

CRITICAL NOTES ON THE RUBIACEAE OF BOMBAY

H. SANTAPAU, S.J., F.N.I.

Chief Botanist, Botanical Survey of India

MISS Y. MERCHANT, M.Sc.

St. Xavier's College, Bombay

ABSTRACT

This is a revision of the family Rubiaceae for Bombay State, and gives the more important changes to be introduced in published floras; *Anotis calycina* is reported as a new record; the genus *Oldenlandia* is split into, among others, *Oldenlandia* proper and *Exallage*; new combinations made are *Canthium dicoccum* var. *umbellatum*, *Kohautia nagporensis*, and *Tarenna asiatica*. The genus *Pavetta* is discussed and *P. concanica* and *P. crassicaulis* added to the flora of Bombay.

In the course of a revision of the family Rubiaceae undertaken by the junior author under the direction of the senior, we have discovered a number of details, in which our floras stand in need of correction. Some of these details refer to the accreditation of scientific names, others to the identity and nomenclature of some of our plants. Some of the more important findings will be discussed in the present paper.

1. *ADINA CORDIFOLIA* (Roxb.) Hook. f. ex Brandis, For. Fl. 263, t. 33, 1874. *Nauclea cordifolia* Roxb. Pl. Cor. 1:40, t. 53, 1796.

The combination, *Adina cordifolia*, in our floras is attributed to Hooker, or the Bentham and Hooker in *Genera Plantarum*. The combination was not made in the latter book, in the sense of Art. 32, para 2 of the International Code of Botanical Nomenclature, ed. 1956.

2. *ANOTIS CALYCINA* Hook. f. in Fl. Brit. Ind. 3:73, 1880; Santapau, Fl. Purandh. 61.

This plant is not reported for Bombay by Cooke; it was first reported by Santapau, loc. cit. in 1958; the plant was previously collected from Panchgani by Blatter and Hallberg, and more recently from Mahabaleshwar.

3. *ANTHOCEPHALUS CADAMBA* (Roxb.) Miq. Fl. Ind. -Bat. 2:135, 1856. *Nauclea cadamba* Roxb. Fl. Ind. 2:121, 1824. *Anth. indicus* A. Rich. in Mem. Soc. Hist. Nat. Paris 5:238, 1834; Cooke, Fl. Pres. Bombay 1:579 (reprint ed. 2:6).

4. *BORRERIA* and *SPERMACOCE*.

In the older floras of India only *Spermacoce* is recognised as the valid name; in modern works our plants are placed under *Borreria*. Both generic names are valid, according to K. Schumann in Engler & Prantl, Natürl. Pflanzenfam. 4(4):143, 1891, who separates them on the following basis: Both cocci of the fruit dehiscent at the apex: *Borreria*; one coccus indehiscent and adhering to the axis or septum, the other opening away from the axis: *Spermacoce*.

5. *BORRERIA ARTICULARIS* (Linn. f.) F. N. Will. in Bull. Herb. Boiss. 2 ser., 5:956, 1905; Merrill in Trans. Am. Phil. Soc. n.s. 24:374. *Spermacoce articularis* Linn. f. Suppl. 119, 1781 (excl. syn. Rumph.). *S. hispida* Linn. Sp. Pl. 102, 1753. *Borreria hispida* Schum. in Pflanzenfam. 4(4):144, 1891, non Spruce ex K. Schum. 1888.

6. *CANTHIUM* and *PLECTRONIA*.

There seems to be a certain amount of confusion in the use of these two generic names, and this confusion is of long standing. Linne in Mant. 1: 6, 1767, founded his *Plectronia* on a specimen preserved in the Linnean Herbarium and on a figure published by Burmann in Pl. Afr. 257, t. 94, 1739; this was unfortunate, for specimen and figure are referable to two widely separated families, the Oliniaceae and Rubiaceae respectively.

Olinia, described by Thunberg in 1799, has been identified with *Plectronia* Linn.; to obviate nomenclatural difficulties, *Olinia* Thunb. has been conserved against *Plectronia* Linn.

Canthium was described by Lamark in 1785; Burmann's figure is generally accepted as referable to *Canthium*; De Candolle in 1830 referred both *Plectronia* and *Canthium* to the Rubiaceae but kept the two genera distinct; other authors have fused them under the older Linnean name, *Plectronia*.

It seems that the name *Plectronia*, as applied to Burmann's figure is based on a wrong identification; the earliest legitimate name for the plant represented by Burmann's figure is *Canthium*.

7. *CANTHIUM DICOCCUM* (Gaertn.) Merr. var. *UMBELLATUM* (Gamble) Sant. & Merchant, comb. nov. *Plectronia didyma* Kurz var. *umbellata* Gamble, Fl. Pres. Madras 624, 1921.

Two plants are often confused in the literature: *Canthium dicoccum* and *C. umbellatum*; many modern authors consider these two names referable to the same plant. On the other hand, Hooker considers them as two distinct species. In our opinion these plants deserve at least varietal rank. We have examined large numbers

of plants from Bombay and other parts of India; all the specimens in Blatter Herbarium belong to *umbellatum*; the typical variety, *dicoccum*, we have seen only from Andhra and other places in South India.

8. *CANTHIUM ANGUSTIFOLIUM* Roxb. Fl. Ind. 2: 169, 1824; Fl. Brit. Ind. 3: 135. *C. rheedei* DC. Prodr. 4: 474, 1830. *Dondisia leschenaultii* DC. ibid. 469, 1830. *Canthium leschenaultii* Wt. & Arn. Prodr. 426, 1834. *Plectronia leschenaultii* Bedd. For. Man. 134/5, 1872. *Plectronia rheedei* var. *angustifolia* Gamble, Fl. Pres. Madras 625, 1921.

9. *CHASALIA OPHIOXYLOIDES* (Wall.) Craib in Gard. Bull. Straits Settl. 6: 474, 1930. *Psychotria ophioxylodes* Wall. in Roxb. Fl. Ind. 2: 168, 1824. *Chasalia curviflora* Thw. Enum. 150, 1859, p.p. *Psychotria ambigua* Wt. & Arn. Prodr. 433, 1834.

10. EXALLAGE Bremek.

In 1753, Linne, under the genus *Hedyotis*, included three species: *H. fruticosa*, *H. auricularia* and *H. herbacea*; of these *H. herbacea* is now placed in *Oldenlandia* Linn. *sensu* Bremek.

Bremekamp has pointed out that the choice of *H. auricularia* Linn. as lectotype of *Hedyotis* by Chamisso and Schlechtendal in *Linnaea* 4: 153, 1829, and by Hitchcock (*Prop. Brit. Bot.* 123, 1929) was a poor one, since *H. auricularia* has indehiscent fruit, whilst the fruit in *Hedyotis* is described as dehiscent. Rightly, then, Bremekamp, following Art. 8 of the Code, ed. 1956, which states that 'The choice of a lectotype or neotype is superseded if the original material is rediscovered, or if it can be shown that the choice was based upon a misinterpretation of the original description', proposed *H. fruticosa* Linn. as the lectotype for the genus *Hedyotis*. This necessitates the transfer of *H. auricularia* to another genus.

The first choice apparently was *Metabolos* Blume; but this genus as described by Blume comprises both *M. venosus* (which is conspecific with *H. auricularia*) and *M. rugosus*. On the other hand Hochreutiner in *Candollea* 5: 277, 1934, designated *M. rugosus* Blume as the type of *Metabolos*, and considered that *M. rugosus* and its allies should be referred to *Hedyotis* Linn. It is clear that *H. auricularia* and its allies have to be given a new generic name; Bremekamp has placed them under *Exallage* Bremek.

11. *EXALLAGE AURICULARIA* (Linn.) Brem. in Verh. Kon. Ned. Akad. Wet. II, 48(2): 142, 1952. *Hedyotis auricularia* Linn. Sp. Pl. 101, 1753. *Oldenlandia auricularia* K. Schum. in Pflanzenfam. 4(4): 25, 1891.

12. *GEOPHILA HERBACEA* (Jacq.) K. Schum. in Engler et Prantl, Natürl. Pflanzenfam. 4(4): 199, 1891. *Psychotria herbacea* Jacq. Enum. Pl. Carib. 16, 1760. *Geophila reniformis* D. Don, Prodr. Fl. Nep. 136, 1825.

13. *KNOXIA SUMATRENSIS* (Retz.) DC. Prodr. 4: 569, 1830. *Spermacoce sumatrensis* Retz. Obs. 4: 23, 1786. *Knoxia corymbosa* Willd. Sp. Pl. 1: 582, 1798; Fl. Brit. Ind. 3: 129.

14. *KOHAUTIA* Cham. & Schlecht. in Linnaea 4: 156, 1829; Bremek. in Verh. Kon. Ned. Akad. Wet. II, 48(2): 56. *Hedyotis* Linn. sect. *Kohautia* Wt. & Arn. Prodr. 417, 1834. *Oldenlandia* Linn. subgen. *Kohautia* Hook. f. in Genera Plant. 2: 58, 1873.

To clarify the position of *Kohautia* in relation to neighbouring genera, the following key may be of use:

Seeds few, usually 2-12 in each capsule,
plano-convex or globose, with a large
ventral cavity

Anotis

Seeds numerous in each capsule, angu-
lar, subglobose or globose:

Corolla tube 3.5-10 mm. long;
anthers and stigma included in the
tube

Kohautia

Corolla tube upto 2.5 mm. long;
anthers and stigma exserted or in-
cluded

Oldenlandia

Bremekamp loc. cit. writes: 'The genus *Kohautia* Cham. & Schlecht. is well characterized by the structure of its flowers. The latter are always monomorphic, with the anthers as well as the stigmata included, and the stigmata at a lower level than the anthers, or, occasionally just touching them.'

15. *KOHAUTIA ASPERA* (Heyne ex Roth) Bremek. loc. cit. 113, 1952. *Hedyotis aspera* Heyne ex Roth, Nov. Pl. Sp. 94, 1821. *Oldenlandia aspera* DC. Prodr. 4: 428, 1830; Fl. Brit. Ind. 3: 68.

16. *KOHAUTIA GRACILIS* (Wall.) DC. Prodr. 4: 430, 1830. *Hedyotis gracilis* Wall. in Roxb. Fl. Ind. 1: 371, 1820. *Oldenlandia gracilis* Hook. f. in Fl. Brit. Ind. 3: 68, 1880. This is a new record for Bombay.

17. *KOHAUTIA NAGPORENSIS* (Brace ex Haines) Sant. & Merch. comb. nov. *Oldenlandia nagporensis* Brace ex Haines Bot. Bih. & Or. 448, 1922. *O. senegalensis* Hook. f. Fl. Brit. Ind. 3: 68, 1880, non Hiern. 1877.

Many of our floras give this plant as *O. senegalensis*, but apparently with some hesitation; Brace ex Haines took the decisive step and separated the two species; according to Bremekamp, *O. senegalensis* or *K. senegalensis* is an African plant with the eastern limit of its distribution in Arabia.

18. *MORINDA TOMENTOSA* Heyne ex Roth, Nov. Pl. Sp. 147, 1821. *M. coreia* Buch.-Ham. in Trans. Linn. Soc. London 13: 537, 1822, pro parte. *M. tinctoria* Roxb. var. *tomentosa* Hook. f. in Fl. Brit. Ind. 3: 156, 1880.

The nomenclature of this plant is somewhat compli-

cated, particularly on account of Hamilton's name of 1822. This plant in our floras goes under the name of *M. tinctoria* var. *tomentosa*; the specific name *tinctoria* is not valid, it being two years later than *M. coreia* for the same plant. If *M. tomentosa* Heyne ex Roth is not accepted as deserving of specific rank, then a new combination *M. coreia* Buch.-Ham. var. *tomentosa* will be necessary in place of *M. tinctoria* var. *tomentosa*. This new combination is not made here, as the authors are satisfied that *M. tomentosa* deserves specific rank.

19. NAUCLEA ORIENTALIS Linn. Sp. Pl. ed. 2, 243, 1762. *N. cordata* Roxb. Hort. Beng. 14, 1814, nom. nud. & Fl. Ind. 1:509, 1832 (non Blume 1826-7). *Sarcocephalus cordatus* (Roxb.) Miq. Fl. Ind.-Bat. 2:133, 1860-61; Fl. Brit. Ind. 3:22.

20. OLDENLANDIA PUMILA (Linn. f.) DC. Prodr. 4:425, 1830. *Hedyotis pumila* Linn. f. Suppl. 119, 1781. *Oldenlandia crystallina* Roxb. Hort. Beng. 11, 1814, nom. nud. & Fl. Ind. 1:443, 1820; Fl. Brit. Ind. 3:65.

21. OLDENLANDIA AFFINIS (R. & S.) DC. Prodr. 4:428, 1830. *Hedyotis affinis* Roem. & Schult. Syst. 3:194, 1819. *H. dichotoma* Koen. ex Roth, Nov. Pl. Sp. 93, 1821, non Cav. 1801. *Oldenlandia dichotoma* (Koen. ex Roth) Hook. f. in Fl. Brit. Ind. 3:67, 1880, non Spreng. 1850.

22. OPHIORRHIZA PROSTRATA D. Don, Prodr. Fl. Nep. 136, 1825. *O. harrisonii* G. Don, Gen. Syst. 3:523, 1834. *O. harrisiana* Heyne ex Hook. f. in Fl. Brit. Ind. 3:78, 1880; Cooke, Fl. Pres. Bombay 1:596.

23. THE PAVETTA SP. OF BOMBAY. The following key has been prepared so as to include several additions to the genus *Pavetta* and is based on that given by Bremekamp in Fedde, Repert. 37:12

Inflorescence axillary	<i>concanica</i>
Inflorescence terminal:	
Flowering shoots covered with cork upto the inflorescence:	
Leaves obovate:	
Underside of leaves slightly pubescent; ovary & calyx hirsute	<i>crassicaulis et al.</i>
Underside of leaves softly & densely pubescent; ovary & calyx pubescent	<i>stocksii</i>
Leaves elliptic	<i>tomentosa</i>
Flowering shoots green	<i>siphonantha</i>

24. PAVETTA CONCANICA Bremek. in Fedde, Repert. 37:81, 1934.

Erect shrubs up to 2 m. tall; old branches covered with pale grey bark; young branches subquadrangular, glabrous. *Leaves* petiolate, 3.5-14 × 2.1-5.5 cm., elliptic or elliptic-oblong, entire, acute or acuminate at apex, acute at base, glabrous or with a few scattered hairs above, sparsely or sometimes densely pubescent beneath,

especially when young; lateral nerves 10-12 pairs; stipules 5-9 × 3-8 mm., long-triangular, scarious, early deciduous, glabrous. *Flowers* fragrant, in axillary loosely corymbose cymes; branches of the inflorescence pubescent; pedicels 2-6 mm. long, pubescent. *Calyx* pubescent; teeth minute. *Corolla* white; tube 9-10 mm. long, glabrous outside, pubescent inside; lobes 4.5-6 × 1-2 mm., oblong, rounded or subacute at apex, glabrous. *Stamens* inserted on the mouth of the corolla-tube, exserted; filaments very short; anthers 3-4 mm. long, dorsifixed. *Disc* conical. *Style* 2-2.8 cm. long, slender, glabrous; stigma 2 mm. long, fusiform. *Drupe*s green turning black when ripe, 9 mm. in diameter, globose.

In Blatt. Herbarium, the following specimens from Bombay may be seen: CONCAN: Mumbra, *Shenoy* 79, 90; WESTERN GHATS, Khandala, *Santapau* 2201. This species seems to be more common southwards from Bombay.

25. PAVETTA CRASSICAULIS Bremek. in Fedde, Repert. 37:112, 1934 & 47: 25, 1939.

Erect shrubs, up to 2 m. high; young branches thick, subquadrangular, glabrous. *Leaves* petiolate, 4.5-19 × 1.8-7.6 cm., obovate, entire, acute or shortly bluntly acuminate or rarely rounded at apex, cuneate at base, glabrescent or sparsely pubescent above, at first densely pubescent beneath, at length sparsely pubescent; lateral nerves 8-10 pairs, pubescent beneath; petioles 3-12 mm. long, glabrescent or sparsely pubescent; stipules 5-10 × 2-6 mm., ovate-lanceolate near the apex of branches, triangular-cuspidate on older branchlets, acuminate, pubescent when young, glabrous at length. *Flowers* fragrant, in terminal loosely corymbose cymes; flowering branches covered with brown cork up to the base of the inflorescence; branches of the inflorescence hirsute; pedicels 2-5 mm. long, hirsute. *Calyx* hirsute, teeth less than 1 mm. long, triangular, acute, hirsute on the outside, glabrous within. *Corolla* white; tube 9-11 mm. long, glabrous outside, sparsely pubescent within; lobes 4-6 × 1.5-3 mm., obovate-oblong, rounded or apiculate at apex, glabrous. *Stamens* inserted on the mouth of the corolla-tube, exserted; filaments very short, glabrous; anthers greyish-green, 4-6 mm. long, dorsifixed. *Disc* conical. *Style* 2.1-2.8 cm. long, slender, glabrous; stigma green, 1.5-2 mm. long, fusiform. *Drupe*s green turning black when ripe, 9 mm. in diam., globose.

This is the plant, that in our floras goes under the name of *Pavetta indica* Linn., but it is not the Linnean plant; Bremekamp states that the true *P. indica* Linn. is only found in S. India and Ceylon, and may be distinguished thus from the present species:

Flowering shoots peduncle-like either consisting of a single internode or the lowest internode much longer than all the others together	<i>crassicaulis et al.</i>
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Flowering shoots consisting of several internodes gradually decreasing in length from the base np

indica

26. *PAVETTA STOCKSII* Bremek. in Fedde, Repert. 37:113, 1934.

"Branches at first puberulous, soon glabrescent. Leaves attenuate into a short petiole, narrowly obovate, about 11 cm. long, 4.5-5 cm. broad, acute or subacuminate, glabrous above, softly pubescent beneath, nerves about 10 on either side of the midrib, prominent and tomentose beneath. Stipules shortly aristate, silky-hairy in the axil. Flowering branch of 1 internode, brown-corky. Inflorescence shortly peduncled, corymbose, about 10 cm. in diam., branchlets puberulous, pedicels pubescent. Ovary pubescent. Calyx pubescent, lobes triangular 0.7 mm. long. Corolla tube 10.5 mm. long, pilose within, lobes 5.5 mm. long. Style 26 mm. long."

Bremekamp suggests that it is quite possible that this species is but a variety of *P. crassicaulis*; we have not seen any specimen of the present species; Bremekamp gives it as from 'Bombay, Poona'.

P. crassicaulis Bremek. and *P. tomentosa* are fairly common and abundant on the Western Ghats in open ground or at the edge of the undergrowth; flowers are gathered by local people and eaten, cooked as vegetables; leaves are often infected with fungi, among them *Kulkarniella* sp.; the leaves also often have bacterial nodules.

27. *PENTAS LANCEOLATA* (Forsk.) K. Schum. in Engler & Prantl, Nat. Pflanzenfam. 4(4): 29, 1891. *Ophiorrhiza lanceolata* Forsk. Fl. Aeg.-Ar. 42, 1775. *Pentas carnea* Benth. in Bot. Mag. t. 4086, 1844.

This plant seems to be indigenous in Tropical Africa, but at present is cultivated in many tropical countries all over the world.

It would seem that the legitimate generic name of this plant is *Neurocarpaea* R. Br. Salt. Abyss. App. 64, 1814, and the specific name *N. lanceolata* R. Br. ibid. 1814. Being unable to study the types or original descriptions, we have adopted the generic name *Pentas*, which is the one commonly used by modern authors.

28. *SAPROSMA GLOMERATUM* (Gardn.) Bedd. For. Man. 134/11, 1872. *Dysodidendron glomeratum* Gardn. in Calcutta Journ. Nat. Hist. 7:3, 1847. *Saprosma indicum* Dalz. in Hook. Kew Journ. Bot. 3:37, 1857; Fl. Brit. Ind. 3:192.

This is a rare plant in Bombay; it is more common in N. Kanara, at present under Mysore.

29. *SPERMADICTYON* Roxb. Pl. Cor. 3:32, t. 236, 1815. *Hamiltonia* Roxb. Hort. Beng. 15, 1814, nom. nud. & Fl. Ind. 2:223, 1824; Hook. f. in Benth. & Hook. Gen. Pl. 2:135; K. Schum. in Engler & Prantl, Nat. Pflanzenfam. 4(4):125 (non Willd. 1805 = *Pyrularia* Michx. 1803, Santalac.)

The change of the generic name in the present case may cause somewhat of a shock to many Indian botanists; it did so to us when we first unravelled the nomenclature of our common plant *Hamiltonia suaveolens* Roxb. But according to the Rule of Priority, *Spermadictyon* is the only valid name for the genus, and *S. suaveolens* Roxb. for the species. To clinch the rejection of *Hamiltonia* Roxb., there is a previously published name, *Hamiltonia* Willd.; the latter has gone into the synonymy of *Pyrularia* Michx., but the case seems to come under Art. 64, paragraph 2 of the Code, 1956 edit.; the name *Hamiltonia* Roxb. must be rejected as a later homonym of *Hamiltonia* Willd.

Further, this is not a case calling for conservation; for rejection of *Hamiltonia* Roxb. will only entail changes in a very small number of plants.

The nomenclature of the common Indian plant is, therefore, as follows: *Spermadictyon suaveolens* Roxb. Pl. Cor. 3:32, t. 236, 1815. *Hamiltonia suaveolens* Roxb. Hort. Beng. 15, 1814, nom. nud. et Fl. Ind. 2:223, 1824.

30. *TARENNA ASIATICA* (Linn.) Sant. & Merch. comb. nov. *Rondeletia asiatica* Linn. Sp. Pl. 172, 1753. *Tarenna zeylanica* Gaertn. Fruct. 1:139, t. 28, 1788. *Webera corymbosa* Willd. Sp. Pl. 1:1224, 1798; Fl. Brit. Ind. 3:102. *Chomelia asiatica* O. Kuntze, Rev. Gen. Pl. 1:278, 1891.

The specific epithet *asiatica* is clearly the oldest for this plant. O. Kuntze did mention *Tarenna asiatica* in loc. cit., but publication of the combination as done by O. Kuntze is not valid, since he only gave it in the synonymy of *Chomelia asiatica*; this is the sense of Art. 37 of the Code, 1956 edit.

31. *WENDLANDIA HEYNEI* (R. & S.) Sant. & Merch. comb. nov. *Rondeletia heynei* Roem. & Schult. Syst. 5:234, 1819. *Rondeletia thyrsiflora* Roth, Nov. Pl. Sp. 142, 1821. *R. exserta* Roxb. Hort. Beng. 14, 1814, nom. nud. & Fl. Ind. 2:135, 1824. *Wendlandia exserta* (Roxb.) DC. Prodr. 4:411, 1830; Parkinson & Raizada in Indian For. 59:357, t. 19, f. 5.