; leaves large, fleshy, obovate-obtuse, subsessile; flowers large, purplish; calyx lobes ovate; corolla campanulate; corona lobes 5, laterally compressed, adnate with the staminal column; follicles large, inflated; seeds flat, ending in coma.

Flowers: throughout the year.

Sivarajan 609.

PERIPLOCACEAE Schlter.

Note: In most of the Indian Floras this family is treated as a tribe under the family Asclepiadaceae. Rudolf Schlechter (Notizbl. Bot. Gart. Berlin 9:23. 1924) proposed the separation of this tribe into a distinct family periplocaceae, based on their free filaments, form of the anthers, spoon or bag-shaped pollen-carriers,
Pollen tetrads and stigmas which are much different from those of the remainder of Asclepiadaceae, which treatment is followed by all the modern workers.

Key to the genera

1. Lateral veins close and parallel ....... *Cryptolepis*

1. Lateral veins distant and arched ....... *Hemidesmus*

*Cryptolepis* R. Br.

*C. buchanani* Roem. & Schult. Syst. Veg. 4:409. 1819;


Climbing shrubs; leaves elliptic-oblong, shortly acuminate, up to 18 x 6 cm; lateral veins close and parallel; flowers small, greenish yellow in axillary cymes; calyx with 5 scales at base within; corolla campanulate; corona scales 5, clavate; stamens attached to the base of the corolla tube; pollen masses in pairs, granular; styles distinct; follicles 2, narrowed to the tip, divaricate; seeds flat with a tuft of hairs at the tip.

Flowers: Mar. – Apr.

Sivarajan 1109.
Hemidesmus R. Br.


Periploca indica Linn. Sp. Pl. 211. 1753.

Climbers with tuberous roots; leaves narrowly lanceolate to elliptic; flowers subcapitate in the axils; calyx lobes acuminate with 5-scales at base within; corolla rotate, lobes ovate-subacute; corona scales fleshy; stamens 5; pollen masses in pairs, granular; follicles cylindric, tapered at the tip; seeds flattened, ovate, with a tuft of silvery white hairs.

Common on the grassy slopes, twining on bushes. The roots are aromatic and are used in the preparation of some beverages. This endemic species of South India exhibits much variation in the size and shape of leaves.


Sivarajan 593, 659, 949.
STRYCHNACEAE Link.

Strychnos Linn.

Key to the species

1. Trees ...................................... nux-vomica
1. Climbers:
   2. Tendrils simple ....................... cinnamamifolia
   2. Tendrils bifid ....................... aenea

S. nux-vomica Linn. Sp. Pl. 189. 1753; FBI. 4:90. 1883;

Trees; leaves opposite, ovate or elliptic, coriaceous, glabrous, basally 5-nerved; flowers greenish yellow in dense, terminal, cymes; calyx shortly toothed; corolla tube cylindric, much longer than the lobes; stamens short; berries globose; seeds many, discoid.

Flowers: Jan. - Feb.

Sivarajan 134, 1598, 1603.

C. cinnamamifolia Th. En. 201. 1860, var. wightii Hill
S. colubrina Wall. Cat. 4455. 1831, nom. nud. 7 ex
   Wt. Ic. t. 434. 1841, (non Linn. 1753). S. cinnamamifolia
   sensu Cl. in Hook. Fl. Brit. Ind. 4:85. 1883, in part.
Climbing shrubs; tendrils not forked; leaves elliptic or ovate acuminate, coriaceous, 3-ribbed; flowers greenish yellow in terminal, dense cymes; calyx shortly toothed; corolla tube much longer than the lobes; berries large; seeds discoid.


Sivarajan 246, 1601, 1604.


Climbing shrubs; tendrils bifid; leaves ovate to elliptic, acuminate, leathery, 3-ribbed from base; cymes axillary; flowers greenish yellow, small; corolla lobes slightly shorter than the tube; berries spherical; seeds compressed.

Flowers: Jan. - Feb.

Sivarajan 1593.
PLATE 12

Fig. 1. *Mirasacme polymorpha* R. Br.

Fig. 2. *M. alsinoides* R. Br.
SPICELIACEAE Hart.

Mitrasacme Labill.

Key to the species

1. Leaves elliptic-acute ................. polymorpha
1. Leaves linear-lanceolate .............. alsinoides

\textit{M. polymorpha} R. Br. Prod. 452. 1810; FBI. 4:80. 1883; Gamb. 608.

Small, hirsute herbs, 5-8 cm tall; leaves few, opposite, ovate or elliptic, subsessile, up to 1.5 x 0.8 cm; flowers white, campanulate in long-pedunculate umbels, tetramerous; styles 2, connate above the middle; capsules laterally compressed, 2-celled, many seeded. (Plate 12. Fig. 1).

Common in the grassy hill-slopes during the rainy season.

Flowers: Aug. - Nov.

Sivarajan 305.

PLATE 13

Mitracame alsinoides R. Br.

Fig.1. Entire plant. Fig.2. Flower.
Fig.3. Corolla tube split open.
Fig.4. Pistil. Fig.5. L.S. of ovary.
Fig.6. Capsule with the persistent calyx and style. Fig.7. Seed.
MITRASACME ALSINOIDES R. Br.
Glabrous annuals; leaves opposite, linear-lanceolate, sessile, up to 1 x 0.3 cm; flowers white, solitary or 2-3 clustered in the axils; pedicels filiform, short; capsules laterally compressed; seeds reticulate. (Plate 12, Fig. 2 & Plate 13.)

Common on the hill slopes among grasses.

Flowers: Aug. - Nov.

Sivarajan 75, 281.

POTALIACEAE Hart.

Fagraea Thunb.


Scandent, woody shrubs; leaves opposite, obovate-spathulate, glabrous, up to 20 x 8 cm; petioles auricled at base; flowers pale yellow, large, funnel-shaped in terminal or axillary cymes; calyx lobes 5;
corolla tube about 6–8 cm long, lobes obtuse; fruit a 1–2-loculed berry; seeds embedded in a pulp.

A rare species, on a shaded rock at West Hill.

Flowers: Apr.–May

Sivarajan 1163.

GENTIANACEAE Juss.

Key to the genera

1. Fruits cylindric ......................... Canscora
1. Fruits subglobose or ovoid:
   2. Perfect stamens 4–5 ..................... Exacum
   2. Perfect stamens 1–2 ..................... Hopnea

Canscora Lamk.

Key to the species

1. Stem not winged ........................ diffusa
1. Stem narrowly winged:
   2. All flowers pedicellate ............... pauciflora
   2. Central flowers of each cyme sessile .... heteroclita

   1883; Sant. 143. 1960; Gamb. 617.
Slender annuals; stem 4-angled; leaves ovate or elliptic, the lower shortly petioled, upper sessile; flowers pink in lax, terminal, dischasial cymes; bracts at the forks leaf-like; pedicels filiform; calyx tube cylindric, keeled, 4-toothed; corolla lobes unequal; perfect stamens 1-2, longer than the others; ovary 1-celled; capsules 2-valved; seed minute.

Common on lateritic slopes.

Flowers: July - Oct.

Sivarajan 775.


Slender annuals; stem narrowly 4-winged; leaves ovate, obtuse or acute, sessile; panicles few-flowered; flowers pink, pedicellate; pedicels slightly enlarged towards the tip; calyx keeled, other features as in *C. diffusa*.

Common on lateritic slopes.

Flowers: Aug. - Nov.

Sivarajan 844.
G. heteroclitum (Linn.) Gilg. in Engl. & Pr. Pflam.


Erect, slender annuals; stem narrowly 4-winged; leaves ovate-obtuse or subacute, sessile; cymes few-flowered; flowers rose-coloured, the central flower of each cyme sessile, the laterals pedicellate. Other characters as in other species.

Common on moist rocky slopes.

Flowers: Aug. - Nov.

Sivarajan 510.

Exacum Linn.

Key to the species

1. Calyx lobes winged .................. bicolor

1. Calyx lobes not winged ................ sessile

1875; FBI. 4:96. 1883; Sant. 141. 1960; Camb. 617.
Erect annuals, 20-50 cm tall; stem sharply 4-angled; leaves variable in size, oblong-lanceolate, acuminate, 5-ribbed from base; flowers in axillary and terminal dichasial cymes, tetramerous; corolla lobes white with rose or pink tips; stamens yellow, lanceolate, erect; ovary 2-celled; capsules 2-valved; seeds minute.

A monsoon herb on the grassy slopes producing dense, beautiful bunches of flowers.


Sivarajan 608, 635.

E. sessile Linn. Sp. Fl. 112. 1753; Wt. Ic. 1324. 1848; Cl. in J. Linn. Soc. Bot. 4:427. 1875; FBI. 4:98. 1883; Gamb. 614.

Small, annual herbs, 10-15 cm tall; stem 4-angled; leaves small, ovate, acute or subacute, sessile; flowers blue, subsessile small; calyx lobes ovate, not winged; anthers very small; capsules globose.

A rare species in the grassy hill slopes. Seen near the University Campus.


Sivarajan 340.
Hoppea Willd.

_H. fastigata_ Cl. in Hook. f. Fl. Brit. Ind. 4:100. 1883; Gamb. 616.

Small, annual herbs; stem 3-8 cm tall, narrowly 4-winged; leaves opposite, sessile, ovate, obtuse or acute, glabrous; flowers pale yellow, small in capitate clusters; calyx 4-angled, lobes acute, with marginal nerves; perfect stamens 1-2, larger than the sterile staminodes.

A common, but inconspicuous herb among grasses on the lateric slopes during the rainy season.

Flowers: July – Oct.

Sivarajan 129.

MENYANTHACEAE Dumort.

_Nymphoides_ Seguier.

Key to the species

1. Radical leaves present ................... _parvifolium_
1. Radical leaves absent:
   2. Corolla lobes not fimbriate .......... _cristatum_
   2. Corolla lobes fimbriate ............. _indicum_
**N. parvifolium** (Griseb.) Kuntze, Rev. Gen. Pl. 2:429.

Annual, aquatic herbs; radical leaves spathulate-rounded at apex, 2 cm long; branches few, terminating in a single, floating, ovate-obtuse, deeply cordate leaf, up to 3 cm across; flowers pale yellow, small; pedicels short, fascicled at the nodes; capsules 5 mm long; seeds few, subglobose.

A rare species. Collected from the shallow ponds in the University campus.

Flowers: Aug. - Nov.

Sivarajan 431.

**N. cristatum** (Roxb.) Kuntze, Rev. Gen. Pl. 42. 1891;

Aquatic herbs; leaves all floating, ovate-orbicular, deeply cordate at base, about 10 cm across; flowers white, yellow at base within; pedicels 5-8 cm long; calyx lobes deep, 5 mm long; capsules many seeded. (Plate 14. Fig. 1).
Fig. 1. *Nymphoides cristatum* (Roxb.) Kuntze, growing in shallow ponds, along with *Eichhornia crassipes* (Mart.) Solms. and *Nymphaea stellata* Willd.

Fig. 2. *N. indicum* (Linn.) Kuntze
Very common in water-logged fields.

Flowers: Aug. - Nov.

Sivarajan 980, 1470.


Aquatic herbs; leaves large, orbicular, deeply cordate at base, up to 25 cm across; flowers white; pedicels long, fascicled at the nodes; calyx lobes 1 cm long; capsules many seeded. (Plate 14. Fig. 2).

Large plants in ponds and water-logged fields.


Sivarajan 866.

**HYDROPHYLLACEAE** R.Br. ex Edwards.

*Hydrolea* Linn. (nom. cons.)

Diffuse, flaccid annuals; leaves alternate, elliptic to lanceolate, acute, short-petioled; flowers deep blue in axillary or terminal racemes; calyx glandular-pubescent; corolla campanulate, 5-lobed; stamens 5, filaments dialated at base; ovary 2-celled, ovules many; styles 2, distinct; stigmas capitate; capsules thin, ovoid; seeds minute, many.

Common in moist or wet fields, especially in shaded places.


Sivarajan 818, 1569.

BORAGINACEAE Juss.

Heliotropium Linn.

Key to the species

1. Flowers pale violet or pink ............... indicum

1. Flowers white:

2. Leaves large, up to 10 x 6 cm .......... keralense

2. Leaves much smaller, 1.5 x 0.5 cm .... scabrum

Branched, woody herbs; leaves ovate, emarginate, base narrowed; flowers pale violet or pink in terminal, long, spicate, scorpioid cymes; nutlets united in pairs, separating later, ribbed prominently.

A common weed in sandy fields and waste places, easily distinguished from \textit{H. keralense} by their pale-violet or pink flowers.

Flowers: Mar. - May

Sivarajan 192, 1033.


Erect, fleshy herbs, profusely hairy all over; leaves ovate, obtuse or acute, decurrent on the petiole at base; flowers white in terminal, spicate, scorpioid cymes; corolla tube as long or slightly longer than the calyx, broadest at base, tapering towards the tip with long, setose, bulbous-based hairs outside; fruits ribbed, beaked, 2-partite at the tip.

A very common weed in the paddy fields and other sandy places during the monsoon period.

Flowers: Dec. - June

Sivarajan 6, 191, 997.
H. scabrum Retz. Obs. 2:8. 1781; FBI. 4:152. 1883; Gamb. 630.

Small, diffuse or erect densely rusty tomentose herbs; leaves elliptic-acute, adpressed hairy on both surfaces; flowers white in terminal, interrupted spikes.

Annuals on the wet grassy hill-slopes, road sides, and in moist, harvested fields.

Flowers: Mar. - May

Sivarajan 220, 221.

CORDIACEAE R.Br. ex Dumort.

Key to the genera

1. Trees ........................................ Cordia
1. Prostrate herbs .............................. Coldenia

Cordia Linn.


Small trees; leaves obovate, repand-crenate, up to 10 x 6 cm; flowers white, polygamous in terminal cymes; drupes ovoid, pink, pulpy.
Flowers: May - June

Sivarajan 1384.

Note: Of the two varieties recognised by Kazmi (loc. cit.) the cited specimen belongs to \textit{var. obliqua}.

\textit{Caldenia} Linn.


Prostrate, densely white villous herbs; leaves silky villous on both surfaces, inciso-crenate; flowers axillary, white, solitary, minute; drupes beaked at tip.

A common weed, in the fields during the summer season.


Sivarajan 38.
Key to the genera

1. Corolla lobes deeply obcordate ................ Ericybe
1. Corolla lobes not obcordate:
   2. Style only one:
      3. Stigmatic lobes ovate-oblong ........ Hewittia
      3. Stigmatic lobes subglobose:
         4. Leaves densely velvety beneath .... Argyreia
         4. Leaves not velvety:
            5. Pollen spinulose ................. Ipomoea
            5. Pollen not spinulose:
               6. Outer sepals much larger than the inner .... Aniseia
               6. All sepals almost equal:
                  7. Seeds 4 in each capsule ... Merremia
                  7. Seed solitary in each capsule ... Porana
   2. Styles usually 2:
      8. Climbing shrubs ...................... Bonamia
      8. Prostrate or diffuse herbs ........... Evolvulus
Erycibe Roxb.


Climbing shrubs; leaves ovate or elliptic; flowers yellowish white in axillary, rusty tomentose panicles; calyx lobes orbicular; corolla lobes obcordate, tube villous outside; stamens inserted at the throat of the corolla; ovary 1-celled, 4-ovuled; fruit a berry with a single seed.


Sivarajan 34.

Hewittia Wt. & Arn.

Twining, hispid herbs; leaves ovate-cordate, up to 9.5 x 7 cm; flowers axillary, solitary or in few-flowered cymes; sepals very unequal, outer larger, ovate, inner lanceolate; corolla pale yellow with a purple base; capsule 1-celled, 3-4 seeded.

Flowers: Aug. - Nov.

Sivarajan 727.

Argyreia Lour.

Key to the species

1. Bracts much longer than the calyx ........ nervosa
1. Bracts shorter than the calyx ............ imbricata


Silky pubescent climbers; leaves large, ovate-cordate, apiculate at tip, glabrous above, densely white, silky tomentose beneath; peduncles longer than petioles; bracts ovate-lanceolate, acuminate, 5-4 cm
long; flowers rose-purple, silky tomentose outside.

Flowers: June - July

Sivarajan 1342.


Dense-tomentose, subshrubby or climbing plants; leaves ovate-obtuse, pubescent beneath, up to 10 x 6.5 cm; flowers rose-purple, 3 cm long; peduncles as long as the petiole; bracts obtuse, small.


Sivarajan 1528.

*Ipomoea* Linn.

Key to the species
3. Flowers pedicellate:

4. Shrubs or twiners:

5. Corolla glabrous outside:

6. Flowers in panicles ........ staphylina

6. Flowers in cymes ............ sepriaria

5. Corolla tomentose outside .... fistulosa

4. Herbs, usually creeping:

7. Leaves oblong-lanceolate ...... aquatica

7. Leaves orbicular .............. repens

2. Leaves lobed:

8. Leaf-lobes obtuse ............... pes-caprae

8. Leaf-lobes acute or acuminate:

9. Calyx densely hispid ............ nil

9. Calyx glabrous:

10. Flowers axillary, solitary .. cairica

10. Flowers in axillary cymes:

11. Calyx lobes obovate-

obtuse ..... mauritiana

11. Calyx lobes lanceolate ... batatas

1. Flowers not pink or purple:

12. Leaves simple:

13. Corolla about 3 cm long ............ obscura

13. Corolla 10-12 cm long ............ macrantha

12. Leaves lobed:

14. Flowers white ................. pes-tigridis
14. Flowers red:
   15. Leaf-lobes pinnate .................. guamoclit
   15. Leaf-lobes digitate .................. hederifolia

I. pileata Roxb. Fl. Ind. 2:94. 1824; FBI. 4:203. 1883;
   1947; Gamb. 643.

   A slender, pubescent climber; leaves ovate-
   cordate, acuminate at apex; flowers pink, capitate,
   enclosed in boat-shaped bract; sepals unequal, obtuse,
   hispid; corolla about 3 cm long; capsules 2-celled,
   usually 4-seeded.

   Flowers: Nov. - Dec.

   Sivarajan 780.

I. staphylina Roem. & Schult. Syst. 4:249. 1819; Choisy
purple within at base, aggregated in lax, axillary panicles.

Flowers: Feb. – Mar.

Sivarajan 1646.


Slender climbers; leaves ovate-oblong, acute, cordate at base up to 5 x 3 cm; flowers pink, few at the tips of long, axillary peduncles; pedicels short, sub-umbelled; capsules 2-celled, 4-2-seeded; seeds hairy.


Sivarajan 874.

Note: Verdcourt (Kew Bull. 15:7. 1961) has shown that I. sepiaria Roxb. is not conspecific with I. maxima (Linn.f.) Sw. as has been considered by Ooststroom (loc. cit.).

Shrubs, sometimes slightly twining; leaves ovate-lanceolate cordate at base, up to 15 x 9.5 cm; flowers pink to white, up to 8 cm long, in axillary, corymbose cymes; corolla densely tomentose outside.

In exposed situations the plant is shrubby and in shaded conditions it twines up. It is seen wild and also cultivated in gardens.

Flowers: throughout the year.

Sivarajan 857, 1136.

Creeping herbs rooting at nodes; leaves oblong-lanceolate, hastate at base; flowers large, pink in 1-3-flowered, axillary cymes.

In water-logged fields and marshes.

Flowers: July - Nov.

Sivarajan 91, 122, 1124.


Creeping herbs; leaves ovate-lanceolate, cordate at base, up to 6 cm across; flowers rose-purple in axillary, short, few-flowered cymes.

A pretty plant resembling Ipomoea pes-caprae, but for its entire leaves.


Sivarajan 1572.

1753. Ipomoea biloba Forsk. Fl. Aeg.-Ar. 44. 1775;
FBI. 4:212. 1883.

Creeping herbs; leaves apically 2-lobed, base cuneate, lobes rounded; flowers large, rose-purple, about 6-7 cm long; seeds villous.

Common along sandy coast and railway embankments.


Sivarajan 480, 571.

Note: Ooststroom (ll.cc.) recognised two subspecies under I. pes-caprae, of which the cited specimen fits into the ssp. pes-caprae and can be distinguished from the ssp. braziliensis (Linn.) Oost. by its deeply 2-lobed leaves with rounded lobes and cuneate or attenuate base and corolla of about 6 cm length.

I. nil (Linn.) Roth, Cat. Bot. 1:36. 1797; Oost. in
Ipomoea hederacea auct. Plur., non Jacq.; Fil.
4:199. 1863; Gamb. 644.
Hispid climbers; leaves ovate-cordate, shallowly 3-lobed, lobes acuminate; flowers in axillary few-flowered cymes; calyx lobes linear, hirsute; corolla 5-7 cm long, deep purple on the limb, greenish below; capsules subglobose; seeds glabrous.

Flowers: Mar. - June

Sivarajan 416.


Slender climbers; leaves deeply 5-lobed, lobes elliptic-mucronate, glabrous; flowers rose-purple, up to 5 cm long; peduncles 1-3-flowered; capsules glabrous, usually 4-seeded.

Flowers: throughout the year.

Sivarajan 1380.
Climbers with large, tuberous roots; leaves 5-7 lobed, 12-15 cm across; flowers rose-purple in long-pedunculate, axillary cymes; capsules ovoid, 4-celled, 4-seeded; seeds woolly.

This pretty plant with its large tuberous roots are used in medicine, and are commonly seen on hedges and bushes.

Flowers: July - Dec.

Sivarajan 478.

Note: This plant goes under the name *I. digitata* Linn. in the Indian Floras. The name *I. digitata* Linn., actually applies to a rare endemic Haitian species, the correct name of the Indian specimen being *I. mauritiana* Jacq. (Verdcourt. loc. cit.)


Creeping herbs with tuberous roots; lamina deeply 5-7 lobed, lobes narrowly oblong, acute; flowers rose-purple in axillary cymes; sepals acuminate.

Flowers: May - June

Sivarajan 1221.


Slender climbers, hairy or glabrous; leaves ovate-cordate, acuminate at tip, basally 7-9 nerved; flowers creamy yellow, on 1-2 flowered, slender, axillary peduncles.

Flowers: May - Sept.

Sivarajan 493, 1127, 1424.

Glabrous, climbing shrubs; leaves simple, broadly ovate-acuminate, deeply cordate at base, up to 15 x 7.5 cm; flowers greenish-white, large, 1-3 on long, axillary peduncles; capsules about 2 cm across; seeds 4, covered with pale hairs; hairs on the margins much longer.

A rare species, collected from the salt marshes on Kadalundi river bank.


Sivarajan 1554.


Densely hispid climbers; leaves digitately 5-7 lobed, lobes ovate or broadly elliptic; flowers small, white, in long-pedunculate, bracteate heads; bracts and sepals bristly at base; capsules ovoid; seeds hairy.

Flowers: Sept. - Nov.

Sivarajan 640.


Slender, glabrous climbers; leaves deeply pinnatifid, lobes linear; flowers red in axillary long-peduncled 1-3 flowered cymes; capsules 4-celled, 4 seeded, seeds glabrous.

**Flowers**: May - Sept.

Sivarajan 1372.


Climbers; leaves ovate-cordate, 3-5 angled or shallowly lobed; flowers red in long-pedunculate,
forked, axillary cymes; corolla tube 3.5 cm long, slender; capsules ovoid; seeds 4, pubescent.

Flowers: Nov. – Jan.

Sivarajan 853.

**Aniseia** Choisy


Glabrous climbers; leaves simple, oblong or elliptic, obtuse, up to 7.2 x 2 cm; flowers white, solitary in the axils; sepals very unequal, outer 2 much larger than the inner, ovate, acute; capsules 2-celled; seeds 4.


Sivarajan 683.
Merremia Endl. (nom.cons.)

Key to the species

1. Flowers purple at base .................. tridentata
1. Flowers without a purple base:
   2. Flowers bright yellow:
      3. Leaves simple:
         4. Leaves orbicular-reniform ..... gangetica
         4. Leaves ovate-acuminate ........ hederacea
      3. Leaves digitately lobed ........... vitifolia
   2. Flowers white or pinkish ............ umbellata

16:552. 1893; Prain in J. As. Soc. Beng. 74:304.
1906; Oost. in Blumea 3:315. 1939 & Fl. Males.
Pl. 157. 1753. Ipomoea tridentata (Linn.) Roth in

Key to the subspecies

1. Leaves oblanceolate, obtuse ............ ssp.tridentata
1. Leaves lanceolate, acute ................ ssp.hastata
M. tridentata (Linn.) Hall. f., ssp. tridentata;

Slender, twining or trailing plants; leaves oblanceolate-obtuse, dentate at base; flowers pale yellow on axillary, 1-3 flowered, slender peduncles; capsules 2-celled; seeds glabrous.


Sivarajan 893.

M. tridentata (Linn.) Hall. f., ssp. hastata (Desr.)


Slender twiners; leaves lanceolate, acute, hastate at base; flowers creamy-yellow in axillary, 1-3 flowered cymes; capsules ovoid, 2-celled; seeds glabrous.


Sivarajan 722.
30, f. 1. 1768. Ipomoea reniformis Choisy in Mem.
Merremia emarginata (Burm.f.) Hall. f. in Engl. Bot.
Jahrb. 16:552. 1893; Oost. in Blumea 3:312. 1939;
Gamb. 652.

Glabrous climbers; leaves ovate-cordate up to
4 x 3 cm; flowers small, bright yellow in axillary,
3-7-flowered cymes; sepals cucullate; capsules 2-celled;
seeds puberulous.


Sivarajan 772

18:118. 1894; FBI. 4:206. 1883; Oost. in Blumea
Evolvulus hederaceus Burm. f. Fl. Ind. 77, t. 30,
f. 2. 1768. Merremia chryseides Hall. f. in Engl.
Glabrous climbers; leaves ovate-cordate up to 4 x 3 cm; flowers small, bright yellow in axillary 3-7-flowered cymes; sepals cucullate; capsules 2-celled; seeds puberulous.


Sivarajan 845.


Extensive climbers; leaves shallowly 5-7-lobed, about 15 cm across, lobes dentate; flowers in long-peduncled, axillary, 2-3 flowered cymes; calyx hispid outside; corolla yellow; capsules globose, large; seeds glabrous.

Flowers: Mar.- May

Sivarajan 894.

155. 1753. *Ipomoea cymosa* (Desr.) Roem. & Schult.  
*Syst. 4:241. 1819; FBI. 4:211. 1883.*

Slender climbers; leaves elliptic or oblong-acute, up to 7 x 3 cm; flowers in axillary, pedunculate cymes, white or pale pink; capsules subglobose; seeds patently hairy.

Flowers: Jan. – Mar.

Sivarajan 27, 938.

Note: This species display considerable variation in its hairiness. The author's collections include completely glabrous plants and also those which are densely hairy on stems and leaves.

*Porana* Bubm. f.


Straggling shrubs; leaves ovate-cordate, acuminate at apex, about 4.8 x 3.2 cm in size, glabrous; flowers white in axillary panicles; capsules globose; seed one.


Sivarajan 35.
PLATE 15

Bonamia semidigyna (Roxb.) Hall. f.

Fig. 1. A flowering branch. Fig. 2. Calyx
Fig. 3. Pistil. Fig. 3A. A style with unequal arms. Fig. 4. L.S. of ovary.
Fig. 5. T.S. of ovary. Fig. 6. Corolla split open, displaying stamens.
Fig. 7. Capsule. Fig. 8. Seed.
BONAMIA SEMIDIGYNA (ROXB) HALL. F.
Bonamia Thou. (nom.cons.)


Densely soft, rusty-tomentose climbers; leaves ovate-cordate, acuminate at apex, up to 8 x 6.2 cm; flowers white in few-flowered, axillary, long-peduncled cymes; calyx tomentose; corolla white, rusty villous on the plaits outside; styles connate below, equally or unequally divided above; stigma capitate; capsules ovoid; seeds 4, black, glabrous. (Plate 15).


Sivarajan 799, 854.

Note: Ooststroom (loc.cit. 1938) distinguished 2 varieties under this species, of which the cited specimen belongs to var._semidigyna_. The other variety - var._farinacea_- can be distinguished by its narrower leaves, and distinctly nerved sepals.
Evolvulus nummularius (Linn.) Linn.

Fig. 1. Creeping branch. Figs. 2-3. Flowers.
Fig. 4. Corolla split open. Fig. 5. Pistil.
Fig. 6. Capsule.
Evolvulus Nummularius (Linnaeus) Linnaeus.
Evolvulus Linn.

Key to the species

1. Flowers white ................................................... nummularius
1. Flowers purple ................................................... alsinoides

_E.nummularius_ (Linn.) Linn. _Sp. Pl._ (ed. 2) 391. 1762;

Much branched, prostrate herbs; leaves rounded or orbicular, 1-2.5 cm across; flowers white, axillary; peduncles shorter than the leaves; corolla white, glabrous; styles 2, each again forked. (Plate 16).

Flowers: May - Nov.

Sivarajan 202, 243.

_E.alsinoides_ (Linn.) Linn. _Sp. Pl._ (ed. 2) 392. 1762;
Diffuse, densely hispid herbs; leaves elliptic-acute, hairy on both surfaces; flowers in axillary cymes; peduncles much longer than the leaves; corolla violet; styles 2, each again forking.

Flowers: May - Dec.

Sivarajan 203, 1248.

SOLANACEAE Juss.

Key to the genera

1. Fruits spinous ........................................ Datura

1. Fruits not spinous:
   2. Berries enclosed in the inflated calyx. Physalis
   2. Berries not enclosed in calyx:
      3. Fruits globose or dipressed globose:
         4. Leaves simple or lobed ............. Solanum
         4. Leaves pinnate ....................... Lycopersicon
      3. Fruits elongate, tapering .......... Capsicum

Datura Linn.

D. metel Linn. Sp. Pl. 179. 1753; Roxb. Fl. Ind. 1:561.
1832; Sant. in J. Bombay nat. Hist. Soc. 47:657. 1947
(ed.10) 2:932. 1759; FBI. 4:242. 1883; Gamb. 660.
Low, branched shrubs; leaves broadly ovate-acuminate, entire or pinnately lobed, base very unequal; flowers large, white on short peduncles; calyx about 6-9 cm long, lobes short; corolla large, funnel-shaped, lobes caudate-acuminate; stamens inserted near the base of the corolla tube; fruits globose, covered with short spines; dehiscence irregular; seeds compressed, smooth.


Sivarajan 1474.

*Physalis* Linn.


Fleshy annuals; leaves ovate to ovate-lanceolate, entire or dentate; flowers greenish yellow; pedicels short, nodding; calyx campanulate, lobes short, accrescent in fruits; corolla with a purple base, campanulate, lobes short; stamens inserted at the base of the corolla; berries fleshy, globose, enclosed in the prominently veined calyx; seeds many, minute, discoid.


Sivarajan 639.
Solanum Linn.

Key to the species

1. Plants unarmed ...................................... nigrum

1. Plants armed:

2. Flowers white ................................. torvum

2. Flowers purple:

3. Berries subglobose:

4. Leaves glabrous .............................. surattense

4. Leaves stellate-tomentose ........ indicum

3. Berries oblong-ovoid .................... melongena

S.nigrum Linn.Sp. Pl. 186. 1753; FBI. 4:229. 1883;
Sant. 172. 1967; Gamb. 657.

Branched, glabrous herbs; leaves ovate to lanceolate; flowers small, white in lateral cymes; calyx lobes obtuse; corolla lobes longer than the tube, subacute; staminal filaments flat, hairy at the base; berries globose, 4-6 mm across, purple when mature.

Flowers: Aug. - Nov.

Sivarajan 439.

Stellate-tomentose shrubs with scattered prickles on the stem and petiole; leaves ovate-oblong, sinuate or lobed, stellate-tomentose; flowers white in pubescent, lateral cymes; berries subglobose or obovoid, 1-1.2 cm across, red when mature.

Flowers: Mar. - Sept.

Sivarajan 1005.


Diffuse, prickly herbs; leaves pinnately 7-11 lobed, unequal sided at base; prickly on the midribs; flowers purple; berries 1.5 cm across.

Flowers: Aug. - Nov.

Sivarajan 1188.
S. indicum Linn. Sp. Pl. 187. 1753; FBI. 4:234. 1883;
Sant. in J. Bombay nat. Hist. Soc. 47:653. 1948 &

Prickly undershrubs, minutely stellate-tomentose;
leaves sinuately toothed; flowers purple in lateral cymes;
berries white-striped when young and yellow when ripe,
1.5 cm across.


Sivarajan 524.

S. melongena Linn. Sp. Pl. 185. 1753; FBI. 4:229. 1883;

Armed shrubs; leaves ovate, sinuately toothed,
equal sided at base; flowers blue; fruits variable in
size, purple or greenish.

Many cultivars of this species are used as
vegetable.


Sivarajan 1885
Lykopersikon Mill.

*L. lykopersicum* (Linn.) Karsten. Dentsch. Fl. 966.

Fleshy, branched annuals; leaves pinnate; leaflets pinnatisect; flowers yellow in lateral cymes; fruits large dipressed globose.

Flowers: *Aug. – Nov.*

Sivarajan 619.

Capsicum Linn.

1. Fruits 5–7 cm long ....................................... *annuum*
1. Fruits 2–3 cm long .............................. *frutescens*

*C. annuum* Linn. Sp. Pl. 188. 1753. *var. acuminata* Fingerh. in Mon. Gen. Caps. 13, t. 2, f. c. 1832; Sant. 175.
Shrubby annuals; leaves sometimes fascicled in the axils, ovate-lanceolate; flowers white, fruits red-orange, pendulous, very often curved.


Sivarajan 1513.


Shrubby perennials; leaves ovate-lanceolate; flowers white; fruits green or white, erect, not curved.

Flowers: throughout the year.

Sivarajan 1462.
SCROPHULARIACEAE Juss.

Key to the genera

1. Perfect stamens 2:
   2. Prostrate herbs .................. Microcarpaea
   2. Erect herbs ..................... Dopatrium

1. Perfect stamens 4 (except in a few species of Lindernia)

3. Anthers with one locule imperfect:
   4. Flowers capitate .................. Adenosma
   4. Flowers solitary in the axils:
      5. Calyx 5-lobed .................. Sopubia
      5. Calyx spatheaceous ............ Centranthera

3. Anthers with both the locules perfect:

6. Anthers meeting in pairs:
   7. Calyx winged or keeled ........ Torenia
   7. Calyx neither winged nor keeled .... Lindernia

6. Anthers not meeting in pairs:

8. Capsules heart-shaped ............ Rhamphicarpa
8. Capsules not heart-shaped:

9. Corolla tube cylindric:
   10. Corolla tube bent near the top .. Striga

10. Corolla tube straight . . . Rhamphilla
9. Corolla tube not cylindric:
   11. Flowers regular .................. Scoparia
   11. Flowers irregular:
       12. Stamens inserted at the base
           of the tube ...... Angelonia
       12. Stamens inserted at the
           middle of the tube :
       13. Calyx lobes very unequal... Bacopa
       13. Calyx lobes almost equal... Limnophila

   Microcarpaea R. Br.


   Small, prostrate herbs, rooting at nodes;
leaves small, subsessile, 4-6 mm long, elliptic-acute;
flowers minute, sessile, solitary in the axils; stamens only 2; anthers 1-loculed; capsules enclosed in the enlarged calyx.

   Common in moist fields, very often so thickly growing that it forms a "carpet".

   Flowers: June - Dec.

Sivarajan 1491.
Dopatrium Buch.-Ham. ex Benth.

Key to the species

1. Fruiting pedicels 5-7 mm long ............ lobelioides

1. Fruiting pedicels 0 ..................... junceum

*D. lobelioides* Benth. Scroph. Ind. 31. 1835; FBI. 4:274. 1884; Gamb. 670.

Erect herbs, 20-25 cm tall; stem fleshy, rarely branched; lower leaves obovate-oblong or spathulate, 2-3 x 1-1.2 cm, the upper ones much smaller; flowers small, blue; capsules globose, fruiting pedicels filiform, 1.5-2 cm long.

Usually seen as a weed in water-logged fields and in shallow ponds.


Sivarajan 587.


Erect herbs; stem fleshy, usually branched; basal leaves obovate-oblong or elliptic, 2-2.5 x 1 cm,
the upper much smaller and distant; flowers small, solitary in the axils; corolla blue; capsules globose, sessile.

In shallow ponds and in marshes on the hills. Collected from the University campus.


Sivarajan 408.

**Adenosma** R. Br.


Erect, woody annuals; leaves opposite or whorled, ovate-oblong, crenate, hairy on both surfaces; flowers blue in dense, terminal heads; calyx lobes lanceolate, one of them being larger, ciliate; capsules ovoid; seeds scabrous.
A common weed on the grassy slopes and in upland cultivations.


Sivarajan 707.

**Sopubia** Buch.-Ham.

*S. delphinifolia* (Roxb.) G. Don, Gen. Syst. 4:560. 1837; FBI. 4:302. 1884; Sant. 164. 1960; Gamb. 682.  

Erect annuals; leaves pinnatisect, lobes filiform; flowers axillary, solitary, white with purplish blotches; calyx 5-lobed, lobes longer than the tube; corolla pubescent outside; stamens 4, didynamous, anthers meeting in pairs, one of the anther cells imperfect; capsules oblong, about 6 mm long; seeds striate.

A monsoon herb on the grassy slopes. An abnormal specimen collected from the University campus showed fasciated stem.


Sivarajan 499, 531, 676.
**Centranthera** R. Br.

1. Flowers white ........................................... *indica*

1. Flowers purple:
   2. Plants densely hispid ......................... *nepalensis*
   2. Plants glabrescent or glabrous .......... *tranquebarica*


Diffuse, densely hispid herbs; roots bright yellow; leaves oblong-obtuse, up to 3 cm long; with tubercular based hairs on both surfaces; flowers white, funnel-shaped; calyx spathaceous, ribbed, hairy; stamens 4, anthers meeting in pairs, one cell often imperfect, filaments hairy; capsules about 8 mm long.

A rare species in wet, sandy fields, collected from Nallalam and Kadalundi.

Flowers: Sept. – Nov.

Sivarajan 649, 650, 743, 747.

The author is thankful to Prof. HuiLin Li, Morris Arboretum, University of Pennsylvania, for the generous helps rendered in confirming the identifications of the *Centranthera* specimens and for his critical comments on them.
Note: Hooker (Fl. Brit. Ind. 4:301. 1884) has expressed doubt over the specific status of this plant and has remarked that it might be "possibly a variety of C.hispida. Santapau (Fl. Khand. (ed.3.) 184. 1967) has treated C.indica, as conspecific with C.hispida R.Br. and C.nepalensis Don. But it is now accepted that C.hispida is restricted to Australia and New Guinea. Regarding the other two species Prof. Hui Lin Li (in a personal communication to the author) states that "C.indica and C.nepalensis are separable as two distinct taxa - either as species or varieties-". The author feels that Gamble's (loc.cit.) treatment is on amply justifiable grounds, since the two specimens are so strikingly distinct in their growth form, flower colour, capsules, seed size and in their characteristic habitats.


Erect, densely hispid herbs; leaves oblong-obtuse with tubercular based hairs on both surfaces;
flowers rose-purple, funnel shaped; calyx 5-6 mm long; lower pair of staminal filaments hairy, anther cells as in C.indica; capsules 5 mm long.

On grassy slopes in rocky areas. Usually this plant is unbranched. Sometimes 2 opposite branches develop from the axils of some upper pair of leaves with very long internodes.


Sivarajan 341, 534, 651.

Note: This plant is listed under the name C.hispida in many Indian Floras. C.hispida, C.nepalensis and C.cochinchenensis are very often considered conspecific. But Hui Lin Li (loc.cit.) has maintained the three as different species. C.hispida is limited in its range to Northern Australia and New Guinea. C.nepalensis is confined to the Himalayas and Western China to as far east as Western Hupeh. C.cochinchenensis has a more eastern range. C.nepalensis differs from the other two species, in having purple flowers, smaller corolla (1.5 cm) and spirally ridged seeds.

Erect or diffuse, branched herbs; leaves linear-oblong with sparse tubercular based hairs, up to 2 x 0.5 cm; flowers purple; calyx 4-5 mm long; corolla tubular, 8-10 mm long; filaments glabrous; capsules 4 mm long.

An annual in wet sandy fields, during the rainy season.

Flowers: Sept. - Nov.

Sivarajan 473, 506, 748.
Torenia Linn.

Note: The delimitation of Torenia and Lindernia has been a difficult task. Pennell (J. Arn. Arb. 24:254. 1943) distinguished the two genera as follows. "In Lindernia the sepals whether distinct or joined, do not invest the capsule, but have their tips somewhat spreading, whereas in Torenia the sepals invest the capsules, being curved above it with their connivent tips projecting above it". Keeled or winged calyx in Torenia has been another feature as contrasted with the wingless or not keeled calyx of Lindernia. In this treatment, the author has followed Pennell's generic concept.

Key to the species

1. Calyx broadly winged ................. fournieri
1. Calyx keeled or narrowly winged:
   2. Capsules 1 cm long ................. bicolor
   2. Capsules 0.5 cm long ............... lindernioides

The author is thankful to Rev. Fr. 'Dr. 'Cecil J. Saldanha, St. Joseph's College, Bangalore for his critical comments and determinations of the Torenia and Lindernia specimens.

Diffuse herbs; leaves ovate-lanceolate, serrate, up to 4 x 2 cm; flowers deep purple with a yellow throat, solitary in the upper axils or in terminal few-flowered racemes; calyx ovoid; stamens 4, didynamous, anthers meeting in pairs, longer pair of filaments appendaged.

Seen cultivated as an ornamental.


Sivarajan 1131.


Diffuse annuals; leaves ovate or triangular, crenate-serrate, 3.5 x 2.2 cm; flowers deep purple, solitary in the axils; pedicels long, deflexed in fruits; calyx tubular, 1.2-1.8 cm long; appendages of filaments short, subulate; capsules included in the calyx.
Common in wet low lands during the rainy season.


Sivarajan 60.


Prostrate herbs, rooting at nodes; leaves ovate, crenate-serrate, up to 1.5 cm long; flowers blue, axillary, solitary, small; calyx distinctly winged; capsules ellipsoid, narrowed at the top, included in the calyx; seeds numerous, foveolate.

This plant, closely resembling Lindernia crustacea (Linn.) F. Muell. is common in the wet fields during monsoon.

Flowers: July - Dec.

Sivarajan 1012, 1780.

Note: Saldanha (loc.cit.) has remarked that this is an enigmatic little plant which has often been included under Lindernia crustacea (Linn.) F. Muell. But it differs from the latter in the structure of the calyx and of the capsule.
Lindernia All.

Key to the species

1. Perfect stamens 4:
   2. Capsules much longer than the calyx .... anagallis
   2. Capsules as long as the calyx:
      3. Flowers in terminal racemes:
         4. Plants prominently hirsute ........ ovata
         4. Plants almost glabrous ............ crustacea
      3. Flowers not racemose ............... pusilla

1. Perfect stamens 2:
   5. Capsules linear:
      6. Leaves spinous-toothed ............ ciliata
      6. Leaves not spinous-toothed:
         7. Capsules 1 cm or more long:
            8. Leaves oblong, up to
               5.5 x 0.8 cm .......... oppositifolia
            8. Leaves elliptic, up to
               2 x 0.7 cm .......... antipoda
         7. Capsules less than 1 cm long .... tenuifolia

The author is thankful to Mr. D. Philcox, Royal Botanic Gardens, Kew for his helps in the determinations of Lindernia and Limnophila species.
5. Capsules not linear:

9. Leaves oblong-lanceolate to linear .... hyssopioides

9. Leaves ovate or orbicular:

10. Capsules ovoid ....................... parviflora

10. Capsules rounded or subglobose .... rotundifolia


1943; Mukh. in J. Ind. bot. Soc. 24:133. 1945; Philcox
anagallis Burm. f. Fl. Ind. 135. 1798. Vandellia
pedunculata Benth. Scroph. Ind. 37. 1835; FBI. 4:282.
Pl. 3:437. 1923. Langustifolia (Benth.) Wettst. in
Engl. & Pr. Pfam. 4(3B):79. 1891; Mukh. in J. Ind.

An erect or diffuse herb; leaves linear to
ovate-obtuse, serrate, up to 1.2 x 0.8 cm; flowers
white or blue, solitary in the axils; perfect stamens 4;
capsules linear, about 1 cm long.

Flowers: Aug. – Nov.

Sivarajan 1664, 1665.

Note: The author's collections of this taxon
include two apparently distinct forms. The diffuse form
rooting at the nodes with triangular- ovate leaves is
treated under *Vandellia pedunculata* in the Indian Floras, and the other with linear-lanceolate leaves is kept under the name *V. angustifolia*. Apart from the leaf shape, Hooker (loc.cit.) considered the inflorescence of these taxa to be quite different, *V. pedunculata* with terminal racemes and *V. angustifolia* with axillary, solitary flowers. Mukherjee (ll.cc.) in his revision of Indian *Lindernia* also held them as two distinct species.

But Philcox (loc.cit.) has extended the limits of *Lindernia anagallis* as to include *L. angustifolia* also. According to him, the leaves of this species exhibited a continuous range of variation and cannot be depended for segregation of species. Regarding the type of inflorescence, (in a personal communication to the author), he says "In this I consider there to be only one common type of inflorescence in which all flowers are solitary in the leaf axils and never racemose. This is because I consider every flower to be subtended either by normal or reduced leaves, never by bracts."

Following Philcox, the author has treated both the specimens under *L. anagallis*. 

Vandelia hirsuta Buch.-Ham. ex Benth. Scroph. Ind. 36. 1835; FBI. 4:279. 1884; Gamb. 673.

Diffuse herbs, hirsute all over; leaves ovate or elliptic, up to 3.5 x 2 cm; flowers white with a yellow throat in terminal racemes; pedicels long; capsules ovoid, as long as the calyx.

In moist grass fields, and as a weed in gardens.


Sivarajan 343.


Diffuse herbs, sometimes rooting at nodes; leaves ovate, triangular, serrate-dentate, rounded, cordate or attenuate at base; lower flowers solitary in the axils, upper in apparent racemes; pedicels up to 1.5 cm; capsules oblong-ovoid; seeds foveolate.

Small, erect annuals, 5-12 cm tall; leaves elliptic-oblong, sharply dentate; flowers purple in terminal racemes; fertile stamens 2; capsules linear, 1.4 cm long.

Common in moist, rocky places, and on grassy slopes.

Flowers: July - Nov.

Sivarajan 283.


Erect or diffuse annuals; leaves narrowly oblong entire or toothed, about 5.5 x 0.8 cm; flowers blue in apparent, terminal racemes; capsules linear, 1-1.2 cm long.
A variable species in moist grassy slopes and also seen as a weed on old walls and in gardens.

Flowers: July – Dec.

Sivarajan 322, 1369.


Diffuse or prostrate herbs; leaves rounded or ovate, serrate, basally 3-5-veined, up to 1.5 x 1 cm; flowers white, axillary, solitary or in pairs; appendages on the longer pair of staminal filaments rounded; capsules subglobose.

A weed in wet-land cultivations and also in other moist or marshy low-lands.


Sivarajan 44, 436.

Small, erect annuals, 5-12 cm tall; leaves elliptic-oblong, sharply dentate; flowers purple in terminal racemes; fertile stamens 2; capsules linear, 1.4 cm long.

Common in moist, rocky places, and on grassy slopes.

**Flowers:** July - Nov.

Sivarajan 283.


Erect or diffuse annuals; leaves narrowly oblong entire or toothed, about 5.5 x 0.8 cm; flowers blue in apparent, terminal racemes; capsules linear, 1-1.2 cm long.
Seen in marshes and along the wet river banks.
Collected from the banks of Kallai River.

Flowers: Aug. – Sept.

Sivarajan 317, 518.


Diffuse herbs, rooting at the lower nodes; leaves ovate-elliptic, serrate, glabrous, up to 3.5 x 1.6 cm; flowers purple in apparent, terminal racemes; capsules 1.5 cm long, linear.

In moist or wet places, also seen as a weed in wet cultivated fields.

Flowers: July – Dec.

Sivarajan 280, 389, 1014.
I. tenuifolia (Colsm.) Alston, Trim. Fl. ceyl. 6 (Suppl.)
214. 1931; Mukh. in J. Ind. bot. Soc. 24:134. 1945;
(Colsm.) Haines, Bot. Bih. & Or. 634. 1922.

Tufted, erect or diffuse herbs; leaves linear,
fleshy, up to 1.5 cm long; flowers pale blue or white,
minute; fruiting pedicels up to 7 mm long; capsules
linear, 6 mm long.

Very common on the Kallai river bank.

Flowers: June - Dec.

Sivarajan 432, 1368.

I. hyssopioides (Linn.) Haines, Bot. Bih. & Or. 635. 1922;
Linn. Mant. 174. 1767. Ilysanthes hyssopioides (Linn.)
Benth. in DC. Prod. 10:419. 1846; FBI. 4:283. 1884;
Gamb. 675.

Erect, slender herbs; leaves elliptic-acute, up
to 7 x 4 mm; flowers white with purplish blotches; pedicels
filiform, 2 cm long in fruits; capsules ovoid, 6 mm long.


Sivarajan 1549.

Erect, slender herbs, up to 15 cm tall; leaves ovate or lanceolate, about 2 x 0.5 cm; flowers purplish; pedicels filiform, about 1.5 cm long; capsules ovoid, twice longer than the calyx.

Flowers: July - Dec.

Sivarajan 1658.


Diffuse herbs, rooting at lower nodes; leaves ovate-orbicular; flowers white, blotched with purple, solitary in the axils; capsules subglobose.

In marshy fields, and also seen as a weed in wet land cultivations.

Flowers: Aug. - Nov.

Sivarajan 433, 1343.
Rhamphicarpa Benth.


Annual herbs, 5-10 cm tall; leaves once or twice pinnatisect, lobes linear; flowers white, sessile, solitary in the axils; corolla tube 2.5-4 cm long, narrow, cylindric; capsules heart-shaped; seeds many.

Plants bloom at night and shed the flowers early morning. Common on wet rocky slopes.


Sivarajan 300.

Striga *Lour.*

Key to the species

1. Leaves scale-like ......................... *gesneroides*

1. Leaves not scale-like:

2. Flowers yellow ......................... *lutea*

2. Flowers white ......................... *angustifolia*

**Striga orobanchoides** (R. Br. ex Endl.) Benth. in Hook.
Gamb. 680.

Erect, branched herbs, 10-15 cm tall; stem purple;
leaves reduced to scales; flowers purple in the axils of
scaly leaves; calyx 5-ribbed; capsules ellipsoid.

Characteristically restricted to rocky laterite,
and parasitic on the roots of *Dysophylla quadrifolia*.
Of the varieties recognised by Saldanha (loc. cit. 68-69.)
the cited specimen belongs to the var. *gesneroides*.


Sivarajan 514.

**S. lutea** Lour. Fl. Cochinch. 22. 1790; FBI. 4:299. 1884;
Pennell in Acad. Nat. Sc. Phil. Mon. 5:96. 1943;

**Buchnera asiatica** Linn. Sp. Pl. 630. 1753 (nom. rej.).
**Striga asiatica** (Linn.) Kuntze, Rev. Gen. Pl. 466.
Erect, hispid herbs; leaves narrowly oblong; flowers solitary in the axils, yellow; calyx 10-ribbed with one rib terminating each lobe, pubescent; corolla tube slender, pubescent outside; capsules ellipsoid.

Usually seen on grassy slopes, parasitising on grass roots.

Flowers: June - Sept.

Sivarajan 1229.

Note: Saldanha (loc.cit.) recognised three varieties under this species, primarily based on flower colour. The cited specimen belongs to the var. lutea.


Erect herbs; leaves narrowly oblong to lanceolate, up to 2.5 x 0.5 cm; flowers white in terminal spikes; calyx 10-ribbed, each lobe terminated with 3 ribs; capsules oblong.
In grassy slopes, among grasses.

Flowers: July - Aug.

Sivarajan 276, 298.

Note: This plant is very often treated under the name *S. euphrasioides* (Benth.) Benth. Pennell (Acad. Nat. Sc. Phil. Mon. 5:96. 1943) has held that *S. asiatica* (Linn.) Kuntze, is the correct name for this species. But the lack of an authentic type together with the ambiguous diagnosis by Linnaeus has caused a great deal of confusion. (Saldanha l.c.67.). According to Merrill (Trans. Amer. Phil. Soc. n.s. 24:353. 1935) *S. asiatica* is the correct name for *S. lutea* Lour. and according to Hochreutiner (Candollea 5:210. 1934), it applies to *S. densiflora* Benth. Thus, since the name is used in different senses it is proposed (Saldanha, loc. cit. 67-68) that the name may be kept as a *nominum rejiciendum* (Art. 69).

Bentham's name *Striga euphrasioides* and its basionym *Buchnera euphrasioides* Vahl, are based on two very distinct types. So the name *S. euphrasioides* (Vahl) Benth. must be restricted to Vahl's specimen and that of Bentham should be renamed. Saldanha (loc.cit.), hence, has made the combination *S. angustifolia*, based on *Buchnera angustifolia* Don.
**Russelia Jacq.**

*R. equisetiformis* Schlech. & Cham. in *Linnaea* 6:377. 1831;


Much branched herbs; stem angular; leaves ovate-lanceolate, often reduced to scales; flowers red, tubular in dichotomous cymes; capsules subglobose.

Flowers: July - Aug.

Sivarajan 1361.

**Scoparia Linn.**

Sant. 165. 1960; Gamb. 678.

Erect, woody herbs; leaves elliptic to obovate, serrate; flowers white, 1-3 in each axil, corolla throat densely bearded; capsules ovoid.

A weed on road sides and in cultivated fields.


Sivarajan 701.
Angelonia Humb. & Bonpl.


Erect, viscid-tomentose herbs; leaves narrowly lanceolate, distantly serrate, up to 10 x 1 cm; flowers purple, 1-3 in each axil; capsules subglobose, minutely hairy.

Seen growing wild in wet fields, sometimes grown in gardens.

Flowers: Mar. - Dec.

Sivarajan 544.

Bacopa Aubl. (nom.cons.)

Key to the species

1. Flowers sessile ......................... *hamiltoniana*

1. Flowers pedicellate:

2. Pedicels fascicled in the axils .. *floribunda*

2. Pedicels solitary in the axils ... *monnieri*


Small, erect herbs; leaves narrowly lanceolate-acute, entire or serrate, up to 2.5 x 0.5 cm; flowers axillary, solitary, sessile; 2 of the calyx lobes larger, ovate, others lanceolate; corolla pink; capsules subglobose.

A weed in moist fields, among grasses.

Flowers: Aug. – Mar.

Sivarajan 64, 540.

Note: For a detailed account of the nomenclature of the genus refer Santapau (loc.cit.).

*B. floribunda* (R. Br.) Wettst. in Engl. & Pr. Pfam.

Erect herbs; stem subquadrangular; leaves lanceolate-acute; flowers white, 1-3 in each axil; pedicels 4-5 mm long; calyx as in the earlier species; capsules oblong.
In moist sandy fields, near the coast. Collected from Kadalundi.


Sivarajan 1536.


Creeping herbs, rooting at nodes; leaves obovate-oblong or spatulate; flowers white, axillary, solitary; pedicels up to 2.5 cm; capsules ovoid.

Common on the river banks and in saline marshes.

Flowers: July – Dec.

Sivarajan 87.

*Limnophila* R. Br. (nom. cons.)

Key to the species

1. Flowers distinctly pedicellate:
   2. Leaves all verticellate ............... *indica*
   2. Aerial leaves opposite .............. *aquatica*
1. Flowers sessile or subsessile:

3. Leaves basally nerved .................. heterophylla
3. Leaves penninerved ..................... repens


Small herbs, about 8-15 cm tall; leaves all verticellate, variously lobed; flowers pale yellow, solitary in the upper axils; pedicels 7 mm long; capsules subglobose.

In moist or marshy fields, near the coast.


Sivarajan 628.

Note: Santapau (loc.cit.) has extended the limits of this species to include both *L.racemosa* Benth. and *L.gratioloides* R. Br., since "these two are connected by many intermediate forms". However, Philcox (loc.cit.) has separated them into two distinct species.
The author has collected both these plants from Calicut. They are conspicuously different in their habit, the shape, size, insertion and venation of leaves, in the inflorescence, pedicel length etc. and hence the author feels that Philcox's separation of these two species is on ample grounds.


Annual, hirsute herbs; submerged leaves with capillary lobes; aerial leaves elliptic-lanceolate, serrate, basally 3-veined; flowers white with purple blotches forming terminal racemes; capsules subglobose.

Aquatic herbs in water-logged fields and ponds.


Sivarajan 446, 629.

Note: A probable interspecific hybrid of *Limnophila aquatica* and *L. indica*.

The author has collected a specimen of *Limnophila* which does not exactly correspond to any of the published descriptions.
The plant grows tufted on the wet banks of a river at Kunnamangalam and are extremely hirsute. The lower leaves and those on the young stems are verticillate and toothed or pinnately lobed. The upper leaves are opposite, elliptic-acute, serrate, 3-5-nerved from the base, up to 1.8 x 0.7 cm. The pale yellow flowers are solitary in the axils.

Subsequent collections have revealed that, in spite of its normal, healthy growth and flowering, the population is unable to produce fertile fruits and viable seeds. The availability of *Limnophila indica* and *L. aquatica* in the vicinity, the intermediate characters exhibited and the failure to produce **viable seeds** indicate a possible hybrid nature. These plants are under further study by the author.


Sivarajan 993.


Aquatic, hirsute herbs; submerged leaves with capillary lobes; aerial ones opposite, narrowly lanceolate,
serrate, up to 1.5 x 0.3 cm, basally 3-veined; flowers subsessile, pale pink; capsules subglobose.

In water-logged fields and in shallow ponds.


Sivarajan 1548.

*L. repens* (Benth.) Benth. in DC. Prod. 10:387. 1846;
Benth. in Lindl. Bot. Reg. 17, t. 1470, Sp. 11. 1832
in DC. Prod. 10:387. 1846; FBI. 4:266. 1884; Sant.

Diffuse herbs; leaves monomorphous, elliptic
to lanceolate, crenate-serrate, up to 2.5 x 1 cm;
flowers axillary, solitary or in racemes; capsules
ovoid.

In marshy fields and in wet grassy slopes.

Flowers: July – Dec.

Sivarajan 742.
LENTIBULARIACEAE L.C.Rich.

Utricularia Linn.

Key to the species

1. Aquatic herbs:
   2. Floats present .................... inflexa
      var. stellaris

2. Floats absent:
   3. Racemes 1-3 flowered ............ gibba
      ssp. exoleta
   3. Racemes 4-6 flowered ............ aurea

1. Terrestrial herbs:
   4. Scapes twining ..................... reticulata
   4. Scapes not twining:
      5. Sepals flat, spreading in
         fruits ... graminifolia
      5. Sepals clasping the fruits ...... uliginosa

_U. inflexa_ Forsk. Fl. Aeg.-Ar. 9. 1775, var. stellaris
1884; Sant. in J. Bombay nat. Hist. Soc. 49:217. 1950;
Gamb. 689.

The author is thankful to Dr. P. Taylor, Royal Botanic
Gardens, Kew, and Dr. K. Subramanian, Retd. Director of
Botanical Survey of India, for their helps in the ident-
tification of the _Utricularia_ species.
Floating herbs with submerged stolon; leaves whorled, capillaceo-multifid with interspersed bladders; flowers yellow, racemed; peduncle with a whorl of spongy floats at base; pedicels short; fruiting calyx lobes reflexed, exposing the capsules.

Very common in water-logged fields and ponds.


Sivarajan 758.

_U._ gibba Linn. Sp. Pl. 18. 1753, ssp._exoleta (R. Br.)


Small floating or rooting herbs; stolons filiform; leaves multifid, lobes capillary; peduncles and pedicels filiform; flowers yellow; spur slightly longer than the lower lip, straight; seeds lenticular, winged.


Sivarajan 777.


Aquatic herbs with submerged stolons; leaves whorled, segments capillary with bladders; flowers yellow in simple racemes; peduncles without spongy floats; pedicels deflexed in fruits; seeds many, angled with narrowly winged margins.

Floating herbs in stagnant pools or water-logged fields.


Sivarajan 909.


Terrestrial plants; scapes twining, with a few scales; flowers blue-violet; the palate of the corolla reticulate with purple; spur short, slightly curved; seeds reticulate.

Common in paddy fields, twining around paddy plants.


Sivarajan 929, 1492.
U. graminifolia Vahl, En. 1:195, no. 3. 1805; Sant. in. 
1884, non Linn.

Slender, terrestrial herbs; stolon leaves filiform; leaves small, spathulate with bladders beneath; 
scape usually erect, 5-10 cm tall; flowers blue or purple; pedicels not recurved; calyx lobes ovate-
 acuminate green; palate of the corolla reticulate with purple veins; spur conical; seeds reticulate.

A common monsoon herb on the wet or moist hard lateritic slopes, in the University campus.

Flowers: Aug. – Nov.

Sivarajan 1316.

U. uliginosa Vahl, En. 1:203, no 25. 1804; Sant. in J. 
Gamb. 689.

A slender, terrestrial herb, 4-8 cm tall; leaves oblong-spathulate; scape slender, 2-4 flowered; flowers bluish purple, pedicelled; pedicels not recurved; sepals ovate-acute purple; spur slightly curved; seeds subgloboso.

reticulate.
In the swamps near the University Campus, often seen closely associated with *U. graminifolia*.

Flowers: Aug. – Nov.

Sivarajan 272.

**GESNERIACEAE** Dumort.

*Rhynchoglossum* Blume


Fleshy annuals; leaves ovate-lanceolate, acute or acuminate, unequal sided at base; lateral veins many, arched, parallel; flowers bright blue; calyx 5-winged, lobes 5, unequal; corolla tube short, white; perfect stamens 4; capsules ovoid, 2-valved.

Common in damp, shaded places.

Flowers: July – Dec.

Sivarajan 438, 577, 1355.

Note: Burtt (loc.cit.) has treated *Rhynchoglossum* Blume and *Klugia* Schlech. as congeneric.
BIGNONIACEAE Juss.

Key to the genera

1. Trees or shrubs:
   2. Calyx spathaceous:
      3. Flowers white .................. Dolichandrone
      3. Flowers crimson-red ............ Spathodea
   2. Calyx not spathaceous:
      4. Flowers dull white:
         5. Leaves decompound ............ Oroxylum
         5. Leaves simply pinnate ........ Pajanelia
      4. Flowers not white:
         6. Leaflets lanceolate, acuminate, 10-15 cm long..Tecoma
         6. Leaflets elliptic, up to 2 m long ............ Tecomaria

1. Climbing shrubs:
   7. Leaves 2-3-foliolate ............ Pyrostegia
   7. Leaflets many .................... Pandorea

Dolichandrone (Fenzl.)Seem.(nom.cons.)


Trees; leaves 5-7-foliolate; leaflets ovate-lanceolate, acuminate; flowers large, white, short-pedicelled; calyx spathaceous; corolla funnel-shaped, 10-15 cm long; stamens 4, didynamous; anthers with 2, divaricate cells; capsules very long; seeds compressed with membraneous wings.

Flowers: June - July

Sivarajan 1171.

*Spathodea* Beauv.

*S.campanulata* Beauv. Fl. Owar. 1:47. tt. 27-28. 1805; Bailey 907; Gamb. 703.

Trees; leaves 15-19-foliolate, tomentose; leaflets ovate to lanceolate, acuminate, pubescent beneath; flowers large, showy in many-flowered, dense racemes, scarlet; buds filled with a watery sap; calyx spathaceous, densely pubescent, red; corolla large; capsules oblong-lanceolate, flattened.
A plant of New World tropics, now naturalized in India also.


Sivarajan 536.

Oroxyllum Vent.


Trees; leaves bipinnate; leaflets elliptic-acute or acuminate; racemes terminal, dense; flowers dull white; calyx campanulate; corolla lobes sub-equal, toothed; capsules large, compressed; seeds thin, flat and hyaline winged.

Flowers: June – July

Sivarajan 1313.

Pajanelia DC.

Trees with warted trunk; leaves pinnate, clustered towards the tips of branches; leaflets broadly ovate or elliptic, acuminate, oblique at the base; flowers reddish outside, dull-white within, fleshy, in terminal racemes; fruits compressed, winged; seeds compressed with hyaline wings.

Flowers: Mar. - Apr.

Sivarajan 217.

_Tecoma_ Juss.


Shrubs or small trees; leaves 3-7-foliolate; leaflets lanceolate-acuminate, serrate; flowers bright yellow; large and showy; capsules linear; seeds compressed, winged.

Flowers: Oct. - May

Sivarajan 567.
Tecomaria Spach.


Low undershrubs; leaves imparipinnate, about 10-15 cm long; leaflets few, small, elliptic-acute, serrate; flowers red in terminal racemes; calyx campanulate, 5-toothed; corolla 4-lobed; capsules linear, compressed.

Flowers: Nov. - Dec.

Sivarajan 906.

Pyrostegia Presl.


Tendril-climbers; leaves 2-3-foliolate; leaflets elliptic-acute; flowers crimson red, in pendulous,
axillary panicles; calyx glandular hairy; corolla tube funnel-form, curved, lobes oblong-obtuse, reflexed; capsules linear.

Flowers: most part of the year.

Sivarajan 1630.

**Pandorea Spach.**

*P. jasminoides* (Lindl.) Schum. in Engl. & Pr. Pfam.

4(3b):230. 1894; Bailey, Cycl. Hort. 2452. 1916;


Climbing shrubs; tendrils 0; leaves bipinnate; leaflets lanceolate, acuminate; flowers pink, sprinkled with purple in terminal panicles; calyx campanulate, 5-toothed; corolla limb large, spreading, lobes crenate; capsules oblong 5-8 cm long; seeds elliptic, winged.

Flowers: July - Dec.

Sivarajan 1467.
PEDALIACEAE R. Br.

Key to the genera

1. Fruits with spines near the base .......... Pedalium
1. Fruits without spines ..................... Sesamum

Pedalium Roy. ex Linn.

P. murex Linn. Syst. 1123. 1759; FBI. 4:386. 1884; Mahes. 262; Gamb. 704.

Fleshy annuals; leaves ovate-obtuse, dentate; flowers yellow, solitary in the axils, 4-5 cm long; peduncle short; fruits indehiscent, obtuse at tip with 4 spines at 4 angles near the base.

This mucilaginous herb is common on the sea coast and along the road sides.

Flowers: May - June

Sivarajan 1174.

Sesamum Linn.

1. Prostrate herbs ....................... laciniatum
1. Erect herbs ......................... indicum

Prostrate, densely hispid herbs; leaves variously dentate or lobed, up to 4 x 3 cm; flowers reddish purple, pubescent outside; capsules ovoid, slightly compressed, 1 cm long, hispid.

On the grassy slopes, road sides and waste places on hills.

Flowers: July - Nov.

Sivarajan 267.


Tomentose, erect herbs; lower leaves digitately lobed, up to 15 x 10 cm, upper entire; flowers rose-pink, solitary in the axils; corolla pubescent outside; capsules 2 cm long, silky tomentose.

Common under cultivation. Occasionally found as a weed in waste places.

Flowers: July - Oct.

Sivarajan 486, 1334.
MARTYNIACEAE Stapf

*Martynia* Linn.


Coarsely pubescent, succulent herbs; leaves large, ovate-orbicular, subcordate at base; flowers showy, rose-coloured with yellow and purplish blotches in terminal and axillary racemes; fruits with 2 anterior hooks.

Common on the sandy sea coast during the rainy season.

Flowers: July - Dec.

Sivarajan 1165, 1308.

ACANTHACEAE Juss.

Key to the genera

1. Perfect stamens 2:

2. Calyx 5-partite:

3. Flowers in racemes or panicles:

   4. Capsules linear-oblong ........... *Andrographis*

4. Capsules elliptic ................. *Indoneesiella*
3. Flowers not in racemes or panicles:
   5. Bracts dimorphic ............... Rungia
   5. Bracts not dimorphic:
      6. Spikes glandular hairy ....... Eranthemum
      6. Spikes not glandular hairy:
         7. Bracts linear,
            inconspicuous:
         8. Flowers in cymes or
            panicles ............. Rhinacanthus
         8. Flowers in spikes ...... Gendarussa
    7. Bracts ovate, imbricate:
       9. Anther cells not
           spurred:
       10. Flowers white ...... Adhatoda
       10. Flowers greenish ... Ecbolium
    9. Lower anther cell
       spurred ... Justicia

2. Calyx 4-partite:
   11. Corolla distinctly 2-lipped ........ Rostellularia
   11. Corolla of 5 subequal lobes ........ Barleria

1. Perfect stamens 4:
   12. Seeds 4 or less:
      13. Plants spinous ................. Acanthus
      13. Plants not spinous:
         14. Bracts very small ............. Asystasia
14. Bracts conspicuous, imbricate:
   15. Flowers yellow ................. Crossandra
   15. Flowers white:
      16. Bracts orbicular .............. Phaulopsis
      16. Bracts linear ................. Lepidagathis

12. Seeds more than 4:
   17. Flowers in spikes ............... Staurogyne
   17. Flowers not spikate:
      18. Corolla distinctly 2-lipped ... Hygrophila
      18. Corolla of 5-subequal lobes:
         19. Flowers in pedunculate
cymes ............... Ruellia
         19. Flowers 1-3, sessile or
             sub-sessile in
             the axils ....... Dipteracanthus

Andrographis Wall.

Key to the species

1. Flowers in panicles .................. paniculata
1. Flowers in secund racemes .......... ceylanica

Much branched herb; leaves elliptic to lanceolate; flowers blue or purplish in terminal and axillary panicles; stamens 2, filaments hirsute, anthers 2-celled, bearded at the base; capsules linear-oblong, compressed; seeds 8-10, on acute retinacula

This medicinal herb is seen wild along the road sides and in waste places.

Flowers: Sept. – Nov.

Sivarajan 626.


Scarcely branched herbs; leaves oblong-lanceolate, up to 6 x 2 cm; racemes axillary, much
longer than the leaves; flowers pink with purple blotches; staminal filaments hirsute, anthers bearded; capsules linear, glabrous; retinacula acute.

This plant with its hardly branched stem and racemes is collected from the premises of Thiruvangad temple.

Flowers: Aug. - Nov.

Sivarajan 601.

**Indoneesiella** Sreem.

*I. echioides* (Linn.) Sreem. in *Phytologia* 16:466. 1968.


Rarely branched, erect, villous herbs; leaves oblong-obtuse, sessile, up to 10.5 x 3 cm; racemes axillary, 1-sided, usually unbranched; flowers erect, white with purple blotches; capsules elliptic, villous, slightly shorter or as long as the sepals; seeds 4.
Common on the sandy sea coast, and also on the lateritic slopes.

Flowers: Aug. - Nov.

Sivarajan 632, 1281.

Note: This plant, described under the name *Andrographis echioides* in most of the Indian Floras, was segregated into a new genus *Neesiella* by Sreemadhavan (loc.cit. 1967). Since this happened to be a later homonym of *Neesiella* Schiffn. (Engl. & Pr. Pfam. 1, 3(1):32. 1893) a genus of Hepaticae, Sreemadhavan (loc.cit. 1968) has renamed the genus as *Indoneesiella* Sreem.

**Rungia Nees**

*R. pectinata* (Linn.) Nees in DC. Prod. 11:469. 1847;

Erect or diffuse, branched herbs; leaves elliptic to oblanceolate, up to 2.5 x 1 cm; flowers minute in short, one-sided spikes; bracts dimorphic, the barren bracts elliptic-acute and the flowering
bracts orbicular, with conspicuous hyaline, ciliate margins; stamens 2, anther cells superposed, the lower cell with a basal appendage, capsules with 4, compressed seeds.

Flowers: Sept. - May

Sivarajan 216, 1663.

Eranthemum Linn.


Woody shrubs; leaves elliptic-acuminate; spikes terminal and axillary, simple or paniculate, glandular-hairy; bracts long-acuminate; flowers pinkish; calyx 5-partite, lobes linear, viscid hairy; corolla tube slender, 2-5 cm long; perfect stamens 2, staminodes linear; capsules clavate; seeds 4, discoid; retinacula sharp.
Collected from the rocky lateritic slopes near Thiruvangad temple.


Sivarajan 28.

Rhinacanthus Nees

R. nasuta (Linn.) Kurz in J. As. Soc. Beng. 39:79. 1870;

Diffusely branched undershrubs; leaves elliptic-lanceolate; flowers white in axillary and terminal, lax, paniculate cymes; corolla tube slender, long; stamens 2, anther cells superposed, muticus; capsules clavate, seeds 2-3, compressed.

Common on hedges, road sides and waste places.


Sivarajan 96, 852.
**Gendarussa Nees**


Much branched undershrubs; leaves narrowly lanceolate, up to 12 x 3 cm; spikes terminal at times paniculate; bracts linear; flowers white with purple spots; lower anther cells spurred; capsules clavate, glabrous.

Usually seen on hedges and also in waste places.

**Flowers:** Dec. – Jan.

Sivarajan 26, 1039.

**Adhatoda Mill.**

Shrubs; leaves elliptic-lanceolate, acuminate; flowers white in axillary bracteate spikes; bracts large, ovate; stamens 2, anther cells apiculate; capsules ovate, compressed; seeds 1-2, orbicular, compressed.

Common on hedges. Sometimes cultivated for medicine.


Sivarajan 867, 998.

_Ecbolium_ Kurz


Key to the varieties

1. Leaves ovate-obtuse .............. _var. rotundifolia_
1. Leaves lanceolate-acuminate ....... _var. laetevirens_

Woody undershrubs; leaves ovate-obtuse; spikes dense; bracts broadly ovate, minutely dentate, shortly acuminate, up to 2 x 1.5 cm; stamens 2, anther cells parallel; capsules ovoid compressed with a distinct stalk; seeds compressed; retinacula curved.

Flowers: Jan. - Sept.

Sivarajan 114.


Woody herbs; leaves broadly lanceolate, acute or acuminate; spikes long; bracts lanceolate-acuminate entire up to 2.5 x 1 cm; pubescent; stamens and capsules as in the previous variety.

Flowers: Jan. - Sept.

Sivarajan 1499.
Justicia Linn.

Note: When Linnaeus first proposed the name Justicia (Gen. Pl. 4 No.12. 1737), his generic description was based on the Asiatic species Justicia adhatoda. In the "Species Plantarum" he included 10 more species in the genus Justicia, without altering the circumscription of the genus. However since it was found that they form a heterogenous group, later workers were inclined to segregate them into different genera.

Justicia (sensu lato) included about 300 species distributed both in the New World and Old World, with immense variation in their vegetative and floral features. This lead many subsequent authors to divide the genus into many genera as Adhatoda, Gendarussa, Rostellularia etc. Recently Bremekamp (Verh. Nederl. Akad. Wet. 45(2):1-78. 1948), supporting Nees (op.cit.), has resurrected many of the genera segregated by the latter, which had been subsequently merged by others with Justicia.

Still, this is not without objections. Stearn (J. Arn. Arb. 52:636-637. 1971) kept Justicia as a large genus to include "everything", but recognised "the possibility of its later dismemberment and the revival of names now buried in its synonymy". However considering
the merits of the dilimitation of genera by Bremekamp, the author has followed him in this work.

_J._betonica_ Linn. Sp. Pl. 15. 1753; _FBI_. 4:525. 1885;

Shrubs; leaves broadly lanceolate acuminate; flowers white, speckled with pink in long, terminal spikes; bracts white with green nerves, ovate, acute; bracteoles more or less similar; corolla white, spotted; capsules clavate, 1.5 cm long.

Flowers: July – Nov.

Sivarajan 1476.

_Rostellularia_ Reichb.

Note: Nees in 1832 (_Wall. Pl. As. Rar._ 3:76-100) proposed the genus _Rostellaria_ in Acanthaceae. Since this is a later homonym of _Rostellaria_ Gaertn., a Sapotaceous genus, Reichenbach (Handb. 190. 1837) emended the name as _Rostellularia_. The diagnostic characters of this genus are the cystoliths, terminal spikes with
decussate bracts, each subtending a single flower; 4-5-partite calyx; glabrous and flattened staminal filaments, spurred lower cell of the anthers, the four seeded capsules and short retinacula

Key to the species

1. Spikes cylindric ....................... serpyllifolia
1' Spikes linear ............................. prostrata


Diffuse or Prostrate herbs, rooting at lower nodes; stem 4-angled, villous, zig zag; leaves ovate or rounded; spikes cylindric, 2-4 cm long; bracts and bracteoles linear, ciliate; calyx lobes 4; stamens 2, anther cells superposed, lower cell spurred; capsules 4-seeded.

A very common weed on the grassy slopes.


Sivarajan 284.

Prostrate or diffuse herbs, rooting at lower nodes; leaves orbicular or ovate, small; spikes linear, 2-4 cm long; bracts and bracteoles shorter than the calyx lobes; flowers pink; capsules short.

Common along the railway embankments. Collected from Calicut city.


Sivarajan 550, 1347.

\textbf{Barleria Linn.}

Key to the species

1. Plants armed with prickles:
   2. Leaves obovate, up to 2 cm long \ldots \textit{mysorensis}  
   2. Leaves elliptic, much larger \ldots \textit{prionites}

1. Plants without prickles:
   3. Outer sepals spinous toothed \ldots \textit{cristata}
3. Sepals not spinous toothed:
   4. Bracts linear, reflexed ............... involucrata
   4. Bracts ovate, not reflexed ............ strigosa


Tomentose shrubs with long, intrapetiolar spines; leaves ovate-mucronate; flowers large, pink; 2 outer sepals much larger, ovate, spinous-denticulate; corolla lobes 5, subequal; perfect stamens 2; capsules oblong, 4 seeded.

A common plant on the road sides and waste places.


Sivarajan 808.


Spinous undershrubs; leaves elliptic-acute, up to 10.5 x 5 cm; flowers yellow, solitary in the lower
axils and spikate above; sepals entire, spinous-tipped; capsules ovoid, 2-seeded.

Common on hedgerows and road sides. Collected from Feroke.


Sivarajan 732.

_B.cristata_ Linn. Sp. Pl. 636. 1753; FBI. 4:488. 1884;
Khand. 201. 1967; Gamb. 743.

Tomentose, woody plants; leaves dense tomentose, elliptic-oblong, up to 6.5 x 2.4 cm; flowers pink, in axillary cymes; bracts and sepals spinous-denticulate; capsules 4-seeded.


Sivarajan 1799.

_B.involucrata_ Nees in Wall. Pl. As. Rar. 3:92. 1832 &
in DC. Prod. 11:232. 1847; FBI. 4:485. 1884; Sant.
Undershubs; leaves elliptic-lanceolate, flowers purple in axillary cymes; calyx lobes acute, outer larger, ovate; capsules 4-seeded.

Flowers: Sept. – Mar.

Sivarajan 1469.


Woody shrubs; leaves ovate-lanceolate, up to 15 x 6.2 cm; flowers deep blue in axillary, dense, one-sided spikes; bracts large, imbricate, ovate-oblong; outer sepals ovate, denticulate; capsules 4-seeded.


Sivarajan 1503.

*Acanthus* Linn.

Armed shrubs; leaves pinnately lobed, lobes ending in spines; flowers blue in dense, terminal spikes; capsules ovoid; seeds spongy.

Common on the river banks and in salt marshes of Kallai, Feroke and Beypore.

Flowers: Mar. - June

Sivarajan 1055.

Asystasia Blume

Key to the species

1. Bases of leaves rounded or subcordate .... gangetica

1. Bases of leaves narrowed:

2. Leaves glabrous ......................... chelenoides

2. Leaves pubescent ....................... dalzelliana

Justicia gangetica Linn. Amoen. Acad. 4:299. 1759.
Asystasia coromandelina Wt. ex Nees in Wall. Pl. As. Rar. 3:89. 1832; FBI. 4:493. 1834. A. violacea Dalz. in Kew J. Bot. 2:139. 1850 (non Dalz. ex Clarke).

Diffuse, pubescent herbs; leaves ovate-acute or shortly acuminate; flowers purple, in terminal,
1-sided racemes; sepals linear-lanceolate; stamens 4, both the anther cells perfect; capsules elliptic, stalked, 4-seeded; seeds compressed.


Sivarajan 1442.

*A. chelenoides* Nees in Wall. Pl. As. Rar. 3:89. 1832; FBI. 4:493. 1884; Gamb. 744.

A straggling herb; leaves elliptic or ovate-lanceolate, base narrowed, glabrous; flowers pale purple in terminal, secund, paniculate racemes; capsules 4-seeded.


Sivarajan 497, 1395.


Gamb. 745.

Erect or diffuse, tomentose herbs; leaves elliptic-acute, pubescent; flowers lilac in terminal,
secund racemes; calyx segments linear; capsules 2-2.5 cm long.


Sivarajan 316.

Crossandra Salisb.


Woody shrubs; leaves ovate-lanceolate; flowers orange-yellow in dense, bracteate, terminal spikes; bracts closely imbricating, ciliate; sepals 5, the outer larger, ovate; corolla limb unilateral, subequally 5-lobed; stamens 4; anthers 1-celled; capsules oblong-acute; seeds 4, compressed.

Flowers: Jan. - Sept.

Sivarajan 839.

Note: Napper (loc.cit.) has recognised 3 subspecies based mainly on the bracts and bracteoles.
The author's specimen with its elliptic-acute bracts and bracteoles as long as the bracts, falls under the ssp. infundibuliformis.

**Phaulopsis Willd.** (nom. cons.)


Pubescent, woody herbs; leaves very variable in unequal pairs; flowers white, small in dense, bracteate, 1-sided spikes at the tips of branches; bracts orbicular, closely imbricating; calyx 5-partite, one ovate, others linear-subulate; stamens 4, anthers 2-celled; capsules clavate, compressed; seeds 4, compressed.


Sivarajan 55, 804.
The author's specimen with its elliptic-acute bracts and bracteoles as long as the bracts, falls under the ssp. *infundibuliformis*.

*Phaulopsis* Willd. (nom. cons.)

*P. dorsiflora* (Retz.) Sant. in *Kew Bull.* 1948:276. 1948
1788. Gamb. 718. *Phaulopsis imbricata* (Forsk.)
*Cordem.* *Fl. Reun.* 496. 1895 (non Sweet, 1827).
*Micranthus dorsiflorus* (Retz.) Fischer in *Kew Bull.*
1932:63. 1932.

Pubescent, woody herbs; leaves very variable in unequal pairs; flowers white, small in dense, bracteate, 1-sided spikes at the tips of branches; bracts orbicular, closely imbricating; calyx 5-partite, one ovate, others linear-subulate; stamens 4, anthers 2-celled; capsules clavate, compressed; seeds 4, compressed.

*Flowers: Aug. – Dec.*

*Sivarajan 55, 804.*
Note: The earliest name for this genus is **Micranthus** Wendl. (1798). Willdenow (Sp. Pl. 3:342. 1801) replaced the name by **Phaylopus** without giving any reason, and this was later corrected by Sprengel (Anl. ed. 2. 2:422. 1817) as **Phaulopsis**. Later, Ecklon (Top Verz. 43. 1827) gave the name **Micranthus** to a genus of Iridaceae, and is conserved. Hence **Micranthus** Wendl. became a nomenclatural synonym of **Phaulopsis**.

**Lepidagathis** Willd.


Diffuse or prostrate herbs; leaves elliptic-acute, up to 2.5 x 1.5 cm; flowers white, small in terminal or axillary, clustered, pubescent heads; bracts hyaline, ciliate; calyx lobes 5, unequal; stamens 4; capsules compressed; seeds flattened.

Flowers: Oct. - May

Sivarajan 198.
Staurogyne Wall.

Key to the species

1. Branches trailing .................... zeylanica
1. Branches not trailing ............... glauca


Hispid herbs with trailing branches; leaves all opposite, elliptic-obtuse; flowers purplish in terminal or axillary spikes; bracts obovate; bracteoles linear; calyx lobes 5, subequal; stamens 4; capsules oblong; seeds many, globose, pitted.


Sivarajan 910.

Erect, viscid-pubescent herbs; branches not trailing; leaves alternate, ob lanceolate-spathulate; flowers purplish in axillary or terminal spikes; bracts spathulate; bracteoles linear; seeds globose, not pitted.


Sivarajan 37.

**Hygrophila** R. Br.

Note: This pantropical genus was divided into two subgenera, namely Eu hygrophila and Asteracantha by C. B. Clarke (Hook. f. Fl. Brit. Ind. 4:406-408. 1884) based on the spines, calyx morphology and the number of seeds per capsule. Nees (Wall. Pl. As. Rar. 3:75. 1832) treated Asteracantha as a separate genus, and this was followed by many subsequent workers. Recently Heine (Kew Bull. 16:173. 1962) has discussed at length the taxonomic position of Asteracantha and has reverted it again as a subgeneric taxa under Hygrophila, because of the inadequacy of these characters for generic separation.
Key to the species

1. Plants armed with spines .............. *auriculata*

1. Plants not armed:

2. Leaves lanceolate-acute .............. *angustifolia*

2. Leaves elliptic or oblanceolate-obtuse .............. *erecta*


Hispid herbs; leaves narrowly lanceolate, in whorls of 6, with axillary spines; flowers blue, clustered in the axils; calyx lobes 4, unequal; stamens 4, anthers 2-celled; capsules linear-oblong; seeds 4-8.

Common in marshy fields and on the banks of ponds.


Sivarajan 557.
H. angustifolia R. Br. Prod. 479. 1810; Gamb. 713.


Herbs; leaves narrowly lanceolate-acute, glabrous, about 8.5 x 1 cm in size; flowers purplish, clustered in the axils; bracteoles lanceolate-acute, ciliate; capsules linear, longer than the calyx; seeds 10-15.

Common in wet fields or on the banks of streams and ponds in low lands.


Sivarajan 469.


Woody herbs; leaves elliptic to oblanceolate, obtuse; flowers purplish in axillary clusters; bracteoles oblong-obtuse; capsules almost twice as long as the calyx; seeds many, retinacula hooked.
In marshy fields and on the banks of ponds and streams.


Sivarajan 726.

Ruellia Linn. (emend. Bremek.)


Small, erect herbs; leaves ovate or elliptic, obtuse, up to 12 x 5 cm; flowers deep blue, large, showy in axillary cymes; capsules 2.5 cm long.

Flowers: Mar. - July

Sivarajan 1149.

Dipteracanthus Nees (emend. Bremek.)

Key to the species

1. Leaves obtuse ....................... patulus
1. Leaves acute ......................... prostratus
D. *patulus* (Jacq.) Nees in Wall. Pl. As. Rar. 3:81.

Tomentose herbs; leaves ovate-obtuse, pubescent; flowers rose-pink, 1-3 in the axils; calyx lobes lanceolate, acute with setose margins; stamens 4, anthers 2-celled; capsules clavate; seeds discoid, margined and hygroscopically hairy on hooked retinacula.


Sivarajan 1816.

---


Diffuse herbs, sometimes rooting at the lower nodes; leaves ovate-acute; flowers rose-pink, solitary in the axils; calyx lobes linear, ciliate; capsules
slightly pubescent.


Sivarajan 556.

THUNBERGIACEAE van Tiegh.

Thunbergia Retz. (nom. cons.).

Key to the species

1. Climbers .......................... grandiflora
1. Erect shrubs ...................... erecta


Climbing shrubs; leaves ovate-cordate, distantly dentate; flowers large, blue or white in
axillary racemes; bracts spathaceous, densely-tomentose; bracteoles falcate; stamens 4, anthers 2-celled; capsules globose, beaked; seeds 4, globose; retinacula absent.


Sivarajan 833, 1443.


Woody shrubs; leaves elliptic to ovate-lanceolate; flowers deep purple, showy, solitary in the axils; bracts ovate; calyx annular, many toothed.

Flowers: most part of the year.

Sivarajan 1408.
VERBENACEAE Jaume St. Hil.

Key to the genera

1. Flowers purplish or blue:
   2. Plants densely stellate-tomentose ... Callicarpa
   2. Plants not stellate-tomentose:
      3. Flowers in spikes ............... Stachytarpheta
      3. Flowers not in spikes:
         4. Calyx purple .................. Petrea
         4. Calyx not purple:
            5. Leaves simple ............... Duranta
            5. Leaves digitately 1-7-foliolate .... Vitex

1. Flowers not purplish or blue:
   6. Stamens included:
      7. Flowers in pendulous racemes ..... Citharexylum
      7. Flowers not in racemes:
         8. Shrubs:
            9. Flowers capitate ............. Lantana
            9. Flowers in corymbose cymes .. Premna
         8. Creeping herbs ................. Phyla

The author is thankful to Prof. Harold N. Moldenke, Honorary Curator, New York Botanic Gardens, for the identification and critical comments on the Verbenaceae and Avicenniaceae specimens and also for his encouragements.
VERBENACEAE Jaume St. Hil.

Key to the genera

1. Flowers purplish or blue:
   2. Plants densely stellate-tomentose ... Callicarpa
   2. Plants not stellate-tomentose:
      3. Flowers in spikes ................. Stachytarpheta
      3. Flowers not in spikes:
         4. Calyx purple .................... Petrea
         4. Calyx not purple:
            5. Leaves simple ................. Duranta
            5. Leaves digitately 1-7-foiliated .... Vitex

1. Flowers not purplish or blue:
   6. Stamens included:
      7. Flowers in pendulous racemes ...... Citharexylum
      7. Flowers not in racemes:
         8. Shrubs:
            9. Flowers capitate ............ Lantana
            9. Flowers in corymbose cymes.. Premna
         8. Creeping herbs ................. Phyla

The author is thankful to Prof. Harold N. Moldenke, Honorary Curator, New York Botanic Gardens, for the identification and critical comments on the Verbenaceae and Avicenniaceae specimens and also for his encouragements.
6. Stamens exerted:
   10. Drupe enclosed in the enlarged calyx.. **Tectona**
10. Drupe not enclosed in calyx ........... **Clerodendrum**

   **Callicarpa** Linn.

   **C. tomentosa** (Linn.) Murray, Syst. Veg. (ed.13) 130.
   **Callicarpa lanata** Linn. Mant. 2:331. 1771; FBI. 4:567. 1885; non sensu Gamb. 1878.

   Densely tomentose shrubs; leaves broadly elliptic, acute or acuminate, glabrescent above, densely stellate-tomentose beneath; flowers rose-purple in axillary, corymbose cymes; peduncle and calyx stellate-hairy; fruits small, purple or black, 2-4-seeded.

   Usually found along the banks of streams or waterways on the hill slopes.

   Flowers: Nov. – Mar.

   Sivarajan 809.
Stachytarpheta Vahl (nom.cons.)

Key to the species

1. Leaves ovate-acute ......................... mutabilis
1. Leaves elliptic-obtuse ..................... jamaicensis


Much branched shrubs; leaves ovate-acute, serrate, scabrous; flowers in the excavations of the terminal spikes, deep purple; bracts linear; calyx 4-5-toothed; corolla tube slender, 1-1.5 cm long; perfect stamens 2; fruits enclosed in the calyx, separating into 2;1-seeded pyrenes.

Common on hedges on grassy slopes.

Flowers: May - Dec.

Sivarajan 1475.

Much branched shrubs; leaves elliptic, crenate-serrate, glabrous; flowers in the excavations of the terminal spikes as in the previous species, blue.

Common weed on road sides and waste places along the hills and slopes.


Sivarajan 498.

**Petrea Linn.**

*P. volubilis* Linn. Sp. Pl. 626. 1753; Cooke 518; Gamb. 774.

Climbing shrubs; leaves oblong or elliptic, scabrid, prominently reticulate; flowers in pendulous racemes; calyx purple, persistent, lobes oblong, spreading; corolla tube short, cylindric; stamens 4; drupe 2-seeded and enclosed in the calyx.


Sivarajan 838.
**Duranta Linn.**


Shrubs; branches often spiny; leaves ovate or elliptic, obtuse, serrate; flowers in simple or panicled racemes, blue; calyx persistent; corolla tube longer than the calyx; drupes yellow.

A common shrub, grown on hedges and cultivated in gardens.

Flowers: May - Sept.

Sivarajan 1176, 1204.

**Vitex Linn.**

Key to the species

1. Petiole winged ......................... altissima

1. Petiole not winged:

2. Leaflets lanceolate-acuminate:

3. Plants glabrous ...................... leucoxylon

3. Plants densely tomentose .......... nigundo

2. Leaflets elliptic or oblanceolate, obtuse ...... trifolia
V. altissima Linn. f. Suppl. 294. 1781; FBI. 4:584.


Trees; leaves 3-5-foliolate; leaflets lanceolate-acuminate, sessile, glabrous; petioles broadly winged; cordate at base; flowers pale blue in large, terminal panicles; calyx villous; drupe subglobose, 1 cm across, purple when ripe.

Flowers: Mar. - May

Sivarajan 1855.

V. leucocylon Linn. f. Suppl. 293. 1781; FBI. 4:587.


Small trees; leaves digitately 3-5-foliolate; leaflets lanceolate-acute, glabrous above, downy beneath, up to 15 x 5 cm; flowers white in lax, axillary, dichasial cymes; calyx 5-toothed; corolla with purplish
hairs; drupes 2.5-3 cm across, subglobose or obovoid.

A rare species found along the river banks. Collected from Kunnamangalam.

Flowers: Mar. - May

Sivarajan 962.


V. trifolia Grah. Cat. 155. 1839, (non Linn.).

Shrubs or small trees leaves 3-5-foliolate; leaflets lanceolate, 12 x 4 cm, pubescent beneath; flowers blue in terminal, thyrsoid panicles; drupes ovoid, 1 cm long, black when ripe.

A common aromatic plant.

Flowers: Mar. - Nov.

Sivarajan 142, 252, 1183, 1206, 1327.

Note: The author's collections of this species include two distinct forms. One of them, the typical of the species, is grey-pubescent on the branches, under surface of leaves, panicles and flowers. The flowers are light purple with a pinkish tube. The throat of the
corolla and the staminal filaments at base are grey hairy. The other form displays deep purple pubescence and deep purple flowers. The throat of the corolla has a mixed pubescence of both grey and purple. Staminal filaments are purple hairy at base.

No Indian Flora has given any reference to the latter. Prof. H.N. Moldenke in a personal communication to the author has confirmed that no such form has been named so far. It might be that it is very difficult to distinguish them in the Herbarium, where Of late, Dr. Harold N. Moldenke has published this purple-pubescent specimen as a new variety with the name *Vitex negundo*, var. *purpurascens* Moldenke (Phytologia 28: 404. 1974).

---


Key to the varieties

1. Leaves usually 3-foliolate ......... var. *subtrisecta*
1. Leaves invariably 1-foliolate ...... var. *simplicifolia*

**V. trifolia** var. *subtrisecta* (Kuntze) Mold. in Phytologia 8:88. 1961. *Vitex agnus-castus* var. *subtrisecta* Kuntze,
FBI. 4:583. 1885; Gamb. 771., in part.

Shrubs; leaves usually 3-(2-1)-foliolate; leaflets elliptic or obovate-oblanceolate, obtuse, glabrous above, dense-tomentose beneath, the middle leaflet much exceeding the laterals; flowers pale-purple in terminal panicles; drupes subglobose, purplish when ripe.


Sivarajan 1199, 1298, 1299.

*V. trifolia* var. *simplicifolia* Cham. in Linnaea 7:107.
(as *V. trifolia* f *simplicifolia*) 1832. *V. trifolia* Linn., FBI. 4:583. 1885; Gamb. 771, in part.

Shrubs; leaves much smaller than in the earlier variety, elliptic to ovate-orbicular, dense-tomentose beneath; flowers pale purple in terminal panicles.


Sivarajan 485, 1301.

*Citharexylum* Mill.

Shrubs or small trees; leaves elliptic-oblong, acute or obtuse, entire or minutely dentate; flowers small, white in pendulous racemes; short-pedicelled; calyx small, minutely toothed; corolla throat villous; fruits not seen.

Commonly cultivated on hedges and at times in gardens, never set fruits.

Flowers: July - Sept.

Sivarajan 1084.

Note: This genus is represented in India by a single cultivated species, very often erroneously treated under *C. subserratum* Sw., now known as *C.fruticosum var.subserratum* (Sw.) Moldenke. However regarding the identity of the Indian material, Prof. Moldenke, in a personal communication to the author has written: "I have never come across this species from India. All the numerous specimens I have seen from India, which are originally labelled *C.subserratum* have proved to be nothing more than the commonly cultivated *C.spinosa* Linn."

*Lantana* Linn.

*L.camara* Linn. Sp. Pl. 627. 1753, var. *aculeata* (Linn.)
Mold. in Torreya 9:34. 1934. Sant. 211. 1967;
L.aculeata Linn. Sp. Pl. 627. 1753; Gamb. 761.
L.camara auct., non Linn., FBI. 4:562. 1885.

Straggling, prickly shrubs; leaves ovate-acute, serrate, scabrous; flowers orange-red in pedunculate heads; bracts lanceolate; calyx small; corolla tube cylindric, curved, pubescent outside; drupes subglobose, 2.5 mm across.

A very common weed on hedges and on the grassy slopes. Several chimeral varieties with variously coloured flowers are available.

Flowers: Dec. - July

Sivarajan 1062.

Premna Linn.(nom.cons.)

1. Shrubs or small trees .................... latifolia
1. Woody herbs .............................. obtusifolia

Fl. Ind. 3:76. 1832, var.viburnoides Clarke in Hook.
Bot. Buitenz. (Ser.3) 3:44. 1921; Gamb. 767.
Shrubs or small trees; leaves ovate or elliptic, shortly obtusely acuminate at apex, entire or obscurely dentate, glabrescent; corymbs terminal on the branchlets; flowers greenish white; drupes subglobose.

Flowers: May - Sept.

Sivarajan 1173, 1720.


Diffusely branched or erect herbs; leaves ovate to obovate, serrate, glabrous; flowers greenish white in terminal corymbs; drupes purple when mature.

Common on the hard rocky hill-slopes, among bushes.


Sivarajan 950.

**Phyla** Lour.

**P. nodiflora** (Linn.) Greene in Pittonia 4:46. 1899;
**Lippia nodiflora** (Linn.) A. Rich. in Michx. Fl. Bor. Amer. 2:15. 1803; FBI. 4:563. 1885; Gamb. 762.

Creeping herbs, rooting at the nodes; leaves obovate or spathulate, narrowed at base, serrate; flowers minute, pale pink or white, sessile in long-peduncled heads; fruits globose, dry, splitting into 2, 1-seeded pyrenes, 1-1.5 mm across.

Common in wet or marshy fields, on the river banks, and also in sandy beach.


Sivarajan 113, 443.

**Tectona** Linn. (nom.cons.)

*T. grandis* Linn. f. Suppl. 151. 1781; FBI. 4:570. 1885; Cooke 2:424.

Tall trees; leaves large, obovate, acute or acuminate; flowers greenish yellow in large, terminal panicles; calyx stellate-tomentose; corolla white; fruits globose, with dense, stellate pubescens outside.


Sivarajan 1827.