

FLORA OF COURTALLUM

VOLUME 2

KKN NAIR & MP NAYAR



BOTANICAL SURVEY OF INDIA

FLORA OF COURTALLUM

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Series 3

FLORA OF COURTALLUM

Volume 2

K.K.N. NAIR and M.P. NAYAR



भारतीय वनस्पति सर्वेक्षण
BOTANICAL SURVEY OF INDIA

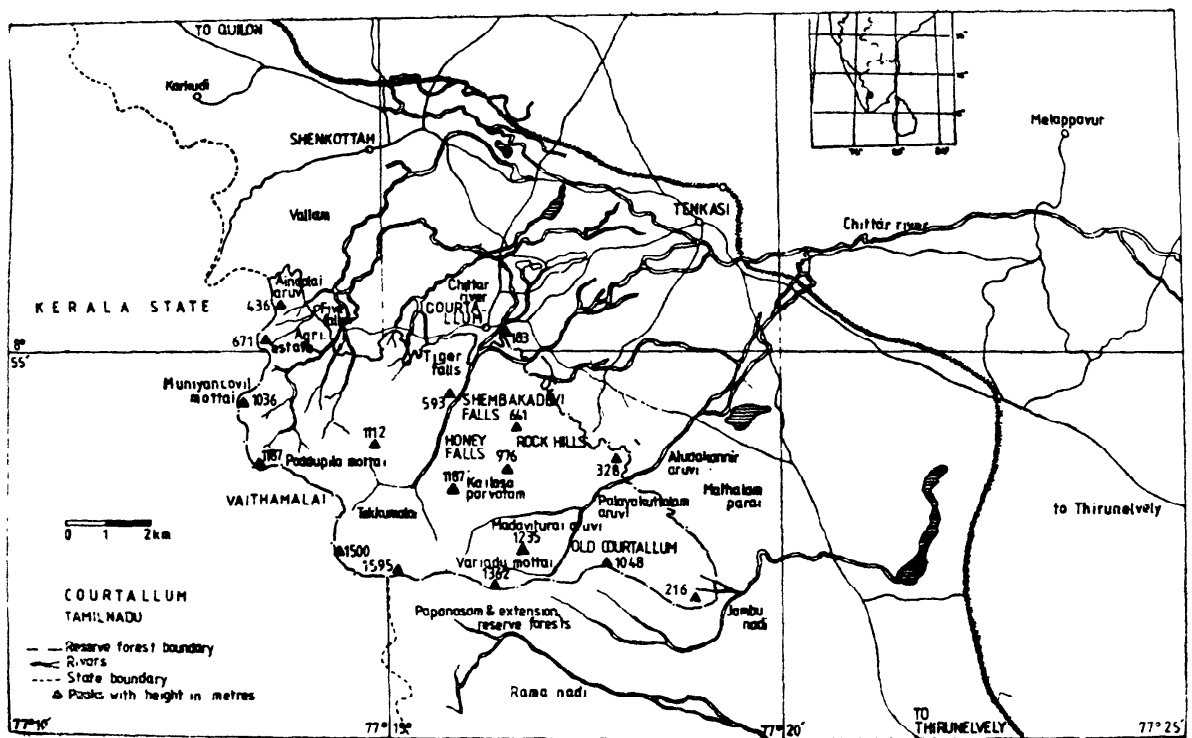
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65. BISCHOFIACEAE

BISCHOFIA Bl.

Bischofia javanica Bl., Bijdr. 1168. 1826 ; Hook. f. in Hook. f., Fl. Brit. Ind. 5 : 344. 1887 ; Gamble, Fl. Presid. Madras 2 (7) : 1312. 1925 ; Pax et K. Hoffm. in Engl. & Prantl, Pflanzenfam. (ed. 2) 19C : 78. 1931. *Microelus roeperianus* Wt. et Arn., Edinb. New Phil. J. 14 : 298. 1833 ; Wt., Ic. t. 1880. 1852. *Nira*, *Piruppu*, *Nannal* (Malayalam). *Modigirvembn*, *Milakkadayam*, *Tondi*, *Nannal* (Tamil).

Deciduous trees, 8-12 m high ; trunk cylindrical, branches spreading. Leaves trifoliate ; leaflets 7.5-12.5 × 3.5-7 cm, elliptic-ovate, crenate, glabrous, acuminate at apex ; petiolules 1-3.5 cm long. Flowers greenish in axillary paniculate cymes. Berries 0.5-1 cm in diameter, globose, fleshy ; seeds 3-4, oblong-trigonous, smooth.

Fl. & Fr. : October - August.

Common below Shembagadevi along the sides of the stream.

66. STILAGINACEAE

ANTIDESMA Linn.

Antidesma alexiteris Linn., Sp. Pl. 1027. 1753 (*pro parte*) ; Hook. f. in Hook. f., Fl. Brit. Ind. 5 : 359. 1887 ; Pax et K. Hoffm. in Engl., Pflanzenr. 81 : 115. 1922. *A. zeylanicum* Lamk., Enc. Meth. Bot. 1 : 207. 1783 ; Gamble, Fl. Presid. Madras 2 (7) : 1297. 1925.

Deciduous trees, 6-8 m high ; branches spreading, slender, glabrous. Leaves 4-9.5 × 1-3 cm, elliptic, elliptic-lanceate or obovate, coriaceous, entire, glabrous, shiny, acute to shortly acuminate at apex, obtuse or narrowed at base. Flowers greenish-yellow, in axillary and terminal short racemes. Drupes 0.4-0.5 cm across, sub globose, reddish.

Fl. & Fr. : July - November.

Fairly common around Main falls and in Tekkumalai along the sides of the stream.

67. RHAMNACEAE

- | | |
|--|-------------------|
| 1a. Unarmed climbing shrubs with tendrils | <i>Gouania</i> 1 |
| 1b. Trees or armed shrubs without tendrils | |
| 2a. Plants tomentose or fulvous-hairy ; leaves alternate, 3-5 nerved at base | <i>Ziziphus</i> 3 |
| 2b. Plants glabrous ; leaves opposite or subopposite, penninerved | <i>Scutia</i> 2 |

1. GOUANIA Jacq.

Gouania microcarpa DC., Prodr. 40. 1825 ; Wt. *et* Arn., Prodr. 167. 1834 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 643. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 225. 1918.

Unarmed, tendril-climbing shrubs ; young branches tomentose ; tendrils simple, axillary at the base of the peduncle. Leaves 5.5-7 × 1.5-3 cm, elliptic-ovate, entire or slightly serrate, glabrous, gradually acuminate at apex, rounded at base ; petioles 1-1.5 cm long, pubescent. Flowers in terminal or axillary spicate panicles.

Fl. : July.

Courtallum (*Robert Wight* 198, CAL).

2. SCUTIA (DC.) Comm. *ex* Brongn.

Scutia myrtina (Burm. f.) Kurz, J. Asiat. Soc. Bengal 44 : 168. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 223. 1918. *Rhamnus myrtinus* Burm. f., Fl. Ind. 60. 1768. *Rhamnus circumscissus* Linn. f., Suppl. 152. 1781. *Scutia circumscissa* (Linn. f.) Radlk., Abh. Naturw. Ver. Bremen 8 : 389. 1883. *S. indica* Brongn., Ann. Sci. Nat. 10 : 363. 1827 ; Wt. *et* Arn., Prodr. 165. 1834 ; Wt. Ill. Ind. Bot. t. 73. 1840 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 640. 1875.

Straggling, thorny shrubs ; branches decussate. Leaves 1.5-3 × 1-2.5 cm, orbicular or elliptic, coriaceous, entire, glabrous, rounded at apex, rounded or cordate at base ; petioles ± 0.5 cm long, filiform. Flowers in axillary fascicles or peduncled umbels.

Fl. : March.

Courtallum (*Robert Wight* 184, CAL).

3. ZIZIPHUS Mill.

- 1a. Armed or unarmed trees ; styles 3 *Z. xylopyrus* 3
 1b. Armed stragglers (shrubs) ; styles 2
 2a. Petals 5 ; leaves ovate-lanceate, oblique at base *Z. oenoplia* 1
 2b. Petals absent ; leaves broadly elliptic, cordate at base *Z. rugosa* 2

1. *Ziziphus oenoplia* (Linn.) Mill., Gard. Dict. ed. 8 : 3. 1768 ; Wt. et Arn., Prodr. 163. 1834 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 634. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 220. 1918. *Rhamnus oenoplia* Linn., Sp. Pl. 194. 1753. *Kottavalli*, *Tutalimullu* (Malayalam). *Ambulam*, *Amburi*, *Curai*, *Curaimullu* (Tamil).

Large shrubs ; branches straggling, spiny ; spines stipular, turned backwards, black. Leaves 3-5 × 1-3.8 cm, ovate-lanceate, entire, hairy beneath, acute at apex, oblique at base ; petioles 0.3-0.5 cm long, pubescent. Flowers yellowish-green in shortly peduncled cymes. Drupes up to 0.8 cm across, black.

Fl. & Fr. : August - December.

Common at Shembagadevi.

2. *Ziziphus rugosa* Lamk., Enc. Meth. Bot. 3 : 319. 1789 ; Wt. et Arn., Prodr. 162. 1834 ; Wt., Ic. t. 339. 1840 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 636. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 220. 1918. *Malantudali*, *Tutali* (Malayalam). *Kattulandai*, *Todari* (Tamil).

Armed, straggling shrubs ; branches fulvous-tomentose, recurved-prickly. Leaves 5.5-10 × 4-6.5 cm, broadly-elliptic, denticulate, glabrous above, fulvous-tomentose beneath, rounded or shortly acuminate at apex, cordate at base ; petioles 1-1.5 cm long. Flowers in terminal panicles ; peduncles tomentose. Drupes ± 0.5 cm in diameter, globose.

Fl. & Fr. : March.

Courtallum (*Robert Wight* 183, CAL).

3. *Ziziphus xylopyrus* (Retz.) Willd., Sp. Pl. 1 : 1104. 1797 ; Wt. et Arn., Prodr. 162. 1834 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 634. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 220. 1918. *Rhamnus xylopyrus* Retz., Obs. Bot. 2 : 11. 1781. *Cottukotta*, *Kotta* (Malayalam). *Kottai*, *Kodayilandai*, *Mulludupai* (Tamil).

Armed or unarmed trees, 4-5 m high ; young branches fulvous-tomentose. Leaves 3-8 × 2.5-4 cm, broadly-elliptic, crenate-serrate, glabrous above, softly pubescent beneath, obtuse at apex, subcordate at base ; petioles ± 0.8 cm long. Flowers greenish in axillary panicles. Drupes up to 2 cm in diameter, globose, tomentose, pale green.

Fl. & Fr. : October - March.

Common in the outskirts between Tiger falls and Main falls and also on the way to Old Courtallam.

68. LEEACEAE

LEEAE D. Royen *ex* Linn. *nom. gen. cons.*

Leea indica (Burm. f.) Merr., Philipp. J. Sci. Bot. 14 : 245. 1919 & in Enum. 3 : 11. 1923. *Staphylea indica* Burm. f., Fl. Ind. 75, t. 24, f. 2. 1768. *Leea sambucina* Willd., Sp. Pl. 1 : 1177. 1797 ; A. Laws, in Hook. f., Fl. Brit. Ind. 1 : 666. 1875 (*pro parte*) ; Gamble, Fl. Presid. Madras 1 (2) : 240. 1918 ; Suessenguth in Engl. & Prantl, Pflanzenfam. (ed. 2) 20d : 376. 1973. *Manipiranta*, *Nellu* (Malayalam). *Nalava Niyakku*, *Ottunalam* (Tamil).

Straggling or erect shrubs, 1.5-3 m high ; branches striated, young ones green. Leaves 2-3 pinnate, 30-50 cm long ; leaflets 7.5-20 × 3.5-9 cm, oblong or elliptic-oblong, coarsely serrate, glabrous, acuminate at apex, acute at base ; nerves 7-12 pairs, arched, prominent beneath ; petiolules up to 1.5 cm long. Flowers greenish yellow in axillary corymbose cymes. Berries 0.5-0.7 cm in diameter, depressed globose, 2-6 lobed, smooth, purple black when ripe ; seeds wedge shaped.

Fl. & Fr. : July February.

Rare, below the third wooden bridge in Tekkumalai as climbers on hedges along the sides of the stream.

69. VITACEAE

1a. Leaves simple

2a. Flowers hermaphrodite ; tendrils leaf-opposed

Cissus 3

2b. Flowers polygamo-monoecious ; tendrils on the peduncle

Ampelocissus 1

1b. Leaves 3-foliolate or pedate

3a. Flowers hermaphrodite ; seeds hemispherical with deep pits

Cayratia 2

3b. Flowers polygamo-dioecious ; seeds globose, oblong or pyriform, 2-furrowed on one face

Tetrastigma 41. AMPELOCISSUS Planch. *nom. gen. cons.*

Ampelocissus arnottiana Planch. in DC., Mon. Phan. 5 : 379. 1887 ; Gamble, Fl. Presid. Madras 1 (2) : 231. 1918 ; Suessenguth in Engl. & Prantl, Pflanzenfam. (ed. 2) 20d : 306. 1953. *Vitis indica* Wt. et Arn., Prodr. 131. 1834 (*non* Planch. 1884) : A Laws. in Hook. f., Fl. Brit. Ind. 1 : 653. 1875 (*vix* Linn. *et non* *Vitis indica* Sw. *et auct. plurim.*). *Cenparatti* (Malayalam). *Cambaravatti* (Tamil).

Slender, climbing shrubs ; branched terete, woody, wooly ; tendrils simple, long, borne on peduncles. Leaves simple, 20-25 × 18-21 cm, cordate, scarcely angled, lobed or toothed, the teeth tipped with hardened glands, glabrous above, tomentose beneath, shortly acuminate at apex ; petioles 5-6.5 cm long, grey-tomentose. Flowers in short racemes of sessile umbels. Berries globose, 1-2 seeded.

Fl. : December.

Courtallum (*M. Rama Rao* 2027, CAL).

2. CAYRATIA Juss. *nom gen. cons.*

Cayratia pedata (Lamk.) Juss. *ex* Gagnep., Not. Syst. 1 : 346. 1911 ; Gamble, Fl. Presid. Madras 1 (2) : 236. 1918 ; Suessenguth in Engl. & Prantl, Pflanzenfam. (ed. 2) 20 d : 279. 1953 ; Furtado, Taxon 13 : 240. 1961. *Cissus pedata* Lamk., Enc. Meth. Bot. 1 : 31. 1783. *Vitis pedata* (Lamk.) Vahl *ex* Wt. et Arn., Prodr. 426. 1834 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 661. 1875. *Tripadi*, *Veluthakodivalli*, *Naralai* (Malayalam). *Kuttuppiranthi*, *Naralai* (Tamil).

Climbing shrubs ; branches tomentose or slightly hairy ; tendrils long, terminally coiled and forked. Leaves 5-9 foliate, pedate ; rhachis 4-9 cm long ; leaflets 5-12.5 × 2.5-6.5 cm, oblong-lanceate, serrate or rarely entire and wavy along the margins, softly pubescent, acuminate at apex, oblique at base ; petiolules very variable in length (0.5-4 cm). Flowers white or greenish-yellow in axillary corymbose cymes. Berries

subglobose or lobed, 0.7-0.9 cm across, cream coloured when ripe ; seeds 2-4, hemispherical, smooth.

Fl. & Fr. : June October.

Fairly common along the sides of the stream in Tekkumalai and along hedges on the way to Five falls.

3. *Cissus* Linn.

- | | |
|---|----------------------------|
| 1a. Stems 4-angled ; plants leafless when old | <i>C. quadrangularis</i> 2 |
| 1b. Stems terete ; plants leafy throughout their life | |
| 2a. Young branches tomentose ; leaves with repand-crenate margins | <i>C. repanda</i> 3 |
| 2b. Young branches glabrous ; leaves with entire or distantly and shallowly serrate margins | <i>C. heyneana</i> 1 |

1. *Cissus heyneana* (Wall.) Planch. in DC., Mon. Phan. 5 : 476. 1887 ; Gamble, Fl. Presid. Madras Madras 1 (2) : 234. 1918 ; Sussenguth in Engl. & Prantl, Pflanzenfam. (ed. 2) 20 d : 266. 1953. *Vitis heyneana* Wall. ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 647. 1875.

Climbing shrubs ; branches fleshy, terete ; tendrils stout, simple, flexuous. Leaves 7.5-18 × 3.5-10.5 cm, ovate-cordate, entire, incurved or distantly and shallowly serrate, obtusely acuminate at apex, cordate at base ; petioles 2-3.5 cm long. Flowers reddish outside and greenish inside in few-flowered axillary umbels. Berries 0.5-0.8 cm across, pyriform or globose ; seeds 1-2, smooth.

Fl. & Fr. : January May.

Rather common along the sides of the stream below Shembagadevi and above Main falls.

2. *Cissus quadrangularis* Linn., Mant. 1 : 39. 1767 ; Gamble, Fl. Presid. Madras 1 (2) : 233. 1918 ; Suessenguth in Engl. & Prantl, Pflanzenfam. (ed. 2) 20 d : 262. 1953. *Vitis quadrangularis* Wall. ex Wt. et Arn.. Prodr. 125. 1834 ; Wt., Ic. t. 51. 1838 ; A. Laws. in Hook. f. Fl. Brit. Ind. 1 : 645. 1875. *Changalamperunda*, *Piranta* (Malayalam). *Arugani*, *Indiravalli*, *Kiritti* (Tamil).

Climbing shrubs ; branches fleshy, 4-angled, winged, much contracted at nodes, leafless when old ; tendrils simple, wiry. Leaves 2.5-5.5 × 3-6

cm, broadly-ovate, serrulate, glabrous, rounded at apex, cordate at base ; petioles upto 1.5 cm long. Flowers greenish-white in shortly peduncled umbels. Berries 0.5-0.7 cm in diameter, globose, red when ripe ; seeds obovate, covered with spongy integument.

Fl. & Fr. : January May.

Common at Tiger falls, Chittaruvi and in the out-skirts of the forests on the way to Five falls.

3. *Cissus repanda* Vahl, Symb. Bot. 3 : 18. 1794 ; Gamble, Fl. Presid. Madras 1 (2) : 234. 1918 ; Suessenguth in Engl. & Prantl, Pflanzenfam. (ed 2) 20d : 264. 1953. *Vitis repanda* Wt. et Arn., Prodr. 125. 1834 ; A Laws. in Hook. f., Fl. Brit. Ind. 1 : 648. 1875.

Climbing shrubs ; branches terete, tomentose when young ; tendrils twisted and forked or rarely absent. Leaves 7.5-17.5 × 4.5-15.5 cm, cordate, repand-crenate, tomentose when young, acuminate at apex, shallowly cordate at base ; petioles 2.5-8 cm long. Flowers greenish in leaf-opposed solitary or grouped umbellate cymes. Berries up to 0.8 cm long, pyriform, shortly, mucronate, green ; seed one, obovoid, smooth.

Fl. & Fr. : January May.

A gregarious climber at Five falls and in the Teak plantations.

4. TETRASTIGMA (Miq.) Planch.

Tetrastigma lanceolarium (Roxb.) Planch. in DC., Mon. Phan. 5 : 423. 1887 ; Gamble, Fl. Presid. Madras 1 (2) : 228. 1918. *Vitis lanceolaria* Roxb., Fl. Ind. 1 : 412. 1832 ; Wt. et Arn., Prodr. 128. 1834 ; Wt., Ic. t. 177. (*specim. masc.*) & t. 28 (*specim. femin.*). 1839 ; A. Laws. in Hook. f., Fl. Brit. Ind. 1 : 660. 1875. *V. serratifolia* Wt. et Arn., Prodr. 660. 1834, fide A. Laws. (*non* Rottl. *ex* A. Laws.). *V. muricata* Wt. et Arn., Prodr. 660. 1834 ; Wt., Ic. t. 740. 1844. *Valiyacodivalli* (Malayalam).

Climbing shrubs ; stem woody, angular towards the apex, glabrous ; tendrils wiry, simple, leaf-opposed. Leaves 5-foliate ; leaflets 2.5-7.5 × 1-3 cm, oblanceate, entire or distantly serrate, glabrous, acute at apex, narrowed towards base ; nerves obscure. Flowers white in leaf-opposed, puberulous, corymbose cymes. Berries 0.5-0.7 cm in diameter, globose, fleshy.

Fl. & Fr. : September - July.

Rare along the sides of the stream in Tekkumalai at lower altitudes.

70. SAPINDACEAE

- 1a. Weak stemmed herbs, climbing or straggling by tendrils ; fruits capsular, membranous, inflated *Cardiospermum* 1
- 1b. Shrubs or trees without tendrils ; fruits berries, drupaceous or capsular, not membranous or inflated
- 2a. Leaves simple *Dodonaea* 2
- 2b. Leaves paripinnate
- 3a. Flowers polygamous ; disc annular *Sapindus* 4
- 3b. Flowers polygamo-dioecious ; disc cupular, regular or crenately lobed
- 4a. Flowers apetalous ; stigma 3-4 lobed ; seeds with fleshy aril *Schleichera* 5
- 4b. Flowers with 4-5 petals ; stigma oblique ; seeds without aril *Lepisanthes* 3

1. CARDIOSPERMUM Linn.

Cardiospermum helicacabum Linn., Sp. Pl. 366. 1753 ; Wt. *et* Arn., Prodr. 109. 1834 ; Wt., Ic. t. 508. 1838 ; Hiern in Hook. f., Brit. Ind. 1 : 670. 1875 ; Gamble, Fl. Presid Madras 1 (2) : 244. 1918 ; Radlk. in Engl., Pflanzenr. 98 : 379. 1956. *Jyotishmati*, *Paluruvam* (Malayalam). *Camuthram*, *Ciliyanai*, *Mudacottam* (Tamil).

Delicate, climbing or straggling herbs with tendrils, 30-60 cm long. Leaves biternate ; leaflets 2-4.5 × 0.5-2 cm, lanceate, serrate, acuminate at apex, narrowed at base. Flower white in axillary cymes. Capsules 2-3 cm across, trigonous, membranous, inflated.

Fl. & Fr. : September January.

Common as a way side weed in the plains.

2. DODONAEA Mill. *nom gen. cons.*

Dodonaea viscosa (Linn.) Jacq., Enum. Pl. Carib. 19. 1760 ; Hiern in Hook. f., Fl. Brit. 1 : 697. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 253. 1918 ; Radlk. in Engl., Pflanzenr. 98 : 1363. 1932. *Ptelea viscosa* Linn., Sp. Pl. 118. 1753. *Dodonaea burmanniana* DC., Prodr. 1 : 616. 1824 ; Wt. *et* Arn., Prodr. 114. 1834 ; Wt. Ill. Ind. Bot. t. 52. 1840. *Vrali* (Malayalam). *Virali* (Tamil).

Much branched glutinous shrubs, 1-2 m high. Leaves 3.5-7.5 × 0.5-3 cm, oblong-lanceate, entire, glabrous, shiny above, acute or obtuse at apex, tapering towards the base ; petioles up to 0.5 cm long. Flowers greenish-yellow in few-flowered axillary or terminal racemes or panicles. Capsules 0.5-1.5 cm long, membranous or coriaceous, septicidally 2-6 valved ; valves winged at the base.

Fl. & Fr. : July March.

Very common in the outskirts and plains.

3. LEPISANTHES Bl.

Lepisanthes tetraphylla (Vahl) Radlk., Sber. Bayer. Akad. Wiss. 8 : 276. 1878 ; Gamble, Fl. Presid. Madras 1 (2) : 247. 1918 ; Leenhouts, Blumea 17 : 63. 1969. *Sapindus tetraphylla* Vahl, Symb. Bot. 3 : 54. 1794. *Lepisanthes montana* Bl., Bijdr. 238. 1825 ; Hiern in Hook. f., Fl. Brit. Ind. 1 : 679. 1875. *Sapindus ? deficiens* Wt. et Arn., Prodr. 111. 1834 ; Wt., Ic. t. 141. 1839. *Hemigyrosa canescens* Bl., Rumph. 3 : 166. 1849 ; Hiern, loc. cit. p. 671. *H. longifolia* Hiern in Hook. f., Fl. Brit. Ind. 1 : 671. 1875. *Lepisanthes browniana* Hiern in Hook. f., Fl. Brit. Ind. 1 : 680. 1875. *L. deficiens* Radlk., Sber. Bayer. Akad. Wiss. 8 : 276. 1878 ; Gamble, loc. cit. p. 176. *Ostodes appendiculata* Hook. f., Fl. Brit. Ind. 5 : 401. 1887. *Lepisanthes assamica* Radlk., Rec. Bot. Surv. India 3 : 343. 1907. *L. granulata* Radlk., Rec. Surv. India 3 : 344. 1907. *L. basicardia* Radlk., Rec. Bot. Surv. India 3 : 345. 1907. *L. lamponga* Radlk., Rec. Bot. Surv. India 3 : 345. 1907.

Small trees. Leaves paripinnate, rhachis 30 cm or more in length ; leaflets 5-7 pairs, oblong or oblanceate, entire, glabrous, acuminate at apex, acute or obtuse at base ; petiolules up to 0.6 cm long, stout, tomentose. Flowers in axillary yellowish-tomentose solitary or paniced racemes.

Fl. : October.

Courtallum (*Collector ? s.n. October 1930, PCM*).

4. SAPINDUS Linn.

Sapindus emarginatus Vahl, Symb. Bot. 3 : 54. 1794 ; Wt. et Arn., Prodr. 111. 1834 ; Gamble, Fl. Presid. Madras 1 (2) : 250. 1918. *S. trifolius* Hiern in Hook. f., Fl. Brit. Ind 1 : 682. 1875 (*pro parte, non*

Linn.); Radlk. in Engl., Pflanzenr. 98 : 656. 1956 (as syn.). *Berugukay*, *Aritala* (Malyalam). *Manipungu*, *Niltavanci*, *Ponnangottai* (Tamil).

Trees, 6-10 m high ; branches grey tomentose. Leaves paripinnate; leaflets 7.5- 16.5 × 2.5- 10 cm, ovate-oblong, glabrous above, grey pubescent beneath, emarginate at apex, acute or obtuse at base. Flowers dull-white in terminal panicles. Drupes fleshy, fulvous-hairy when young, green.

Fl. & Fr. : February-May.

Rare in the thick forests above the Teak plantations on the way to New falls.

5. SCHLEICHERA Willd. *nom. gen. cons.*

Schleichera oleosa (Lour.) Oken, Allg. Naturw. Abh. (3) 2 : 1341. 1841 ; Merr., J. Arnold Arb. 31 : 284. 1950. *Pistacia oleosa* Lour., Fl. Cochinch. 2 : 615. 1790. *Schleichera trijuga* Willd., Sp. Pl. 4 (2) : 1096. 1805 ; Wt. et Arn., Prodr. 114. 1834 ; Hiern in Hook. f., Fl. Brit. Ind. 1 : 681. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 248. 1918 ; Radlk. in Engl., Pflanzenr. 98 : 874. 1956. *Puvam*, *Cottilai* (Malayalam). *Cakkattai*, *Kolama*, *Kumbadiri* (Tamil).

Deciduous trees, 15-20 m high; bark grey, smooth. Leaves paripinnate; leaflets 2-8 x 1-3.5 cm, oblong or lanceate, entire, glabrous above, pubescent beneath, obtuse or shortly acuminate at apex, rounded at base. Flowers greenish-yellow in axillary or extra-axillary racemes. Berries 1-1.5 cm long, ellipsoid, echinate with blunt prickles; seeds with pulpy aril.

Fl. & Fr. : February June.

Fairly common in the outskirts around Main falls and Tiger falls and also in the Shola forests at higher altitudes.

71. BURSERACEAE

1a. Disc of the flowers cupular ; drupes globose ; leaves entire

Commiphora 2

1b. Disc of the flowers annular ; drupes ellipsoid ; leaves serrate

Canarium 1

1. CANARIUM Linn.

Canarium strictum Roxb., (Hort. Beng. 49. 1814 *nom. nud.*) Fl. Ind. 3. 138. 1832; Wt *et* Arn., Prodr. 175. 1834 ; A. Benn. in Hook. f., Fl. Brit. Ind. 1 : 534. 1875; Gamble, Fl. Presid. Madras 1 (1) : 172. 1915; Leenhouts, Blumea 9 : 414. 1959. *Telli*, *Viraka*, *Karuttukungilium* (Malayalam). *Attam*, *Kungulu* (Tamil).

Large trees ; young branches densely tomentose. Leaves pinnately compound; leaflets 3-7 pairs with an odd terminal one, 7.5-14 × 4-8.5 cm, unequal sided, ovate, coriaceous, serrate, glabrous above, rusty tomentose beneath, obtusely acuminate at apex, caudate or oblique at base. Flowers bisexual or polygamous in axillary panicles shorter than the leaves. Drupes 3-4 cm long, ellipsoid, tapering at both ends.

Fl. & Fr. : August - September.

Courtallum (*Robert Wight* 208, CAL).

2. COMMIPHORA Jacq. *nom. gen. cons.*

Commiphora caudata (Wt. *et* Arn.) Engl. in DC., Mon. Phan. 4 : 27. 1883 ; Gamble, Fl. Presid. Madras 1 (1) : 171. 1915. *Protium caudatum* Wt. *et* Arn., Prodr. 176. 1834; A. Benn. in Hook. f., Fl. Brit. Ind. 1 : 530. 1875.

Armed trees, 10-12 m high; bark thin. Leaves pinnately compound; leaflets 2-5 pairs with a terminal odd. one, ovate or orbicular. entire, glabrous on both sides, acute at apex, unequal at base; nerves finely reticulate. Flowers yellow in supra-axillary panicles. Drupes globose, 2-loculed, one abortive.

Fl. & Fr. : March - June.

Rare, at Main falls in the dry rocky outskirts.

72. ANACARDIACEAE

1a. Leaves simple

2a. Flowers hermaphrodite ; carpels 5

Buchanania 2

2b. Flowers polygamous ; carpels 2 or 3

3a. Stamens 8-10, connate at base ; leaves obovate, rounded or truncate at apex

Anacardium 1

- 3b. Stamens 4, free ; leves ovate or elliptic, obtusely acute or acuminate at apex

Nothopegia 4

- 1b. Leaves imparipinnate

Lanea 3

1. ANACARDIUM Linn.

Anacardium occidentale Linn., Sp. Pl. 383. 1753; Wt. *et* Arn., Prodr. 168. 1834 ; Hook. f. in Hook. f., Fl. Brit. Ind. 2 : 20. 1876; Gamble, Fl. Presid. Madras 1 (2) : 260. 1918. *Parangimavu*, *Kasumavu* (Malayalam). *Kolamavu* (Tamil).

Spreading trees, 6-10 m high; bark resinous. Leaves 10-16 × 5-7.5 cm, obovate, coriaceous, glabrous, rounded or truncate at apex, cuneate at base; petioles 0.8-2 cm long, stout, bulbous at base. Flowers pale yellow with pink streaks in terminal panicles. Nuts 2-4.5 cm long, reniform, thick.

Fl. & Fr. : March - July.

The common cashewnut tree often cultivated for its fruits, rarely running wild around Tiger falls and along the dry outskirts of the forests on the way to Old Courtallum.

2. BUCHANANIA Spreng.

Buchanania lanzan Spreng., Schrad. J. 2 : 234. 1800 ; Gamble, Fl. Presid. Madras 1 (2) : 258. 1918. *B. latifolia* Roxb., Fl. Ind. 2 : 385. 1824 ; Wt. *et* Arn., Prodr. 169. 1834 ; Hook. f. in Hook. f., Fl. Brit. Ind. 2 : 23. 1875. *Mungapera* (Malayalam). *Moralala* (Tamil).

Trees, 6-8 m high ; bark rough ; branchlets thick. Leaves 7.5-13.5 × 6-9.5 cm, broadly-ovate or obovate, coriaceous, entire, glabrous above, pubescent beneath, obtuse, rounded or emarginate at apex, obtuse or acute at base; petioles 0.5-1.3 cm long, stout. Flowers white in terminal pubescent or hirsute panicles. Drupes 0.6-1.5 cm in diameter, subglobose, black when ripe.

Fl. & Fr. : February May.

Below Honey falls along the sides of rocks in humus soil and on the way to Old Courtallum in the dry rocky outskirts of the forests the species is common.

3. LANNEA A. Rich. *nom. gen. cons.*

Lennea coromandelica (Houtt.) Merr., J. Arnold Arbor. 19 : 353. 1939. *Dalium coromandelicum* Houtt., Nat. Hist. 2, 2 : 39, t. 5. f. 2. 1774. *Odina wodier* Roxb., (Hort. Beng. 29. 1814 *nom. nud.*) Fl. Ind. 2 : 293. 1832 ; Wt. *et* Arn., Prodr. 171. 1834 ; Wt., Ic. t. 60 1838; Hook. f. in Hook. f., Fl. Brit. Ind. 2 : 29. 1875 ; Gamble, Fl. Presid. Madras 1 (2) : 263. 1918. *Kalassam*, *Kalayam*, (Malayalam). *Wodian* (Tamil).

Deciduous trees, 8-10 m high; branches rough. Leaves imparipinnate, crowded at the ends of twiggy branchlets; leaflets 2.5-5 × 2-3.5 cm, ovate-oblong, glabrous, acuminate at apex, acute, rounded or oblique at base. Flowers purplish or yellowish in terminal racemes. Drupes ovoid or ob-ovoid, fleshy.

Fl. & Fr. : March—June.

Common around Main falls and along the dry outskirts of the forests at Tiger falls.

4. NOTHOPEGIA Bl.

- 1a. Leaves linear or lanceate, obtusely acute at apex ;
drupes acute at apex

N. heyneana 1

- 1b. Leaves elliptic, ovate or obovate, acuminate or
caudate and acuminate at apex ; drupes depressed at
apex

N. beddomei var. *wynaadica* 2

1. **Nothopegia heyneana** (Hook. f.) Gamble, Fl. Presid. Madras 1(2) : 265. 1918 & in Kew Bull. 1918 : 228. 1918. *N. colebrookiana* Bl. var. *heyneana* Hook. f. in Hook. f., Fl. Brit. Ind. 2 : 40. 1875.

Trees, 4-5 m high ; branchlets slightly pubescent. Leaves 6-11.5 × 1.2-2.5 cm, linear or lanceate, glabrous, obtusely acute at apex, narrowed and acute at base; secondary nerves 15-20 pairs; petioles 0.5-0.7 cm long, stout. Flowers white in terminal panicles of racemes. Drupes ± 1 cm long, globose, 1-seeded.

Fl. & Fr. : April - July.

Rare, in the humus soil around Main falls.

2. **Nothopegia beddomei** Gamble, var. *wynaadica* Ellis *et* Chandra-bose, Bull. Bot. Surv. Inda 12 : 257. 1970.

Small trees ; bark wrinkled, glabrous. Leaves 6-10.5 × 1.5-4.5 cm, elliptic-ovate or obovate, coriaceous, glabrous, pale whitish beneath, acuminate at apex, attenuate at base; petioles 0.5-0.7 cm long, channelled above, twisted. Flowers unisexual in axillary or extra-axillary spicate cymes ; rhachis rusty-puberulous or pubescent.

Fl. : March.

Courtallum (*Robert Wight* 818, CAL).

Notes : This is first record of distribution of this plant in the eastern side of the Western Ghats and for Tamil Nadu state. This highly endemic taxon is extinct from the area.

73. RUTACEAE

1a. Plants armed with prickles, spines or thorns

2a. Leaves imparipinnate ; rhachis jointed and winged

Naringi 7

2b. Leaves simple or trifoliate ; rhachis and petiole not winged

3a. Leaves simple ; branches with spines

Atalantia 3

3b. Leaves trifoliate ; branches with thick thorns or incurved prickles

4a. Flowers unisexual ; stamens 5-6 ; fruit small, 4-5 loculed, fleshy ; climbing or straggling shrubs with incurved prickles

Toddalia 9

4b. Flowers hermaphrodite ; stamens numerous ; fruits large, 8-15 loculed with woody rind ; trees with thick thorns

Aegle 2

1b. Plants unarmed

5a. Leaves simple ; fruits 4-loculed drupes or 4-valved capsules

Acronychia 1

5b. Leaves compound, digitately 1-3 foliate or imparipinnate ; fruits succulent berries

6a. Leaves 3 or 2 foliate ; rhachis often winged

Pleiospermium 8

6b. Leaves imparipinnate ; rhachis or petiolules not winged

- 7a. Filaments flat ; anthers with an apical gland ; style persistent
Glycosmis 5
- 7b. Filaments dilated below the tip or linear-subulate ; anthers glandular on the back or without glands ; style articulated at its apex and deciduous
- 8a. Leaflets crenate along the margins ; filaments dilated below the apex ; anthers large and glandular on the back
Clausena 4
- 8b. Leaflet entire, oblique at the base ; filaments linear-subulate ; anthers small, glands obscure
Murraya 6

1. ACRONYCHIA Forst. et Forst. f. *nom. gen. cons.*

Acronychia pedunculata (Linn.) Miq., Fl. Ind. Bat. (suppl.) 532. 1861 ; Hartley, J. Arnold Arbor. 55 : 549. 1975. *Cyminose pedunculata* (Linn.) Roxb., (Hort. Beng. 88. 1814 *nom. nud.*) Fl. Ind. 2 : 239. 1832; Wt. et Arn., Prodr. 147. 1834 ; Wt., Ill. Ind. Bot. t. 65. 1840. *Acronychia laurifolia* Bl., Cat. Gew. Buitenz. 63.1823 & Bijdr. 245. 1824 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 498. 1875 ; Gamble, Fl. Presid. Madras 1 (1) : 152 1915. *A. barbari* Gamble, Kew Bull. 1915 : 345. 1915 & in Fl. Presid. Madras 1(1) : 152. 1915. *Vidukanali*, *Muttanari* (Malayalam). *Kattukanni Muttainari* (Tamil).

Evergreen trees, 4-5 m high ; bark smooth. Leaves simple, 5-9 × 2-3.5 cm, oblong-lanceate or ovate, entire, coriaceous, glabrous, acute or obtusely acuminate at apex, acute at base ; petiole 1-1.5 cm long or rarely obscure. Flowers white, fragrant in axillary paniculate corymbs. Capsules 0.5-1 cm long, subglobose, 4-valved.

Fl. & Fr. : September February.

Fairly common around Main falls and Five falls in the humus soil.

2. AEGLE Correa. *nom. gen. cons.*

Aegle marmelos (Linn.) Correa, Trans. Linn. Soc. Lond. 5 : 223. 1800; Wt. et Arn., Prodr. 96. 1834; Wt., Ic. t. 16. 1838; Hook. f., Fl. Brit

Ind. 1 : 516. 1875; Gamble, Fl. Presid. Madras 1 (1) : 161. 1915. *Crataeva marmelos* Linn.. Sp. Pl. 444. 1753. *Kuvalam, Mavilavu, Vilvam* (Malayalam). *Alurigam, Vilva, Iylambudi, Kuvilam, Villuvam* (Tamil).

Armed deciduous trees, 5-10 m high; bark greyish, glabrous; thorns 1-2.5 cm long, straight. Leaves trifoliate; leaflets 3-6.5 × 2-3.5 cm, lanceolate or ovate-elliptic, entire, glabrous, acute at apex, tapering at base; rhachis 1.5-3 cm long. Flowers greenish-white externally, pale yellowish inside, fragrant in axillary panicles. Berries 5-8 cm across, subglobose with woody, yellowish rind.

Fl. & Fr. : February-July.

Planted near Courtallum temple for its religious importance, occasionally running wild along the outskirts of the forest on the way to Five falls.

3. ATALANTIA Correa *nom. gen. cons.*

- | | |
|--|------------------------|
| 1a. Flowers in corymbs ; leaves not emarginate at apex | <i>A. monophylla</i> 1 |
| 1b. Flowers in cymes ; leaves emarginate at apex | <i>A. wightii</i> 2 |

1. *Atalantia monophylla* DC., Prodr, 535. 1824; Wt. *et* Arn., Prodr. 91. 1834 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 511. 1875; Gamble, Fl. Presid. Madras 1 (1) : 159. 1915; Airy Shaw, Kew Bull. 1939 : 292. 1939. *Limonia monophylla* Roxb., Pl. Corom. 1 : 60, t. 83. 1795 (*non* Linn). *Trichiila spinosa* Willd., Sp. Pl. 2 : 554. 1799. *Atalantia spinosa* (Willd.) Tanaka, J. Bot. 68 : 232. 1930 (*non* Hook. *ex* Koorders, 1912). *Malnerega malabarica* Raf., Syl. Tell. 143. 1838. *Atalantia malabarica* (Raf.) Tanaka, J. Indian Bot. Soc. 16 (4) : 233. 1937. *A. floribunda* Wt., Ic. t. 1611. 1850. *Malanarakam, Kattukurunta, Kattunarakam, Kolanna* (Malayalam). *Kattelu-meccai, Kattukurundu, Kattanarakam* (Tamil).

Shrubs or small trees, 3-6.5 m high; older branches spinescent. Leaves 3-4.5 × 2-3.5 cm, ovate, oblong or elliptic, coriaceous, entire, glabrous, mostly obtuse at apex, ovate at base; petioles 0.3—0.5 cm long. Flowers white, fragrant in axillary corymbs or umbels. Berries ±1.5 cm in diameter, globose with small depressions on the surface.

Fl. & Fr. : February December.

In the outskirts and lower altitudes of the forest the plant is rather common.

2. *Atalantia wightii* Tanaka, Bull. Soc. Bot. France 5, 4 : 714. 1928 ; J. Bot. 68 : 232. 1930 & in J. Indian Bot. Soc. 6(4) : 234. 1937 ; Fischer in Gamble, Fl. Presid. Madras 3 (11) : 1895. 1936 (in corrigenda). *A. ceylanica* (Arn.) Oliv. (*pro parte*) ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 512. 1875.

Branched shrubs with stout spines 1.5-3 cm long. Leaves 7-10.5 × 3-4.5 cm ovate, oblong or ovate-lanceate, coriaceous, obtusely acuminate at apex, ovate at base; petioles ±0.5 cm long, stout. Flowers white with a light smell in axillary cymes. Berries ± 2 cm across, globose or ovoid, smooth, black whenripe.

Fl. & Fr. : October December.

Common in the outskirts around Tiger falls. This rare and endemic species of Peninsular India is in an endangered state at Courtallum.

4. CLAUSENA Burn. f.

Clausena dentata (Willd.) M.J. Roem., Syn. Hesp. 44. 1846 ; Tanaka, J. Indian Bot. Soc. 16 : 230. 1937. *Amyris dentata* Willd., Sp. Pl. 2 : 337. 1799. *Clausena willdenovii* Wt. et. Arn., Prodr. 96. 1834 ; Wt., Ic. t. 14. 1838 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 506. 1875 ; Gamble, Fl. Presid. Madras 1 (1) : 155. 1915.

Small trees, 4-6 m high ; young branches pubescent. Leaves imparipinnate ; leaflets 7-13, 4.5-7.5 × 2-4.5 cm, ovate-oblong, crenate, pubescent, obscurely acuminate at apex, oblique at base ; petioles 0.2-0.3 cm long. Flowers white, fragrant in terminal or axillary corymbose panicles. Berries 0.5-0.7 cm in diameter, globose, pulpy, cream-coloured.

Fl. & Fr. : February August.

Fairly common along the dry outskirts and hedges. The fruits are edible.

5. GLYCOSMIS Correa

1a. Ovary 3 or 2-loculed

G. angustifolia 1

1b. Ovary 5-loculed

2a. Ovary sessile or shortly stalked ; inflorescence of axillary or terminal panicles

- 3a. Inflorescence of short axillary panicles ; ovary shortly stalked ; fruits pitted, glandular *G. mauritiana* 3
- 3b. Inflorescence of long (as long or longer than the rhachis) axillary or terminal panicles ; ovary sessile ; fruits mamillate *G. pentaphylla* 4
- 2b. Ovary on a swollen gynophore ; inflorescence of terminal spikes or racemes *G. macrocarpa* 2

1. *Glycosmis angustifolia* Lindl. ex Wt. et Arn., Prodr. 93. 1834 ; Narayanaswami, Rec. Bot. Surv. India 14 (2) : 64. 1941. *G. pentaphylla* var. B, subvar. 4. *angustifolia* Oliv. J. Linn. Soc. Lond. 5, suppl. 37. 1860. *G. pentaphylla* var. 2, subvar. 3. *angustifolia* Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 500. 1875.

Erect shrubs, 2-2.5 m high ; branches smooth, pale-white. Leaves imparipinnate ; leaflets 2-5, $3.5 \times 0.8-1.2$ cm, narrow elliptic-lanceate, entire, shiny above, obtusely acuminate at apex, acute at base. Flowers greenish-white in short, few-flowered, axillary compound racemes ; ovary on a broad gynophore. Berries globose, pitted, glandular.

Fl. & Fr. : December March.

Rare, along the sides of ravines on the way to Vaithamalai opposite to Ammathottam in the humid, shady shola. This rare endemic species of Western Ghats requires protection before it gets extinct.

Notes : Narayanaswami (*loc. cit.* p. 64) treated *G. mauritiana* (Lamk.) Tanaka var. *angustifolia* Tanaka (J. Bot. 68 226. 1928) as a synonym of this species with the following note (*loc. lit.* p. 67). 'Tanaka has reduced this to a variety of his *G. mauritiana*, but there is not even the remote approach to it when we take into consideration the reproductive parts.' But there is doubt about the identity of *G. angustifolia* Lindl. ex Wt. et Arn and Tanaka's plant due to the following reasons. When Tanaka (*loc. cit.*) erected the variety he notes 'distinguished from *G. biloculani* by the more crowded leaflets and many flowered inflorescence with stipitate obtuse ovary without gynophore.' But Narayanaswami (*loc. cit.*) stresses the importance of a few flowered inflorescence and the presence of a prominent gynophore for *G. angustifolia* Lindl. ex Wt. et Arn. which is observed here in the type specimen of it, namely Wall. Cat. no. 6378 present at Central National Herbarium. Secondly, when Wight and Arnott (*loc. cit.*) described the species *G. angustifolia* Lindl. they cited the specimen Wall. Cat. no. 6373 and Wight Cat. no. 315 and not Wight no. 367 which is the type specimen of the var. *angustifolia* of Tanaka (*loc. cit.*). There is no reason to think that when Wight and Arnott (*loc. cit.*)

described the species, they were not aware of the specimen *Robert Wight* 367, and if it was the same as *Wight* Cat. no. 315, they would have cited it also there. However it may be noted here that the variety *Glycosmis mauritiana* var. *angustifolia* Tanaka is also described from Courtallum which is the type locality of it.

2. *Glycosmis macrocarpa* Wt., Ill. Ind. Bot. 1 : 109. 1840 ; Narayanaswamy, Rec. Bot. Surv. India 14 (2) : 43. 1941. (excl. descrip.). *G. pentaphylla* var. *macrocarpa* (Wt.) Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 500. 1875.

Erect shrubs ; branchlets nearly glabrous. Leaves 3-5 foliate ; leaflets upto 12×4 cm, oblong or elliptic-lanceate, entire, glabrous, obtusely acuminate at apex, cuneate at base. Flowers small in terminal short racemes. Berries 1.2-2.5 cm across, subglobose, constricted at base.

Fl. : April.

Courtallum (*Robert Wight* 103, LE).

An endemic species of Peninsular India, extinct from Courtallum, its type locality.

3. *Glycosmis mauritiana* (Lamk.) Tanaka, Bot. Not. 1928 : 159. 1928 & in J. Indian Bot. Soc. 16 : 229. 1937 ; Brizicky, J. Arnold Arbor. 43 : 90. 1962 (excl. syn. *G. pentaphylla* DC.) ; Mitra *et* Subr., J. Arnold Arbor. 50 : 155. 1969. *Limonia mauritiana* Lamk., Enc. Meth. Bot. 3 : 517. 1792. *L. pentaphylla* auct. (non Retz.) ; Roxb., Pl. Corom. 1 : 60, t. 84. 1798. *Glycosmis pentaphylla* sensu Narayanaswami, Rec. Bot. Surv. India 14 (2) : 12. 1941 (excl. syn. *L. pentaphylla* Retz.). *G. cochinchinensis* Pierre ; Gamble, Fl. Presid. Madras 1 (1) : 153. 1915 (*pro parte*). *Kattupanal, Malampandal* (Malayalam).

Shrubs, 2-4.5 m high ; branchlets yellowish. Leaves pinnate ; leaflets usually 5, rarely 4-1, 3-5 × 2.5-4.5 cm, elliptic, ovate or rarely obovate, entire, glabrous, obtuse or obtusely acuminate at apex, tapering towards the base. Flowers white in short axillary panicles. Berries up to 1 cm long, subglobose, pulpy.

Fl. & Fr. : January - May.

Common in the outskirts and waste places.

4. *Glycosmis pentaphylla* (Retz.) DC., Prodr. 1 : 538. 1824 (*quod basionym*) ; Tanaka, J. Indian Bot. Soc. 16 : 229. 1937 ; Mitra *et* Subr., J. Arbor. 50 : 155. 1969. *Limonia pentaphylla* Retz., Obs. Bot. 5 : 24.

1789. *L. arborea* Roxb., Pl. Corom. 1 : 60, t. 85. 1798. *Glycosmis arborea* (Roxb.) DC., Prodr. 1 : 538. 1824; Gamble, Fl. Presid. Madras 1 (1) : 153. 1915; Narayanaswami, Rec. Bot. Surv. India 14 (2) : 155. 1941; Brizicky, J. Arnold Arbor. 43 : 90. 1962. *Panal* (Malayalam).

Erect shrubs, up to 1.5 m high; branchlets glabrous, green. Leaves pinnate, 3-7 foliate; leaflets 10-12.5 × 4.5-6.5 cm, elliptic or elliptic-lanceate, entire or wavy-serrated, glabrous, acute or acuminate at apex, acute at base; petioles obscure. Flowers white, aromatic in axillary or terminal panicles. Berries 0.4-0.7 cm across, subglobose, glandular.

Fl. & Fr. : January May.

Common in the waste places and outskirts on the way to New falls from Tiger falls.

6. MURRAYA Koen. ex Linn. *nom. gen. cons.*

Murraya paniculata (Linn.) Jacq., Mal. Misc. 1 (5) : 31. 1820. *Chalcas paniculata* Linn., Mant. 1 : 68. 1767; Tanaka, J. Bot. 68 : 229. 1930. *Murraya exotica* Linn., Mant. 2 : 563. 1771; Wt. et Arn., Prodr. 94. 1834; Wt., Ic. t. 96. 1838; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 502. 1875; Gamble, Fl. Presid. Madras 1 (1) : 155. 1915. *Konei, Pancandali, Vengarai* (Tamil).

Evergreen shrubs or small trees, 3-4 m high; bark smooth, light yellow. Leaves imparipinnate; leaflets 5-7, alternate, 3-5 × 2-3 cm, ovate or rhomboid, entire, glabrous, subacuminate at apex, narrowed at base. Flowers white, fragrant in terminal or axillary corymbs. Berries 1-1.5 cm long, subglobose, smooth, red when ripe.

Fl. & Fr. : April - August.

Common in the outskirts but rare in the interior areas around Shembagadevi.

7. NARINGI Adans.

Naringi crenulata (Roxb.) Nicolson in Flora of Hassan District, Karantaka, India 387. 1976; Panigrahi, Bull. Bot. Surv. India 17 (1-4) : 196. 1975 (1978). *Limonia crenulata* Roxb. Pl. Corom. 1 : 60, t. 86. 1798. *Hesperethusa crenulata* (Roxb.) M. J. Roem., Synops. Mon.

Hespr 1 : 38. 1846. *Limonia acidissima auct. multi.* ; Wt. et Arn., Prodr. 92. 1834 ; Hook. f. in Hook. f., Fl. Brit. India 1 : 507. 1875. (non Linn. 1762).

Thorny shrubs, 2.5 - 3 m high : thorns axillary, 1 - 2 cm long. Leaves pinnate ; leaflets 2 - 4 pairs, 2 - 2.5 × 1 - 1.5 cm, ovate or linear, serrate, glabrous, obtuse, ovate or nouched at apex, narrowed into the base ; rachis jointed, winged. Flowers white in axillary, umbelliform, leafy racemes. Berries 0.5 - 1 cm across, globose, black when ripe.

Fl. & Fr. : May - November.

Very rare, at Five falls in the outskirts.

8. PLEIOSPERMIUM (Engl.) Swingle

Pleiospermium alatum (Wt. et Arn.) Swingle, J. Wash. Acad. Sci. 6 : 425. 1916 ; Tanaka, J. Bot. 68 : 231. 1930. *Limonia alata* Wt. et Arn., Prodr. 92. 1834 ; Wt., Ill. Ind. Bot. 41. 1840 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 508. 1875 ; Gamble, Fl. Presid. Madras 1 (1) : 157. 1915. *Malainarattai* (Tamil).

Shrubs or small trees ; branches woody. Leaves 3 or rarely 2 foliate ; leaflets 2.5 - 6.5 × 2 - 4.5 cm, sessile, obovate, entire, glabrous, rounded at apex, cuneate at base. Flowers greenish-white in terminal or axillary, paniculate racemes : Berries up to 2 cm in diameter, globose, with dotted depressions on the surface.

Fl. : April.

Courtallum (*Robert Wight* 108, CAL).

9. TODDALIA Juss. *nom. gen. cons.*

Toddalia asiatica (Linn.) Lamk., Enc. Meth. Bot. 2 : 116. 1793 ; Gamble, Fl. Presid. Madras 1 (1) : 150. 1915. *Paullinia asiatica* Linn., Sp. Pl. 365. 1753. *Toddalia aculeata* Pers., Syn. 1 : 249. 1805 ; Wt. et Arn., Prodr. 149. 1834 ; Wt., Ill. Ind. Bot. 66. 1840 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 497. 1875. *Kakkatukali*, *Kattukara*, *Malakuthani* (Malayalam). *Kattumilagu*, *Milagarani* (Tamil).

Climbing or straggling shrubs, 3 - 7 m high ; branches with incurved prickles. Leaves trifoliate ; leaflets up to 3.5 × 1.7 cm, oblong to broadly-

lanceate, crenulate, glabrous, acute, obtuse or nouched at apex, acute at base. Flowers white in axillary cymes. Berries about 1 cm across, lobed, orange-coloured when ripe.

Fl. & Fr. : November March.

Very common in the outskirts and interior parts.

74. MBLIACEAE

- | | |
|---|--------------------|
| 1a. Flowers hermaphrodite ; drupes 5-loculed,
5-ribbed | <i>Cipadessa</i> 2 |
| 1b. Flowers polygamo-dioecious ; berries 1-2 loculed,
not ribbed | <i>Aglaiia</i> 1 |

1. AGLAIA Lour.

- | | |
|--|--------------------------|
| 1a. Peduncles slender, wiry, uniformly thick throughout ;
flowers almost distichous on the inflorescence
branches | <i>A. odorata</i> 2 |
| 1b. Peduncles stout, not wiry, more thicker towards base ;
flowers arranged in small groups on the short inflores-
cence branches (not distichous) | <i>A. elaeagnoidea</i> 1 |

1. *Aglaiia elaeagnoidea* (Juss.) Benth., Fl. Austrl. 1 : 383. 1863 ; Back. et. Bakh. f., Fl. Java 2 : 128. 1965. *Nemedra elaeagnoidea* Juss., Mem. Mus. Hist. Nat. Paris 19 : 259, t. 14. 1830. *Aglaiia roxburghaina* (Wt. et. Arn.) Miq., Ann. Mus. Lugd. Bat. 4 : 41. 1858 ; Hiern in Hook. f., Fl. Brit. Ind. 1 : 555. 1875 ; Gamble, Fl. Presid. Madras 1 (1) : 180. 1915.

Trees, 8 - 12 m high ; young branches tomentose. Leaves pinnate, often 6 or 7 foliate ; leaflets 2.5 - 6.5 × 0.8 - 4.5 cm, oblong, obtuse at apex, narrowed towards base ; petiolules 0.3 - 1 cm long. Flowers yellowish in axillary, short panicles towards the apex of branches. Berries ± 1 cm across, rounded at apex, narrowed into the stalk at the base.

Fl. & Fr. : January - May.

Common in the foot-hills and lower altitudes, especially below Chittaruvi.

- 1a. Leaflets large, often 5-9.5 cm long, oblong or oblanceate ; barries \pm 1 cm across var. *bourdillonii* 1
- 1b. Leaflets small, often up to 4 cm long, oblanceate or rarely linear eillptic ; barries up to 0.7 cm across var. *courtallensis* 2

1. *Aglaia elaeagnoidea* (Juss.) Benth. var. *bourdillonii* (Gamble) K.K. N. Nair, J. Bomb. Nat. Hist. Soc. 78 : 426. 1981. *A. bourdillonii* Gamble, Bull. Misc. Inf. Kew 1915 : 346 47, 1915 & Fl. Presid. Madras 1 (1) : 180, 1915 ; Harms in Engl. & Prantl. Pflanzenfam. (ed. 2) 19b : 146. 1940 ; Choudhuri, Bull. Bot. Soc. Bengal 21 : 6. 1967. *A. roxburghiana sensu* Bedd. Fl. Sylvat. t. 130B. 1871.

Fl. & Fr. : January May.

Common in the outskirts and rarely towards the interior of the forest around Shembagadevi.

2. *Aglaia elaeagnoidea* (Juss.) Benth. var. *courtallensis* (Gamble) K.K.N. Nair, J. Bomb. Nat. Hist. Soc. 78 : 426. 1981. *A. roxburghiana* (Wt. et Arn.) Miq. var. *courtallensis* Gamble, Fl. Presid. Madras 1 (1) : 180. 1915.

Fl. & Fr. : January May.

Graceful trees for their stunted habit and profusely branched apex, rare in the foot-hills around Old Courtallum.

2. *Aglaia odorata* Lour., Fl. Cochinch. 173. 1790 ; Wt. Ic. t. 511. 1840 ; Hiern in Hook. f., Fl. Brit. Ind. 1 : 554. 1875 ; Gamble, Fl. Presid. Madras 1 (1) : 181. 1915.

Small trees ; young branches stellate-scaly. Leaves pinnately 3 foliate ; leaflets 3 $5.5 \times 1 - 1.5$ cm, terminal one the largest, oblong, glabrous, obtuse at apex, narrowly acute at base. Flowers in lax panicles.

Fl. : August.

Courtallum (*Robert Wight* 98, 100, CAL).

2. CIPADESSA Bl.

Cipadessa baccifera (Roth) Miq., Ann. Mus. Lugd. Bat. 4 : 6. 1869 - 70 ; Gamble, Fl. Presid. Madras 1 (1) : 176. 1915. *Melia baccifera* Roth, Nov. Sp. Pl. Ind. Or. 215. 1821. *Cipadessa fruticosa* Bl.,

Bijdr. 162. 1825 ; Hiern in Hook. f., Fl. Brit. Ind. 1 : 545. 1875.
Cerattai, Pulippan (Tamil).

Branched shrubs, 2-3 m high ; branchlets silky-pubescent. Leaves imparipinnate ; leaflets 4-6.5 × 1.5-2.5 cm, elliptic-lanceate, entire or serrate, glabrous, acuminate at apex, acute at base ; petiolules up to 0.6 cm long. Flowers greenish-yellow in axillary corymbose panicles shorter than the leaves. Berries 0.3-0.5 cm in diameter, 5-lobed, 5-loculed, scarlet when ripe.

Fl. & Fr. : September - November.

Common in the outskirts on the way to Five falls.

75. OXALIDACEAE

- | | |
|--|--------------------|
| 1a. Leaves digitately 3-foliolate ; capsule valves cohering to the axis | <i>Oxalis</i> 2 |
| 1b. Leaves pinnately many-foliolate ; capsule valves detaching from the axis | <i>Biophytum</i> 1 |

1. BIOPHYTUM DC.

- | | |
|---|-------------------------|
| 1a. Stem not branched ; apex of the leaves obliquely truncate | <i>B. sensitivum</i> 2 |
| 1b. Stem branched ; apex of the leaves cuspidate | <i>B. intermedium</i> 1 |

1. *Biophytum intermedium* Wt., Ill., Ind. Bot. 1 : 162. 1840 ; Edgew. *et. Hook. f.* in Hook. f., Fl. Brit. Ind. 1 : 438. 1872 ; Gamble, Fl. Presid. Madras 1 (1) : 133. 1915 ; Kunth in Engl., Pflanzenr. 95 : 412. 1930. *Oxalis intermedia* Steud., Nom., (ed. 2) 2 : 240, 1841.

Trailing herbs, up to 30 cm long ; stem wiry, branched, pubescent towards apex. Leaves crowded at the ends of the stems, pinnate, 2.5-4.5 cm long ; leaflets 15-23 pairs, ± 0.6 × 0.2 cm, linear-oblong, almost glabrous, sharply cuspidate at apex, oblique at base. Flowers yellow in terminal umbels on filiform peduncles. Capsules up to 0.5 cm long, 5-valved ; seeds tubercled.

Fl. & Fr. : August - November.

Rare, along the sides of rocks in Tekkumalai above the second bridge, where water flows during monsoon.

2. *Biophytum sensitivum* (Linn.) DC. Prodr. 1 : 690. 1824 ; Edgew. et Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 436. 1872 ; Gamble, Fl. Presid. Madras 1 (1) : 133. 1915 ; Kunth in Engl., Pflanzenr. 95 : 393. 1930. *Oxalis sensitiva* Linn., Sp. Pl. 434. 1753 ; Wt. et Arn., Prodr. 142. 1834 (*pro parte*). *O. metziana* Edgew. et Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 438. 1872. *Mukkuti* (Malayalam).

Erect herbs, 15 25 cm high ; stem unbranched, short. Leaves in rosettes at the apex of the stem, pinnate, 4 8 cm long ; leaflets 10 14 pairs. $\pm 1 \times 0.3$ cm, oblong, glabrous or hairy above, obliquely truncate at apex, narrowed at base. Flowers yellow in terminal umbels on hairy rhachis Capsules 0.2 0.4 cm long, ellipsoid, apiculate ; seeds transversally striated.

Fl. & Fr. : August December.

Fairly common, around Five falls and in the Agricultural estate and Udayathan estate above, as an undergrowth, along with grasses.

2. OXALIS Linn.

- | | |
|--|-------------------------|
| 1a. Stem underground, bulbous ; petioles 8-30 cm long, sheath-like at base | <i>O. corymbosa</i> 2 |
| 1b. Stem aerial, filiform, much branched ; petioles 2.5-3.5 cm long, not sheath-like at base | <i>O. corniculata</i> 1 |

1. *Oxalis corniculata* Linn., Sp. Pl. 435. 1753 ; Wt. et Arn., Prodr. 142. 1834 ; Wt., Ic. t. 1838. 1852 ; Edgew. et Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 436. 1874 ; Gamble, Fl. Presid. Madras 1 (1) : 132. 1915 ; Calder, Rec. Bot. Surv. India 6 (8) : 331. 1919 ; Kunth in Engl., Pflanzenr. 95 : 146. 1930.

Erect herbs, 30 40 cm high ; stem much branched, wiry, hairy or pubescent, rarely creeping and rooting at lower nodes. Leaves 3 - foliate ; leaflets up to 1.6×1 cm, obcordate, appressedly hairy or glabrate, emarginate at apex, cuneate at base. Flowers yellow, in axillary long-pedunculate, hairy umbels. Capsules 1 2 cm long, cylindrical, pubescent, shortly beaked.

Fl. & Fr. : May - December.

A weed common in Agricultural and Udayathan estate above Five falls.

2. *Oxalis corymbosa* DC., Prodr. 1 : 696. 1824 ; Calder, Rec. Bot. Surv. India 6 (8) : 337: 1912. *O. martiana* Zucc., Denkschr. Akad. Muench. 9 : 144, no. 6. 1823 24 ; Kunth in Engl., Pflanzenr. 95 : 250. 1930.

Perennial herbs ; stem underground, bulbous, fleshy, with bulbils. Leaves erect, 8-30 cm high, 3-foliolate ; leaflets 1.5-3.5 × 1.5-4 cm, subsessile, glabrous above, appressed hairy beneath, deeply notched at apex with rounded lobes, cuneate at base ; rhachis hairy, sheath-like at base. Flowers deeply rose-coloured towards apex, whitish towards base, 2-many in subumbellate corymbs.

Fl. : May July.

A common weed in the humid areas at higher elevations of Tekkumalai along the sides of rocks.

Notes : The plant appears to be of recent introduction in India as it is not included in *Flora of British India* and *Flora of the Presidency of Madras*. However, as early as 1912, Calder (*loc. cit.*) reported it from Calcutta Botanical Gardens, and Kunth (*loc. cit.* p. 251) recorded it from Kodaikanal in Peninsular India.

76. BALSAMINACEAE

IMPATIENS Linn.

- | | |
|--|------------------------|
| 1a. Plants epiphytic | <i>I. auriculata</i> 2 |
| 1b. Plants terrestrial | |
| 2a. Scapigerous herbs with tuberous root stocks | <i>I. acaulis</i> 1 |
| 2b. Non-scapigerous herbs without tuberous root stock | |
| 3a. Annual slender herbs | |
| 4a. Leaves rosulate at the apex of the simple stem | <i>I. umbellata</i> 6 |
| 4b. Leaves alternate, scattered throughout the branched stem | |
| 5a. Flowers solitary on solitary, binate or fascicled pedicels | |
| 6a. Spurred sepal 2-3 cm long | <i>I. faccida</i> 4 |
| 6b. Spurred sepal up to 1 cm long | <i>I. dasysperma</i> 3 |
| 5b. Flowers in subterminal racemes with long, axillary, solitary peduncles | <i>I. uncinata</i> 7 |
| 3b. Perennial robust herbs | <i>I. grandis</i> 5 |

1. *Impatiens acaulis* Arn. in Hook., Bot. Mag. 1 : 325. 1835 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 443. 1874 & in Rec. Bot. Surv. India 4 : 44. 1906 ; Gamble, Fl. Presid. Madras 1 (1) : 138. 1915.

Scapigerous herbs, 4-30 cm high ; rootstock tuberous. Leaves radical, variable in shape, 7.5-12.5 cm in diameter, suborbical, ovate or oblong, subentire or crenate, obtuse or subacute at apex, subcordate, rounded or subacute at base ; petioles 4-20 cm long, fleshy. Flowers violet, large, showy, in terminal racemes ; spur long, slender curved. Capsules \pm 2 cm long, ellipsoid, acute at both ends.

Fl. & Fr. : July September.

2. *Impatiens auriculata* Wt., Madras J. Litt. & Sci. (ser. 1) 5 : 8, pl. 3. 1837 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 460. 1874 & in Rec. Bot. Surv. India 4 : 45. 1905 ; Gamble, Fl. Presid. Madras 1 (1) : 139. 1915.

Succulent epiphytes, 6-8 cm high ; stem short, swollen. Leaves confined to the apex of the stem, 1.5 4.5 \times 1-2 cm, broadly-ovate, crenulate, glabrous or minutely puberulous, sharply acute at apex, obtuse or acute at base ; petioles up to 1 cm long, stout. Flowers in axillary few flowered peduncles ; spur hooked. Capsules up to 1.3 cm long, oval.

Fl. & Fr. : August September.

Courtallum (*Robert Wight* 349, CAL).

Notes : The colour of the flower as noted by Robert Wight (*loc. cit.*) is quite interesting. The upper sepal or helmet to which it generally resembles in form and situation is bright green, the lateral sepals and the spur is deep scarlet, while the upper projecting portion of the petals is dark purple. In the protologue of the species it is mentioned that the peduncle bears two flowers. But the type specimens represented by plants in different stages of fruiting, show solitary capsules. An endemic but extinct species of South India.

3. *Impatiens dasysperma* Wt., Madras J. Litt. & Sci. (ser. 1) 5 : 7, pl. 2. 1837 & Ic. t. 742. 1844 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 157. 1874 & in Rec. Bot. Surv. India 4 : 47. 1906 ; Gamble, Fl. Presid. Madras 1 (1) : 143. 1915.

Erect herbs, 15-25 cm high ; branches slender, glabrous. Leaves up to 7.5 \times 3.2 cm, ovate-lanceate, slightly hairy above, glabrous beneath, crenate-serrated, acuminate at apex, rounded or truncate at base ; petioles up to 3 cm long, slender. Flowers solitary towards the apex of branches. Capsules \pm 0.5 cm across, apiculate at apex.

Fl. & Fr. : August September.

Courtallum (*Robert Wight* 334, CAL).

An endemic species of Southern Western Ghats, lost from Courtallum.

4. *Impatiens flaccida* Arn. in Hook., Bot. Mag. 1 : 332. 1835 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 457. 1874 & in Rec. Bot. Surv. India 4 : 47. 1906 ; Gamble, Fl. Presid. Madras 1 (1) : 143. 1915.

Slender, erect herbs, 20-60 cm high; stems fleshy, glabrous. Leaves 1.5-10 × 1-3 cm, elliptic-lanceate, serrate or crenate-serrate, glabrous, acuminate at apex, acute or narrowed at base ; petioles 1.5-2.5 cm long, slender. Flowers rose-purple, solitary or fascicled, axillary. Capsules up to 1 cm long, ellipsoid, acuminate at apex.

Fl. & Fr. : July September.

Rather common in the higher altitudes of Tekkumalai around and below the third wooden bridge and also on the way to Vaithamalai.

5. *Impatiens grandis* Heyne ex Wall. in Roxb., Fl. Ind. 2 : 464. 1824 ; Wt. et Arn., Prodr. 137. 1834 ; Wt., Madras J. Litt. & Sci. (ser. 1) 4 : 10, pl. 5. 1837 ; Bedd., Ic. Pl. Ind. Or. t. 153. 1874 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 463. 1874 & in Rec. Bot. Surv. India 4 : 47. 1906 ; Gamble, Fl. Presid. Madras 1 (1) : 143. 1915.

Robust herbs; branches glabrous with prominent leaf scars. Leaves confined to the apex of branches, 8-15 × 3-8 cm, ovate-lanceate or elliptic, thick, crenate-serrate, rough above, hairy beneath, acuminate at apex, acute at base ; petioles 2-9.5 cm long, stout. Flowers in subumbellate clusters of 3-4, on long peduncles ; spur longer than the petals, tubiform. Capsules 1.5-2 cm long, obscurely 4-angled, ellipsoid.

Fl. & Fr. : September.

Courtallum (*R.H. Beddome s.n.*, MH ; *Robert Wight* 340, CAL).

Notes : Neither in the protologue of the taxon nor in the *Wallichian Catalogue* where the plant is recorded, the type locality of the species is given. An intensive search made during the present studies to trace the type material of the species resulted in the finding out of it at Central National Herbarium, i.e. *Herb. Heyne. Wall. Cat. no. 4759B*. But this specimen lacks in details from where it is collected. *Wight (loc. cit.)* is of

the opinion that it may be from Courtallum. The representation of the species at Central National Herbarium shows that it is confined to Tirunelvely district in Tamil Nadu State and hence this may be the type locality of the species. This highly endemic balsam is now extinct from Courtallum.

6. *Impatiens umbellata* Heyne ex Wall. in Roxb., Fl. Ind. 2 : 464. 1824 ; Wt. et Arn., Prodr. 127. 1834 ; Wt., Madras J. Litt. & Sci. (ser. 1) 5 : 9, pl. 4. 1837 & Ic. t. 745. 1844 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 461. 1874 & in Rec. Bot. Surv. India 4 : 49. 1906 ; Gamble, Fl. Presid. Madras 1 (1) : 145. 1915.

Erect herbs, 10-20 cm high ; stem solitary. Leaves rosulate at the apex of the stem, 3-5.5 × 2.5-3.5 cm, elliptic-lanceate, distantly crenate, obtuse or acute at apex, cuneate at base ; petioles up to 3cm long. Flowers 4-6, on short peduncles ; spur slender, tapering, curved upwards, longer than the petals. Capsules glabrous many seeded.

Fl. & Fr. : August - September.

Courtallum (*Herb. Heyne Wall. Cat 4757, CAL*).

An endemic species, extinct from Courtallum.

7. *Impatiens uncinata* Wt., Madras J. Litt. & Sci. (ser. 1) 5 : 11, pl. 6. 1837 & in Ic. t. 747. 1844 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 465. 1874 & in Rec. Bot. Surv. India 4 : 48. 1906 ; Gamble, Fl. Presid. Madras 1 (1) : 144. 1915.

Erect, slender, herbs up to 30 cm high ; branches subglabrous. Leaves 3.2-7 × 2-3.5 cm, ovate, suborbicular or ovate-oblong, bristleserrated, glabrous or hairy along the veins above, obtuse, acute or acuminate at apex, acute or rounded at base ; petioles 1.5-4 cm long, slender. Flowers subumbellate on shortly racemed glabrous peduncles towards the apex of branches ; spur shorter than the flower, hooked. Capsules up to 0.6 cm long, attenuated below.

Fl. & Fr. : August - September.

Courtallum (*Robert Wight 344, CAL*).

Notes : The specimen on the top left-hand corner of the type sheet examined here, is a different species namely *I. auriculata* Wt.

Wight (*loc. cit.*) described the species from Courtallum as found in the following habitat. 'Very distinct and handsome species growing in thick shady jungles on the top of the hill moistened with frequent showers and constant mist'. A highly endemic balsam.

77. ERYTHROXYLACEAE

ERYTHROXYLUM P. Br.

Erythroxylum monogynum Roxb., Pl. Corom. 1 : 61. t. 88. 1795 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 414. 1874 ; Schulze in Engl., Pflanzenr. 29 : 129. 1907 ; Dunn. in Gamble, Fl. Presid, Madras 1 (1) : 127. 1915. *Sethia indica* DC., Prodr. 1 : 576. 1817 ; Wt., et Arn., Prodr. 106. 1834 ; Wt., Ill. Ind. Bot. t. 48. 1840. *Cem, Devadaru* (Malayalam). *Cem, Cembulican, Devadari* (Tamil).

Trees, 4.5-6 m high. Leaves 3.5-5.5 × 1.5-2.7 cm, obovate or oblong, entire, glabrous, pale beneath, rounded or obtuse at apex, cuneate at base ; petioles up to 0.3 cm long, stout. Flowers greenish, axillary or fascicled. Drupes 0.7-1 x 0.4-0.5 cm, oblong, ellipsoid, angular.

Fl. & Fr. : May January.

Beautiful trees common around Shembagadevi.

78. LINACEAE

HUGONIA Linn.

Hugonia mystax Linn., Sp. Pl. 675. 1753 ; Wt. et Arn., Prodr. 72. 1834 ; Wt., Ill. Ind. Bot. t. 72. 1840 ; Hook, f. in Hook. f., Fl. Brit. Ind. 1 : 413. 1874 ; Dunn in Gamble, Fl. Presid. Madras 1 (1) : 126. 1915 ; Winkl. in Engl. & Prantl, Pflanzenfam. (ed. 2) 190 : 108. 1931. *Modirakanni* (Malayalam). *Agori, Kodivirai, Modirakanni* (Tamil).

Straggling or climbing shrubs, reaching 3-5 m high; branches yellowish-tomentose ; tendrils woody, bifid, circinate. Leaves 3.5-6.5 × 2.5-3.8 cm, elliptic-ovate or obovate, entire, glabrous, obtuse or subacute at apex, tapering towards base ; stipules two, subulate. Flowers yellow, axillary, the peduncles often transformed into circinate hooks. Drupes ± 0.8 cm in diameter, globose, fleshy surrounded by the persistent calyx.

Fl. & Fr. : August - December.

Common in the dry outskirts of the forest between Tiger falls and Main falls and also on the way to Tekkumalai.

79. MALPIGHIACEAE

HIPTAGE Gaertn.

- 1a. Leaves lanceate or ovate, more or less long acuminate ;
fruits with an additional (4th) dorsal comb *H. benghalensis* 1
- 1b. Leaves elliptic with a short bent point at apex ; fruits with
out an additional (4th) dorsal comb *H. parviflora* 2

Hiptage benghalensis (Linn.) Kurz, J. As. Soc. Bengal 14 (2) : 36. 1879 & For. Fl. Burma 1 : 173. 1877 ; Niedenz. in Engl., Pflanzenr. 91 : 77. 1928 ; Blatter, J. Indian Bot. Soc. 9 : 149. 1930. *Banisteria benghalensis* Linn., Sp. Pl. 427. 1753. *Hiptage madablota* Gaertn., Fruct. 2 : 169. 1791 ; Wt. et Arn., Prodr. 107. 1834 ; Wt., Ill. Ind. Bot. t. 50. 1838 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 418. 1872 ; Dunn in Gamble, Fl. Presid. Madras 1 (1) : 128. 1915. *Gaertnera racemosa* Roxb., Pl. Corom. 1 : t. 18. 1795 & Fl. Ind. 2 : 368. 1832.

Straggling shrubs, 3-4 m high ; young branches pubescent. Leaves 8-11.5 × 3-4.5 cm, ovate-lanceate, entire, glabrous, acuminate at apex, acute at base ; petioles 0.5-0.8 cm. long, pubescent. Flowers white, fragrant, in terminal or axillary racemes. Samaras with 3 large wings 2.5-4.5 cm long and a small additional dorsal comb.

Fl. & Fr. : January - March.

Very rare below Swamiar falls in Udayathan estate, along the sides of rocks bordering the stream.

2. **Hiptage parviflora** Wt. et Arn., Prodr. 107. 1834 ; Hook. f. in Hook. f., Fl. Brit. Ind. 1 : 419. 1872 ; Niedenz. in Engl., Pflanzenr. 91 : 79. 1928 ; Blatter, J. Indian Bot. Soc. 9 : 149. 1930 ; Dunn in Gamble, Fl. Presid. Madras 1 (1) : 128. 1915. *H. cumingii* Merr., Philipp. J. Sci. Bot. 5 : 190. 1910.

Twiggy shrubs ; branchlets yellowish pubescent. Leaves 5-7.5 × 1.5-3.2 cm, elliptical, entire, glabrous, obtuse or with a short blunt acumen at apex, acute at base ; petioles 0.3-0.5 cm long. Flowers in slender axillary or terminal pubescent racemes. Samaras 3-winged, wings 1.5-2.3 cm long, additional dorsal comb absent.

Fl. & Fr. : March.

Courtallum (*Robert Wight* 293, CAL).

80. POLYGALACEAE

- | | |
|--|-----------------------|
| 1a. Erect or prostrate herbs ; sepals unequal, 2 inner larger and sometimes petaloid ; petals 3 ; fruits 2-loculed | <i>Polygala</i> 1 |
| 1b. Large shrubs or small trees ; sepals sub-equal ; petals 4-5 ; fruits 1-loculed | <i>Xanthopyllum</i> 2 |

1. POLYGALA Linn.

- | | |
|---|----------------------|
| 1a. Flowers solitary or rarely in 2-flowered groups ; capsules hairy | <i>P. raoi</i> 3 |
| 1b. Flowers in racemes shorter or longer than the leaves ; capsules puberulous or ciliate | |
| 2b. Racemes much longer than the leaves ; capsules puberulous | <i>P. javana</i> 2 |
| 2b. Racemes shorter than the leaves ; capsules ciliate | <i>P. arvensis</i> 1 |

1. *Polygala arvensis* Willd., Sp. Pl. 3 (2) : 876. 1802 ; Burtt, Notes R. Bot. Gard. Edinb. 32 : 404. 1973. *P. chinensis auct. non* Linn. ; A. Benn. in Hook. f., Fl. Brit. Ind. 1 : 204. 1872 ; Dunn in Gamble, Fl. Presid. Madras 1 (1) : 58. 1915 ; Mukherjee, Bull. Bot. Soc. Bengal 12 : 38. 1958 ; Adema, Blumea 14 : 269. 1966. *P. telephonoides* Willd., Sp. Pl. 3 : 876. 1803 ; Wt. et Arn., Prodr. 36. 1834 ; A. Benn., loc. cit. ; Dunn, loc. cit. p. 59. *P. rothiana* Wt. et Arn., Prodr. 37. 1834.

Suberect herbs, 10-25 cm high ; rootstock woody ; branches slender, puberulous. Leaves 2-4.5 × 0.5-1.2 cm, obovate or linear-oblong, pubescent or ciliate, obtuse and apiculate at apex, narrowed at base ; petioles up to 0.2 cm long, hairy. Flowers pink in axillary or extra-axillary short, almost capitate few-flowered racemes ; bracts persistent. Capsules broadly oblong, oblique-tipped, narrowly margined, strongly ciliate.

Fl. & Fr. : August—February.

Fairly common in the dry or wet outskirts of the Reserve forest on the way to Five falls.

2. *Polygala javana* DC., Prodr. 1 : 327. 1824 ; Wt., et Arn., Prodr. 38. 1834 ; A. Benn. in Hook. f., Fl. Brit. Ind 1 : 201. 1872 ; Dunn in Gamble, Fl. Presid. Madras 1 (1) : 58. 1915 ; Mukherjee, Bull. Bot. Soc. Bengal 12 : 44. 1958 ; Adema, Blumea 14 : 261. 1966.

Erect or spreading herbs, 15-60 cm high ; branches few, slender. Leaves subsessile, 3.5-5 × 0.5-1 cm, oblong or oblong-lanceate, puberulous, rounded at apex, cuneate at base. Flowers light yellow with pink spots in axillary or leaf-opposed racemes ; bracts persistent. Capsules orbicular, slightly margined, puberulous.

Fl. & Fr. : May February.

Fairly common in the open forest floor on the way to Tekkumalai, around Shembagadevi and at Five falls.

3. *Polygala raoi* R.N. Ban. et L.K. Ban., Proc. Indian Acad. Sci. (sect. B) 82 (6) : 218. 1975.

Woody, much branched perennial herbs, 15-50 cm high. Leaves 0.5-1.2 × 0.2-0.5 cm, oblong-obovate, crispy-puberulous, variable in shape at apex, narrowly obtuse at base ; petioles 0.1-0.2 cm, long, pubescent. Flowers greenish in axillary or leaf-opposed groups of two or solitary. Capsules 0.4-0.6 cm long, emarginate, hirsute.

Fl. : September - October.

Common on the forest floor at Tekkumalai, Five falls and Shembagadevi.

2. XANTHOPHYLLUM Roxb. *nom. gen. cons.*

Xanthophyllum flavescens Roxb., (Hort. Beng. 88. 1814 *nom. nud.*) Fl. Corom. 3 : 82, t. 284. 1820 ; Wt., Ill. Ind. Bot. t. 50. 1840 ; A. Benn. in Hook. f., Fl. Brit. Ind. 1 : 209. 1872 ; Dunn in Gamble, Fl. Presid. Madras 1 (1) : 60. 1915. *Madkka* (Malayalam). *Mattei* (Tamil).

Shrubs or trees, 3-5.5 m high. Leaves 4.5-10 × 1.5-5 cm, oblong-lanceate, coriaceous, glabrous, obtusely acuminate at apex, narrowed at base ; petioles 0.2-0.4 cm long stout. Flowers white in axillary, supra-axillary or terminal pubescent panicles. Fruits 0.6-0.8 cm across, subglobose, rugose, greenish.

Fl. & Fr. : January March.

Rare in Udayanathan estate above Swamiar falls along the sides of the stream.

Xanthophyllum flavescens Roxb. var. **angustifolia** (Wt.) A. Benn. in Hook. f., Fl. Brit. Ind. 1 : 209. 1872. *X. angustifolium* Wt. Ill. Ind. Bot. 1 : 50, t. 23. 1840.

The variety differs from the species proper in possessing narrowly-lanceate leaves, 4.5-9.5 × 1-2.5 cm, glabrous, obtuse at apex, acute at base ; ovary 1-loculed, 4-ovuled, two ascending from the base and two pendulous from the apex of the locule.

Fl. : August.

Courtallum (*Robert Wight 568, CAL*).

Notes : While reinstating the varietal status this taxon here which was not recognised by Dunn (*loc cit.*), the figure and description of Wight (*loc. cit.*) which is the nomenclatural type of it is consulted. It is recorded from the 'thickets at Courtallum'. A plant deserving conservation.

81. ARALIACEAE

SCHEFFLERA Forst. *et* Forst. f. *nom. gen. cons.*

- | | |
|---|----------------------|
| 1a. Leaflets oblong or elliptic, coriaceous with prominent secondary veins ; fruits shallowly ridged | <i>S. venulosa</i> 2 |
| 1b. Leaflets obovate, smooth, with the main vein only prominent towards the base ; fruits deeply ridged or winged | <i>S. stellata</i> 1 |

1. **Schefflera stellata** (Gaertn.) Baill., Hist. Pl. 7 : 161. 1879 ; Gamble, Fl. Presid. Madras 1 (3) : 570. 1919. *Heptapleurum stellatum* Gaertn., Fruct. 3 : 472, t. 178. 1791 ; Clarke in Hook. f., Fl. Brit. Ind. 2 : 730. 1879. *Hedera obovata* Wt., Ic. tt. 1011, 1012. 1845.

Glabrous, straggling shrubs. Leaves digitately compound, 3-5 foliate; leaflets 4.5-11 × 2.5-8.5 cm, obovate, smooth, thick, entire, glabrous, rounded or rounded and bluntly apiculate at apex, narrowed or subcordate at base ; petiolules up to 5.5 cm long, sometimes fleshy. Flowers yellow, long pedicelled, umbellate in terminal lax racemose panicles. Drupes ±0.5 cm long, subovate, deeply ridged longitudinally.

Fl. & Fr. : February August.

Courtallum (*Robert Wight s.n.*, CAL).

Notes : C.B. Clark (*loc. cit.*) doubts whether this species is only a South Indian form of *S. venulosa* (Wt. et Arn.) Harms. Studies of several specimens of the two taxa in question shows that *S. stellata* with its obovate smooth leaves, less prominent secondary veins, long, lax panicles and fruits with deep longitudinal ridges appearing as wings strongly supports the specific status of it, rather than a form under *S. venulosa*. The leaflets of *S. stellata* varies from obovate to ovate and subcordate at base.

2. *Schefflera venulosa* (Wt. et Arn.) Harms. in Engl. & Prantl, Pflanzenfam. (ed. 1) 3, 8 : 31. 1894 ; Gamble, Fl. Presid. Madras 1 (3) : 570. 1919 ; Mahesh., Bull. Bot. Surv. India 2 : 376. 1960. *Heptapleurum venulosum* (Wt. et Arn.) Seem., J. Bot. 3 : 80. 1865 ; Clarke in Hook. f., Fl. Brit. Ind. 2 : 729. 1874 (excl. syn. Bl., Miq. & Seem.). *Paratropia venulosa* Wt. et Arn., Prodr. 377. 1834 ; Wt., Ill. Ind. Bot. t. 118. 1840-50. *Ananacovalli* (Malayalam). *Piccukkodi*, *Vellatum* (Tamil).

Glabrous, straggling shrubs, reaching 6-10 m high. Leaves digitately compound, 3-5 foliate, up to 45 cm long ; leaflets very variable in shape and size, 4-23 × 2.5-10 cm, oblong, elliptic or elliptic-lanceate, coriaceous, entire, acuminate or bluntly apiculate at apex, acute, rounded or cordate at base ; secondary nerves very prominent ; petiolules up to 9 cm long. Flowers greenish-yellow, umbellate in terminal lax racemose panicles. Drupes subovate, longitudinally and shallowly ridged.

Fl. & Fr. : February August.

Very rare along the sides of the river Chittar in Tekkumalai at comparatively higher altitudes.

82. UMBELLIFERAE

- | | |
|---|------------------------|
| 1a. Flowers in simple umbels or heads that are often united in a more or less compound inflorescence | |
| 2a. Leaves with a pair of free stipules ; secondary ribs of the fruits not present | <i>Hydrocotyle</i> 2 |
| 2b. Leaves exstipulate, petioles sheathing at base ; fruits with evident secondary ribs and reticulations | <i>Centella</i> 1 |
| 1b. Flowers in compound umbels that are sometimes united in a more compound inflorescence | |
| 3a. Vittae 3, at intervals ; leaves trifoliate | <i>Pimpinella</i> 3 |
| 3b. Vittae solitary at intervals ; leaves variously pinnatifid | <i>Trachyspermum</i> 4 |

1. CENTELLA Linn.

Centella asiatica (Linn.) Urb., Mart. Fl. Bras. 11 : 287, t. 78. f. 1. 1874 ; Drude in Engl. & Prantl, Pflanzenfam. (ed. 1) 3, 8 : 119. 1898 ; Gamble, Fl. Presid. Madras 1 (3) : 556. 1919 ; Buwalda, Blumea 2 : 134. 1936 ; Nasir, Biologia 3 : 66. 1957. *Hydrocotyle asiatica* Linn., Sp. Pl. 234. 1753.

Slender trailing herbs, rooting at nodes ; stem stoloniferous. Leaves 1-4 at each node, 2-3.5 cm in diameter, reniform, crenate, cordate at base; petioles 5-15 cm long, slender, grooved. Flowers reddish, sessile in simple, axillary, 3-4 flowered umbels. Fruits with compressed and ridged mericarps.

Fl. & Fr. : July September.

Very common in the plains but rare above 1000 m elevation at Tekkumalai.

2. HYDROCOTYLE Linn.

Hydrocotyle javanica Thunb., Diss. Hydrocot. no. 7 pl. 2. 1798 & in ed. Pers. 2 : 415, pl. 3. 1800 ; Clarke in Hook. f., Fl. Brit. Ind. 2 : 667. 1879 ; Gamble, Fl. Presid. Madras 1 (3) : 556. 1919 ; Buwalda, Blumea 2 : 123. 1936 ; Nasir, Biologia 3 : 68. 1957. *H. hispida* DC., Prodr. 4 : 183. 1830. *H. nepalensis* Hook., Exot. Fl. 1 : t. 30. 1823. *H. zeylanica* DC., Prodr. 4 : 67. 1830 ; Wt. et Arn., Prodr. 366. 1834. *H. polycephala* Wt. et Arn., Prodr. 366. 1834.

Procumbent herbs. Leaves 15-45 cm long, 3.5-4.5 cm in diameter, roundish-angular in outline, slightly pubescent on both sides, cordate at base, 5-8 lobate, lobes crenate or notched ; petioles up to 40 cm high, short-hairy. Flowers greenish in simple or branched mostly terminal umbels ; involucral bracts present. Fruits with rounded, red, brown or blackish mericarps.

Fl. & Fr. : May - September.

Fairly common in the high altitudes of Tekkumalai, along the sides of rocks.

Notes : The concept of considering *H. javanica* and *H. nepalensis* as distinct species (vide, Shan & Liou, *Acta. Phytotax. Sin.* 9 : 122. 1964 ; Hara, *Fl. E. Himal.* 229. 1966) is confusing. The characters like glabrous/

hairy, roundish lobes of leaves/acute lobes of leaves, number of petiole/number of peduncle, length of petiole/length of peduncle, wide sinus/narrow sinus, which are often used to separate the two species are found to be quite unstable for specific distinction of *H. javanica* and *H. nepalensis* and hence they are considered conspecific here.

3. PIMPINELLA Linn.

Pimpinella heyneana (Wall. ex DC.) Kurz, J. As. Soc. Bengal 46 : 115. 1877 ; Wolff in Engl., Pflanzenr. 43 : 277. 1927 ; Gamble, Fl. Presid Madras 1 (3) : 560. 1919. *Helosciandium heyneanum* Wall. ex DC., Prodr. 4 : 106. 1830 ; Wt. et Arn., Prodr. 368. 1834.

Erect herbs, 60-90 cm high ; branches filiform, glabrous. Leaves trifoliolate ; leaflets 2.5-5.5 × 0.5-2 cm, ovate-lanceate, deeply and variously serrated, glabrous, acute or acuminate at apex, narrowed at base ; rhachis up to 7.5 cm long. Flowers greenish-white, in small terminal compound umbels. Fruits subglobose, minute, glabrous.

Fl. & Fr. : October - March.

Very rare in the highest altitudes of Tekkumalai towards Kailasa parvatham side.

4. TRACHYSPERMUM Link *nom. gen. cons.*

Trachyspermum roxburghianum (DC.) Craib, Fl. Siam. Enum. 1 : 788. 1931 ; Buwalda, Blumea 2 : 184. 1936.—*Ptychotis roxburghiana* DC., Prodr. 4 : 109. 1830.—*Apium involucratum* Roxb. ex Flem., Ind. Med. Pl. in As. Research 11 : 157. 1810 ; Wt., Ic. t. 567. 1843.—*Carum roxburghianum* Kurz, J. As. Soc. Bengal 46 : 114. 1877 ; Clarke in Hook. f., Fl. Brit. Ind. 1 : 682. 1879.—*Trachyspermum roxburghianum* Wolff in Engl., Pflanzenr. 90 : 129. 1927 (*errore*).

Slender herbs, 30-90 cm high ; stem glabrous, striated, branched. Leaves variously pinnate, up to 6 cm long ; leaflets variously lobed, entire, glabrous, extreme segments upto 0.3 cm broad. Flowers greenish in terminal and axillary umbels ; bracts and bracteoles linear, up to 0.6 cm long. Mericarps 0.2-0.3 cm long, oblong.

Fl. & Fr. : October-December.

Courtallum (*M. Rama Rao* 1858, CAL).

Notes : The species is an addition to Gamble's *Flora of the Presidency of Madras*.

83. LOGANIACEAE

STRYCHNOS Linn.

- | | |
|--|-------------------------|
| 1a. Climbing shrubs with thickened bifid tendrils | <i>S. wallichiana</i> 3 |
| 1b. Trees without tendrils | |
| 2a. Leaves 5-ribbed from almost the base ; corolla tube much longer than the lobes | <i>S. nux-vomica</i> 1 |
| 2b. Leaves 3-ribbed at the base with a pair of ribs ± 0.5 cm above ; corolla tube and lobes almost equal in length | <i>S. potatorum</i> 2 |

1. ***Strychnos nux-vomica*** Linn., Sp. Pl. 189. 1753 ; Roxb., Pl. Corom. 7, t. 4. 1795 ; Clarke in Hook. f., Fl. Brit. Ind. 4 : 90. 1883 ; A.W. Hill, Kew Bull. 1917 : 183. 1917 ; Gamble, Fl. Persid. Madras 2 (5) : 868. 1923 ; Bisset *et al.*, Lloydia 36 (2) : 189. 1973.

Deciduous, often thorny trees, 6-10 m high ; bark thin, grey. Leaves 1-13 \times 3-4.5 cm, broadly-elliptic, coriaceous, entire, shiny above, acute, obtuse or bluntly acuminate at apex rounded at base ; petioles 3.5-1.2 cm long. Flowers greenish-white in terminal pubescent compound cymes. Berries 2.5-4.4 cm in diameter, globose, orange-red when ripe ; seeds discoid, concave on one side, convex on the other, silky pubescent.

Fl. & Fr. : November-September.

Fairly common in the dry outskirts around Main falls and Tiger falls.

2. ***Strychnos potatorum*** Linn. f., Suppl. Pl. 148. 1781 ; Roxb., Pl. Corom. 1 : 9, t. 5. 1795 ; Wt., Ill. Ind. Bot. t. 156. 1850 ; Clarke in Hook. f., Fl. Brit. Ind. 4 : 90. 1883 ; A.W. Hill, Kew Bull. 1917 : 154. 1917 ; Gamble, Fl. Presid. Madras 2 (5) : 868. 1923 ; Bisset *et al.*, Lloydia 36 (2) : 191. 1973. *Katakam, Terra, Terramparal* (Malayalam). *Akkolam, Cillam, Illalam* (Tamil).

Unarmed trees, 8-10 m high ; bark brownish-black, corky. Leaves 2.5-8.5 \times 1.3-4.2 cm, elliptic, coriaceous, entire, quintuple-nerved, the upper

pair of ribs 0.5-1 cm above the lower, acute or bluntly acuminate at apex, acute or obtuse at base ; petioles 0.1 cm long. Flowers white in axillary cymes ; corolla lobes and tube almost equal in length. Berries 1-1.5 cm in diameter, globose, 1-2 seeded.

Fl. & Fr. : January-August.

Fairly common around Tiger falls and along the forest path sides at New falls.

Notes : Regarding two specimens of this species collected from Courtallum by Robert Wight and preserved in the Herbarium at Glasgow, A.W. Hill. (*loc. cit.* p. 154) remarks 'some specimens from Courtallum in herb. Wight (nos. 639, 1836) at Glasgow have obovate leaves cuneate at the base and the twigs are unusually slender. But the specimens examined here possess uniformly elliptic leaves and thick twigs.

Strychnos wallichiana Steud. *ex* DC., Prodr. 9 : 13. 1845 ; Bisset *et* Philcox, Taxon 23 : 543. 1971 & Bisset *et al*, Lloydia 36 (2) : 195. 1973. *S. colubrina* Linn., Sp. Pl. 189. 1753 *non auct., nom. confusum* ; Wt., Ic. t. 434. 1843 ; Clarke in Hook. f., Fl. Brit. Ind. 4 : 87. 1883 ; A.W. Hill, Kew Bull. 1917 : 157. 1917 ; Gamble, Fl. Presid. Madras 2 (5) : 868. 1923. *S. cinnamomifolia* Thw., Enum. Pl. Zeyl. 231. 1864. *S. rheedii* Clarke in Hook. f., Fl. Brit. Ind. 4 : 87. 1883. *S. malaccensis* Clarke in Hook. f., Fl. Brit. Ind. 4 : 89. 1883 (*quod syn. tantum, non Benth.*). *S. bourdilloni* Brandis, Indian Trees 474. 1906. *S. cinnamomifolia* var. *wightii* A.W. Hill, Kew Bull. 1917 : 197. 1917 (*nom. illegit.*).

Glabrous lianas with thick bifid, circinate tendrils (hooks). Leaves 6-15±2.5-6 cm, ovate-elliptic, coriaceous, entire, strongly 3-nerved from the base, acute or acuminate at apex, rounded or narrowed at base ; petioles 0.5-1.2 cm long, thick. Flowers white, small in axillary cymes. Berries 0.5-1.5 cm in diameter, globose, 1-2 seeded ; seeds discoid.

Fl. & Fr. : November-September.

Courtallum (*Robert Wight 752, CAL*).

84. POTALIACEAE

FAGRAEA Thunb.

Fagraea ceilanica Thunb., Vet. Acad. Handl. Stockh. 3 : 132, t. 4. 1782 ; Clarke in Hook. f., Fl. Brit. Ind. 4 : 83. 1883 ; Gamble, Fl. Presid.

Madras 2 (5) : 865. 1923 (as *zeylanica*).—*F. obovata* Wall. ex Roxb., Fl. Ind. 2 : 33. 1824 ; Clarke, *loc. cit.* ; Gamble, *loc. cit.* ; R.C. Brink, Blumea 5 : 382. 1950. *F. coromandelina* Wt., Ic. t. 1316. 1850. *F. malabarica* Wt., Ic. t. 1317. 1848 (*nom. illeg.*).

Spreading trees, 12-15 m high ; young branches with prominent leaf-scars. Leaves up to 22×9 cm, obovate-oblong, entire, glabrous, fleshy and spongy above, broad and rounded at apex, narrowed into the petiole at base ; petioles 0.5-1 cm long, sometimes obscure. Flowers cream-coloured in one to many-flowered cymes towards the apex of branches. Berries 2.5-4 cm long, ovoid, smooth, apiculate at apex, yellow when ripe.

Fl. & Fr. : May March.

Rare, on the way to Vaithamalai.

85. GENTIANACEAE

- | | |
|---|-------------------|
| 1a. Flowers yellow ; stigma obscurely 2 - lobed | <i>Hopsea</i> 2 |
| 1b. Flowers pink ; stigma drum - shaped | <i>Canscora</i> 1 |

CANSCORA Lamk.

Canscora heteroclita (Linn.) Gilg in Engl., Pflanzenr. 4, 2 : 76. 1895 ; Raizada, Indian For. 92 : 304. 1966. *Gentiana heteroclita* Linn., Mant. 2 : 560. 1771. *Canscora sessiliflora* Roem. et Schult., Syst. Veg. 3 : 230. 1827 ; Clarke, J. Linn. Soc. Lond. 14 : 430. 1875 & in Hook.f., Fl. Brit. Ind. 4 : 104. 1883 ; Gamble, Fl. Presid. Madras 2 (5) : 878. 1923. *Pladera sessiliflora* Roxb., Fl. Ind. 1 : 416. 1820.

Semiquatic, erect herbs, up to 10 cm high ; stem 4-winged, green. Leaves sessile, upto 1.6×0.8 cm, ovate, entire, glabrous, dark green above, paler beneath, obtuse or subacute at apex, rounded at base. Flowers pink in axillary and terminal dichasial cymes. Capsules up to 1 cm long, ovate-lanceate, green.

Fl. & Fr. : August December.

Rare above the Main falls in the peaty soil along the sides of the stream.

Notes : Gamble (*loc. cit.*) recorded rose colour for the flower in this plant. But specimens from Courtallum possess deep pink flowers. The colour of the flower is retained even after the drying of the materials.

2. HOPPEA Willd.

Hoppea fastigiata (Griseb.) Clarke in Hook. f., Fl. Brit. Ind. 4 : 100. 1883 ; Gamble, Fl. Presid. Madras 2 (5) : 877. 1923. *Cicendia fastigiata* Griseb., Gentian. 158. 1839 & in DC., Prodr. 9 : 62. 1845. *Pladera ? fastigiata* Clarke, J. Linn. Soc. Lond. 14 : 429. 1875.

Erect herbs, 5-15 cm high with ascending branches ; stem 4-winged. Leaves sessile, up to 0.6×0.4 cm ovate, entire, glabrous, acuta at apex. Flowers pale yellow in terminal cymes ; bracts linear-acuminate ; calyx lobes thin with marginal nerves ; corolla tube longer than the calyx. Capsules ellipsoid, up to 0.5 cm long, larger at one end.

Fl. & Fr. : October February.

Rare in the shady, damp areas along the sides of rocks below Shembagadevi.

86. APOCYNACEAE

- 1a. Plants armed with paired thorns from the axils of leaves at alternate nodes *Carissa* 3
- 1b. Plants unarmed
 - 2a. Erect herbs, 30-60 cm high *Catharanthus* 4
 - 2b. Shrubs or trees
 - 3a. Plants erect ; corolla lobes overlapping to the left as viewed from outside
 - 4a. Anthers exerted from the corolla tube, adnate to the style apex ; mouth of the corolla tube with one or more series of erect scales *Wrightia* 8
 - 4b. Anthers included within the corolla tube, not adnate to the style apex ; mouth of the corolla tube without any scales
 - 5a. Calyx lobes obtuse
 - 6a. Leaves whorled or alternate *Alstonia* 2
 - 6b. Leaves opposite *Ervatamia* 5
 - 5b. Calyx lobes acute *Hunteria* 6
 - 3b. Plants climbing ; corolla lobes overlapping to the right as viewed from outside

- 7a. Calyx lobes 0.7-1 cm long, longer than the corolla tube ; flowers in terminal corymbose cymes *Aganosma* 1
- 7b. Calyx lobes not exceeding 0.1 cm in length, much shorter than the corolla tube ; flowers in lax axillary or terminal paniculate cymes *Ichnocarpus* 7

1. AGANOSMA G. Don

Aganosma cymosum (Roxb.) G. Don, Gen. Hist. 4 : 77. 1837 ; Hook. f. in Hook. f., Brit. Ind. 3 : 665. 1882. *Echites cymosa* Roxb., (Hort. Beng. 84. 1814 *nom. nud.*) Fl. Ind. 2 : 16. 1832. *Aganosma elegans* G. Don, Gen. Hist. 4 : 77. 1837 ; Wt., Ic. t. 1304. 1848 ; Gamble, Fl. Presid. Madras 2 (5) : 819. 1923. *A. cymosa* var. *elegans* (G. Don) Hook. f. in Hook. f., Fl. Brit. Ind. 3 : 665. 1882. *Anakkayerrum* (Malayalam).

Climbing shrubs, 2-3 m high ; young branches glabrate. Leaves 4-12.5 × 2-5.5 cm, elliptic or elliptic-lanceate, glabrous, shortly acuminate at apex, acute at base; petioles up to 1.5 cm long. Flowers yellowish, in terminal densely tomentose corymbose cymes. Merocarps ± 8.5 × 0.6 cm, linear-lanceate, cylindrical, pointed, appressedly tomentose when young, glabrescent when ripe.

Fl. & Fr. : April August.

Fairly common in the semideciduous forests, along the way sides to Tekkumalai.

2. ALSTONIA R. Br. *nom. gen. cons.*

- 1a. Large trees, 10-15 m high ; flowers greenish white ; merocarps 20-30 cm long, straight *A. scholaris* 1
- 1b. Small shrubs, 1-2.5 m high ; flowers bright white ; merocarps 7-13 cm long, falcately curved *A. venenata* 2

1. *Alstonia scholaris* (Linn.) R. Br., Mem. Wern. Soc. 1 : 76. 1811 ; Wt., Ic. t. 422. 1841. Hook. f. in Hook. f., Fl. Brit. Ind. 3 : 642. 1882 ; Gamble, Fl. Presid. Madras 2 (5) : 810. 1925.—*Echites scholaris* Linn., Mant. 1 : 53. 1767. *Daivapala*, *Elilampala*, *Kotapala*, *Mangalapala*, (Malayalam). *Elilaipala*, *Mukkambalai*, *Maramarali*, *Vadirachi* (Tamil).

Large evergreen trees, 10-15 m high ; branches whorled. Leaves whorled, 10-15.5 × 2-4.5 cm, elliptic-oblong, coriaceous, glabrous on both sides with numerous lateral nerves, obtuse or rounded at apex, cuneate at base ; petioles 0.5-2.5 cm long. Flowers greenish-white, fragrant in dense cymes. Merocarps pendulous, 20-30 cm long, cylindrical, glabrous when ripe ; seeds flat, obtuse at both ends with coma.

Fl. & Fr. : November June.

Near Main falls and below Shembagadevi few plants grow wild. The bark is medicinal and the wood is light and soft used in various industries.

2. *Alstonia venenata* R. Br., Mem. Wern. Soc. 1 : 77. 1811 ; Wt., Ic. t. 436. 1841 ; Hook. f. in Hook. f., Fl. Brit. Ind. 3 : 642. 1882 ; Gamble, Fl. Presid. Madras 2 (5) : 810. 1923.

Erect, glabrous shrubs, 2-2.5 m high ; branches opposite or whorled. Leaves in whorls, up to 21 × 3.5 cm, oblong-lanceate, membranous, acuminate at apex, cuneate at base ; petioles up to 1 cm long. Flowers showy white in subterminal corymbose cymes. Merocarps 7-13.5 cm long, linear, falcately curved, tapering at both ends, beaked.

Fl. & Fr. : May - February.

Beautiful shrubs above Shembagadevi temple.

3. CATHARANTHUS G. Don

Catharanthus roseus (Linn.) G. Don, Gen. Hist. 4 : 95. 1837 ; Stearn, Lloydia 29 : 196. 1966 ; Markgraf, Blumea 19 : 150. 1971. *Vinca rosea* Linn., Syst. ed. 10 : 944. 1759 ; Hook. f. in Hook. f., Fl. Brit. Ind. 3 : 640. 1882. *Lochnera rosea* (Linn.) Reich., Consp. Regni. Veg. 134. 1828 ; Gamble, Fl. Presid. Madras 2 (5) : 809. 1923.

Erect herbs, 30-60 cm high. Leaves 2.5-4.5 × 2-2.5 cm, obovate, entire, rounded at apex, narrowed at base. Flowers white or pink in axillary cymes. Merocarps 3.5-4 cm long, slender, erect ; seeds many, black.

Fl. & Fr. : May February.

A common weed in the plains.

4. *CARISSA* Linn. *nom. gen. cons.*

Carissa carandas Linn., Mant. 57. 1767; Wt., Ic. t. 42 6. 1841; Hook. f. in Hook. f., Fl. Brit. Ind. 3 : 630. 1882 (*pro parte*) ; Haines, Indian For. 45 : 375. 1919; Gamble, Fl. Presid. Madras 2 (5) : 804. 1923. *Kalavu*, *Karakka* (Malayalam). *Kala*, *Kalakkay Pesungala* (Tamil).

Armed shrubs, 2-3.5 m high; branchlets with horizontal thorns, 1-3 cm long, from axils. Leaves 3-7.5 × 2-5 cm, elliptic or elliptic-oblong, coriaceous, entire, glabrous, obtuse at apex, cuneate at base, petioles very short. Flowers white or pale in terminal corymbose cymes. Berries ellipsoid, about 2 cm long, reddish-purple.

Fl. & Fr. : January July.

Fairly common in the dry outskirts of the forests between Tiger falls and Main falls and on the way to Tekkumalai.

5. *ERVATAMIA* (DC.) Stapf

Ervatamia heyneana (Wall.) Cooke, Fl. Presid. Bombay 2 : 134. 1904; Gamble, Fl. Presid. Madras 2 (5) : 813. 1923. *Tabernaemontana heyneana* Wall. in Edgw., Bot. Reg. t. 1273, no. 7. 1829 ; Hook. f. in Hook. f., Fl. Brit. Ind. 3 : 647. 1882.

Deciduous trees, 5-7.5 m high. Leaves 4-20 × 2.5-4.5 cm, oblong or oblong-lanceate, glabrous, shortly acuminate at apex, acute at base; petioles up to 2 cm long, dilated at base. Flowers white, fragrant in axillary or terminal dichasial cymes. Merocarps ± 3 cm long, diverging at right angles to the stalk, apex recurved into a beak, yellow when ripe.

Fl. & Fr. : March September.

Rare in the dry forests on the way to Tekkumalai and along the sides of the ravines and path sides to Vaithamalai.

6. *HUNTERIA* Roxb.

Hunteria zeylanica (Retz.) Gardner *ex* Thw., Enum. Pl. Zeyl. 191. 1860 var. *salicifolia* (Wall. *ex* DC.) Pichon, Bol. Soc. Brot. 27 : 111. 1953. *Tabernaemontana salicifolia* Wall. *ex* DC., Prodr. 3 : 376. 1844. *Hunteria lanceolata* DC. in DC., Prodr. 8 : 350. 1844. *H. roxburghiana* Wt., Ic. t. 1294. 1850. *H. corymbosa* Roxb. var. *salicifolia* (Wall. *ex* DC.)