

PETITIA DOMINGENSIS var. EKMANI Moldenke

Additional synonymy: Petitia domingensis var. ekmanii Moldenke apud Jiménez, Supl. Cat. Fl. Doming. 1: 217. 1966.

Additional bibliography: Moldenke, Phytologia 7: 404. 1961; Jiménez, Supl. Cat. Fl. Doming. 1: 217--218. 1966; Moldenke, Résumé Suppl. 15: 21. 1967.

Emended citations: HISPANIOLA: Dominican Republic: Ekman H. 7009 (W--1304734--isotype).

PETITIA URBANII Ekm.

Additional bibliography: Moldenke, Inform. Mold. Set 51 Spec. 3. 1956; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14358. 1958; Moldenke, Phytologia 7: 401 & 404--405. 1961; Moldenke, Biol. Abstr. 36: 3141. 1961; Hocking, Excerpt. Bot. A6: 533. 1963.

Morton & Alain report that this plant is found from sea-level to 200 meters altitude in Oriente, Cuba. A beautiful photograph of the plant, taken between Jauco and Montecristo, on the first terrace, in January, 1956, by Brother Alain, is preserved in the H. N. Moldenke herbarium.

Additional & emended citations: CUBA: Oriente: Morton & Alain 9163 (W--2285247). HISPANIOLA: Haiti: Ekman H.4096 (W--1303876--isotype, W--1479540--isotype).

ADDITIONAL NOTES ON THE GENUS VITEX. V

Harold N. Moldenke

VITEX COURSI Moldenke

Additional bibliography: G. Taylor, Ind. Kew. Suppl. 12: 151. 1959; Moldenke, Phytologia 15: 100. 1967.

VITEX CRENATA A. Chev.

Additional bibliography: Prain, Ind. Kew. Suppl. 5, pr. 1, 272 (1921) and pr. 2, 272. 1960; Moldenke, Phytologia 15: 100. 1967.

VITEX CUSPIDATA Hiern

Additional bibliography: Thiseitl.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Moldenke, Phytologia 15: 100. 1967.

VITEX CYMOBA Bert.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213. 1895; Prain, Ind. Kew. Suppl. 5, pr. 1, 273. 1921; Stapf, Ind. Lond. 6: 478. 1931; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1213. 1946; Romero Castañeda, Caldasia 7: 49. 1955; Prain, Ind. Kew. Suppl. 5, pr. 2, 273. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1213. 1960; Moldenke, Phytologia 15: 100--101. 1967.

VITEX DEGENERIANA Moldenke

Additional bibliography: Hill & Salisb., Ind. Kew. Suppl. 10: 244. 1947; Moldenke, Phytologia 15: 101. 1967.

VITEX DENTATA Klotzsch

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 (1895), pr. 2, 2: 1213 (1946), and pr. 3, 2: 1213. 1960; Moldenke, Phytologia 15: 101. 1967.

VITEX DINKLAGEI Gürke

Additional bibliography: Prain, Ind. Kew. Suppl. 3: 189. 1908; Moldenke, Phytologia 15: 102. 1967.

VITEX DIVARICATA Sw.

Additional synonymy: Arrabidaea paniculata Seem. ex Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 193. 1893.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 193 (1893), 2: 1036, 1213, & 1214. 1895; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 193 (1946), 2: 1036, 1213, & 1214 (1946), and pr. 3, 1: 193 (1960) and 2: 1036, 1213, & 1214. 1960; Moldenke, Phytologia 15: 102--104. 1967; Moldenke, Résumé Suppl. 15: 16. 1967.

Jackson (1895) maintains that Tanaecium ? paniculatum Sieber belongs in the synonymy of Jacaranda sagraeana P. DC. in the Bigoniaceae rather than in that of Vitex divaricata.

VITEX DIVERSIFOLIA Kurz

Additional bibliography: Kurz, Rep. Veget. Andaman Isl. A.45. 1870; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 (1895), pr. 2, 2: 1213 (1946), and pr. 3, 2: 1213. 1960; Moldenke, Phytologia 15: 104. 1967.

VITEX DJUMAENSIS DeWild.

Additional bibliography: Prain, Ind. Kew. Suppl. 4, pr. 1, 248 (1913) and pr. 2, 248. 1958; Moldenke, Phytologia 15: 104. 1967.

VITEX DONIANA Sweet

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1213 & 1214. 1895; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Engl. in Engl. & Drude, Veget. Erde 9 (1): I, 295, fig. 261. 1910; Prain, Ind. Kew. Suppl. 5, pr. 1, 273. 1921; F. R. Irvine, Pl. Gold Coast xlii, lvii, lxvi, & 436--437. 1930; Stapf, Ind. Lond. 6: 478. 1931; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1213 & 1214 (1946) and pr. 3, 2: 1213 & 1214. 1960; Prain, Ind. Kew. Suppl. 5, pr. 2, 273. 1960; Moldenke, Phytologia 15: 104--108. 1967.

Additional illustrations: Kotsch. & Peyr., Pl. Tinn. pl. 12. 1867; Engl. in Engl. & Drude, Veget. Erde 9 (1): I, 295, fig. 261. 1910.

VITEX DRYADUM S. Moore

Additional bibliography: Prain, Ind. Kew. Suppl. 5, pr. 1, 273

(1921) and pr. 2, 273. 1960; Moldenke, *Phytologia* 15: 108. 1967.

VITEX DUBOISII Moldenke

Additional bibliography: G. Taylor, *Ind. Kew. Suppl.* 12: 151. 1959; Moldenke, *Phytologia* 15: 108. 1967.

VITEX DUCKEI Huber

Additional bibliography: Prain, *Ind. Kew. Suppl.* 4, pr. 1, 248 (1913) and pr. 2, 248. 1958; Moldenke, *Phytologia* 15: 108. 1967.

VITEX DUCLOUXII Dop

Additional & emended bibliography: A. W. Hill, *Ind. Kew. Suppl.* 9: 297. 1938; Moldenke, *Phytologia* 15: 108. 1967.

VITEX EBERHARDTII Dop

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 9: 297. 1938; Moldenke, *Phytologia* 15: 108. 1967.

VITEX ELAKELAKENSIS Moldenke

Additional bibliography: G. Taylor, *Ind. Kew. Suppl.* 12: 151. 1959; Moldenke, *Phytologia* 15: 108. 1967.

VITEX EPIDICTYODES Mildbr.

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 8: 249. 1933; Moldenke, *Phytologia* 15: 108. 1967; Moldenke, *Résumé Suppl.* 15: 25. 1967.

VITEX ERIOCLONA H. J. Lam

Additional & emended bibliography: A. W. Hill, *Ind. Kew. Suppl.* 7: 252. 1929; Moldenke, *Phytologia* 8: 36—37. 1961.

VITEX EXCELSA Moldenke

Additional bibliography: Hill & Salisb., *Ind. Kew. Suppl.* 10: 244. 1947; Moldenke, *Phytologia* 8: 37. 1961.

VITEX FARAFANGANENSIS Moldenke

Additional bibliography: G. Taylor, *Ind. Kew. Suppl.* 12: 151. 1959; Moldenke, *Phytologia* 15: 108—109. 1967.

VITEX FERRUGINEA Schum. & Thonn. in Schum., *Beskr. Guin. Pl.* 62. 1827 [not *V. ferruginea* Bojer, 1847, nor Vahl, 1818].

Additional bibliography: Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 1213. 1895; Thiselt.-Dyer, *Ind. Kew. Suppl.* 2: 194. 1904; Prain, *Ind. Kew. Suppl.* 4, pr. 1, 248. 1913; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 2: 1213. 1946; Prain, *Ind. Kew. Suppl.* 4, pr. 2, 248. 1938; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 1213. 1960; Moldenke, *Phytologia* 15: 109—110 & 229. 1967; Moldenke, *Résumé Suppl.* 15: 6, 7, & 25. 1967.

VITEX FISCHERI Gtrke

Additional bibliography: Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 457 (1906), pr. 2, 457 (1941), and pr. 3, 457. 1959; Mol-

denke, *Phytologia* 15: 110. 1967.

VITEX FLAVA Ridl., *Kew Bull. Misc. Inf.* 1929: 261—262. 1929.

Additional bibliography: H. N. Ridl., *Kew Bull. Misc. Inf.* 1929: 261—262. 1929; A. W. Hill, *Ind. Kew. Suppl.* 8: 249. 1933; Moldenke, *Phytologia* 15: 110. 1967.

VITEX FLAVENS H.B.K.

Additional bibliography: Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 1213. 1895; Stapf, *Ind. Lond.* 6: 478. 1931; A. W. Hill, *Ind. Kew. Suppl.* 9: 298. 1938; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 2: 1213. 1946; Moldenke, *Phytologia* 6: 81 & 84. 1957; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 1213. 1960; Moldenke, *Phytologia* 15: 110—111. 1967.

VITEX FLORIBUNDA Legris

Additional bibliography: Moldenke, *Phytologia* 15: 111. 1967; Moldenke, *Résumé Suppl.* 15: 9. 1967.

This binomial is not accounted for in the "Index Kewensis" nor any of its supplements to date.

VITEX FLORIDULA Duchass. & Walp.

Additional bibliography: Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 1213. 1895; Pittier, *Contrib. U. S. Nat. Herb.* 18: 171. 1916; Stapf, *Ind. Lond.* 6: 478. 1931; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 2: 1213 (1946) and pr. 3, 2: 1213. 1960; Moldenke, *Phytologia* 15: 111. 1967.

In the library of the New York Botanical Garden there are preserved six copies of a photograph of a cross-section of the wood of this species, taken from an unnumbered specimen collected by Mell.

VITEX FOSTERI C. H. Wright

Further study indicates that this taxon is conspecific with V. ferruginea Schum. & Thonn., which see.

VITEX FROESII Moldenke

Additional bibliography: E. J. Salisb., *Ind. Kew. Suppl.* 11: 265. 1953; Moldenke, *Phytologia* 15: 111. 1967.

VITEX GABUNENSIS Gürke

Additional bibliography: Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 457 (1906), pr. 2, 457 (1941), and pr. 3, 457. 1959; Moldenke, *Phytologia* 15: 111. 1967.

VITEX GAMOSEPALA Griff.

Additional bibliography: Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 1213 (1895), pr. 2, 2: 1213 (1946), and pr. 3, 2: 1213. 1960; Moldenke, *Phytologia* 15: 111. 1967.

VITEX GARDNERIANA Schau.

Additional bibliography: Jacks. in Hook. f. & Jacks., *Ind. Kew.*,

pr. 1, 2: 1213 (1895), pr. 2, 2: 1213 (1946), and pr. 3, 2: 1213. 1960; Moldenke, *Phytologia* 15: 111--112. 1967.

VITEX GAUMERI Greenm.

Additional bibliography: Prain, Ind. Kew. Suppl. 4, pr. 1, 248 (1913) and pr. 2, 248. 1958; Moldenke, *Phytologia* 15: 112. 1967; Moldenke, *Résumé Suppl.* 15: 25. 1967.

VITEX GEMINATA H. H. W. Pearson

Additional bibliography: Prain, Ind. Kew. Suppl. 3: 189. 1908; Moldenke, *Phytologia* 6: 23 (1957) and 15: 112. 1967.

VITEX GIGANTEA H.B.K.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 (1895), pr. 2, 2: 1213 (1946), and pr. 3, 2: 1213. 1960; Moldenke, *Phytologia* 15: 112. 1967.

VITEX GIORGII DeWild.

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, *Phytologia* 15: 112--113. 1967.

VITEX GLABRATA R. Br.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213. 1895; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Prain, Ind. Kew. Suppl. 3: 189 (1908), 4, pr. 1, 248 (1913), and 5, pr. 1, 273. 1921; Haines, Bot. Bihar & Orissa 4: 711 & 713. 1922; H. J. Lam in Bakh. & Lam, Nov. Guinea 14, Bot. 1: 169. 1924; C. A. Gardn., Enum. Pl. Austr. Occid. 3: 112. 1931; Kanehira, Fl. Micrones. 343 & 457. 1933; Fletcher, Kew Bull. Misc. Inf. 1938: 432 & 435--436. 1938; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1213. 1946; Prain, Ind. Kew. Suppl. 4, pr. 2, 248. 1958; Anon., Kew Bull. Gen. Index 1929-1956, 293. 1959; Maun, Philip. Journ. Forest. 16: 108. 1960; Nath, Bot. Surv. South. Shan States 304. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1213. 1960; Prain, Ind. Kew. Suppl. 5, pr. 2, 273. 1960; Moldenke, *Phytologia* 8: 63. 1961; Panigrahi, Chowdhury, Raju, & Deka, Bull. Bot. Surv. India 6: 255. 1964; Becker & Bakh., Fl. Java 2: 605. 1965; J. S. Beard, Descrip. Cat. W. Austr. Pl. 93. 1965; Moldenke, *Phytologia* 15: 79 & 113. 1967; Moldenke, *Résumé Suppl.* 15: 9 & 14. 1967.

Recent collectors describe this plant as a tree, 8--35 meters tall, the trunk 45 cm. in diameter, dark-gray, and rather rough, and the fruit black or purple, growing on marshy plains, flowering in June and October, fruiting in July, September, and October, and called "khai-nao", "mak-lokkaing", and "tauksha". It is said to be only "occasional" in Orissa. The corollas are described as "purple" on *Herb. Roy. Forest. Dept.* 2479 and as "white with purple tinge" by Beard (1966).

The W. V. Fitzgerald 212, distributed as V. glabrata, is actually V. acuminata R. Br., while Elmer 11602 and Yates 1609 are V. quinata var. puberula (H. J. Lam) Moldenke

Additional citations: INDIA: Assam: Koelz 30578 (M1). THAILAND: Boongird 7 (W-2035006); Kostermans 1222 (W-2039006), 1317 (W-2039923). INDONESIA: Celebes: Waturandang 35 [Boschproefst. BB.21118] (B1). Java: Veer 53 [Boschproefst. Ja.3305] (B1).
MOUNTED ILLUSTRATIONS: H. N. Moldenke color slide 472 (Z).

VITEX GLABRATA var. BOMBACIFOLIA (Wall.) Moldenke

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 & 1214 (1895) and pr. 2, 2: 1213 & 1214. 1946; Moldenke, Phytologia 5: 381-383. 1956; Moldenke, Résumé 164, 166, 177, 225, 381, 383, 385, 387, & 476. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1213 & 1214. 1960.

Koelz describes this plant as a tree, the trunk 18 inches in diameter, the flowers rose, the lip darker, yellow at the base, blooming in June.

Additional citations: INDIA: Assam: Koelz 25327 (M1).

VITEX GLABRATA var. POILANEI Moldenke

Additional bibliography: Moldenke, Phytologia 8: 39. 1961.

Additional citations: INDOCHINA: Cambodia: Pierre 1218 (W-1757961).

VITEX GOLUNGENSIS J. G. Baker

Additional bibliography: K. Schum. in Just, Bot. Jahresber. 28 (1): 497 & 498. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 4: 194. 1904; Moldenke, Phytologia 5: 383-384. 1956; Moldenke, Résumé 147, 383, & 476. 1959.

VITEX GRANDIDIANA Pieper

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, Phytologia 5: 384-385. 1956; Moldenke in Humbert, Fl. Madag. 174: 74, 109, 111-113, & 272, fig. 16 (7). 1956; Moldenke, Résumé 157 & 476. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 109, fig. 16 (7). 1956.

VITEX GRANDIDIANA var. ANGUSTIFOLIA Moldenke

Additional bibliography: Moldenke, Phytologia 5: 385. 1956; Moldenke in Humbert, Fl. Madag. 174: 74, 109, 112-113, & 272, fig. 16 (8 & 9). 1956; Moldenke, Résumé 157 & 476. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 109, fig. 16 (8 & 9). 1956.

VITEX GRANDIFOLIA Gürke

Emended synonymy: Vitex lutea A. Chev., Expl. Bot. Afr. Occid. Franç. 1: 506-507, hyponym. 1920 [not V. lutea Exell, 1931].

Vitex grandiflora Gürke ex F. R. Irvine, Pl. Gold Coast lvi & 437, sphalm. 1930 [not V. grandiflora Turcz., 1863]. Vitex cuneata A. Chev. ex F. R. Irvine, Pl. Gold Coast 437, in syn. 1930 [not V. cuneata Schum. & Thonn., 1827, nor Thonn., 1827].

Additional bibliography: Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457. 1906; Prain, Ind. Kew. Suppl. 3: 189. 1908; J. H. Holland, Kew Bull. Addit. Ser. 9 [Useful Pl. Nigeria 3]: 526. 1915; A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; F. R. Irvine, Pl. Gold Coast lvii & 437. 1930; Exell in Exell, Good, & Taylor, Journ. Bot. 69, Suppl. 2: 145. 1931; Dalz., Useful Pl. W. Trop. Afr. 457-458. 1937; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 457 (1941) and pr. 3, 457. 1959; Moldenke, Phytologia 8: 39. 1961; Huber in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 445-447. 1963; Nielsen, Introd. Flow. Pl. W. Afr. 164. 1965; Moldenke, Phytologia 15: 105 & 106. 1967; Moldenke, Résumé Suppl. 15: 7. 1967.

This species is described by Nielsen (1965) as "a secondary forest species" and by Irvine (1930) as inhabiting "deciduous and secondary forests"; Huber (1963) says that it is found "in high or secondary forests". Additional vernacular names recorded for it are "awama.owama", "f@", and "nyaméle-kukwe" ["God's coconut; from the acorn-like fruit and calyx"]. Dalziel (1937) states that the names recorded by him for *V. doniana* Sweet also apply to *V. grandifolia*. He says "The plum-like fruits are yellow when ripe, but later turn black; they have a thin edible pulp and are used at various parts of the coast to make a spirit said to taste like rum. They are also used like those of *V. Cienkowski* to make a sweetmeat. The sapwood is white, the heart darkening to brown, more open-grained than teak, finishing smoothly, said to be durable and termite-proof. Large drums are made from it in S. Nigeria, and the smaller stems are used for home-building. In Sierra Leone the wood is sometimes burned for potash."

Vitex lutea Exell is apparently a valid species from the area of Portuguese Congo.

Huber (1963) cites the following specimens: SIERRA LEONE: Deighton 2386 & 3078, Mann 880, Scott-Elliott 4327, and Small 696. LIBERIA: Baldwin 5908 & 6171, Bequaert 152, Linder 966, and Whyte s.n. IVORY COAST: A. Chevalier 15470, 17275, & 19091, Leeuwenberg 1922, and Roberty 15559. GHANA: Andoh FH.5488, Kitson 1182, Morton A.379, Murphy 676, and Vigne FH.1041. NIGERIA: Southern: Barter 2098 & 2180, Keay FHL.25362, Onochie FHL.27686, and Talbot 2057. CAMEROONS: Maitland 361. He records it also from Spanish Guinea and describes it as "A small tree 20-30 ft. high with large 5-foliolate leaves and pale-yellowish to brownish-yellow flowers in short-peduncled cymes at the base of the leaves." It has been found in flower from February to April, June, and August, and in fruit from April to June and August to November.

VITEX GRISEA J. G. Baker

Additional bibliography: K. Schum. in Just, Bot. Jahresber. 28 (1): 497. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Moldenke, Phytologia 5: 387-388. 1956; Moldenke, Résumé 145, 147, 384, & 476. 1959.

The Teixeira 10, distributed as *V. grisea*, is actually *V. wel-*

witschii Gürke.

VITEX GRISEA var. DEKINDTIANA (Gürke) Pieper

Additional bibliography: Prain, Ind. Kew. Suppl. 3: 189. 1908; Moldenke, Phytologia 5: 388. 1956; Moldenke, Résumé 147, 382, & 476. 1959.

VITEX GUERKEANA Hiern

Additional bibliography: Thisel.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457 (1906) and pr. 2, 457. 1941; Moldenke, Phytologia 5: 388—389. 1956; Moldenke, Résumé 147, 383, 388, & 476. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 457. 1959; Moldenke, Phytologia 15: 229. 1967.

The Tavares 856, distributed as V. guerkeana, is actually V. rufescens A. L. Juss.

VITEX GUERKEANA var. GOSSWEILERI Pieper

Additional bibliography: Moldenke, Phytologia 5: 389. 1956; Moldenke, Résumé 147 & 476. 1959.

VITEX GULANENSIS Moldenke

Additional bibliography: E. J. Salisb., Ind. Kew. Suppl. 11: 265. 1953; Moldenke, Phytologia 5: 389—390. 1956; Moldenke, Résumé 76 & 476. 1959.

VITEX HARVEYANA H. H. W. Pearson

Additional bibliography: Prain, Ind. Kew. Suppl. 3: 189. 1908; J. Hutchinson, Botanist in South. Afr. 319. 1946; Moldenke, Phytologia 6: 23 (1957) and 8: 40. 1961.

Recent collectors describe this plant as a tree or large branched tree, or a shrub, 2—4 m. tall, with fragrant flowers, blooming from October to December, fruiting in November and December, and growing in river gallery forests, along the margins of rivers, and in rocky soil along stream margins. The corollas are described as "lilac" on Balsinhas 201 and F. A. Mendonca 3023, "violet, the lower lip rose" on F. A. Mendonca 2994, "with a violet lip" on Torre 6870, and "lower corolla lip blue" on F. A. Mendonca 2963. A note appended to Barbosa 750 points out that this specimen matches Schlechter 11731, which is the type of V. schlechteri, but that a complete series of intermediates may be seen, often on the same individual plant! Hutchinson (1946) describes the corollas as "mauve" and cites his nos. 2101 & 2123.

Material has been misidentified and distributed in herbaria as V. petersiana Klotzsch and V. rehmanni Gürke.

Additional citations: PORTUGUESE EAST AFRICA: Lourenço Marques: Balsinhas 201 (U1); Barbosa 750 (U1); Hornby 980 (U1), 981 (U1); F. A. Mendonca 2963 (U1), 2994 (U1), 3023 (U1), 3440 (U1); Torre 1831 (U1), 6870 (U1).

VITEX HAUSKNECHTII Bortm.

Additional & emended bibliography: Prain, Ind. Kew. Suppl. 4, pr. 1, 248 (1913) and pr. 2, 248. 1958; Moldenke, Phytologia 8: 40. 1961.

VITEX HAVILANDII Ridl.

Additional & emended bibliography: H. N. Ridl., Kew Bull. Misc. Inf. 1929: 262. 1929; A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, Phytologia 5: 392--393. 1956; Moldenke, Résumé 192, 193, & 476. 1959; Anon., Kew Bull. Gen. Index 1929-1956, 293. 1959.

VITEX HAYNGA Roxb.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 (1895) and pr. 2, 2: 1213. 1946; Moldenke, Phytologia 5: 393. 1956; Moldenke, Résumé 164 & 476. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1213. 1960.

VITEX HEMSLEYI Briq.

Additional bibliography: Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1235 & 1236. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 56 & 252. 1929; Moldenke, Phytologia 8: 40. 1961; Langman, Select. Guide Lit. Flow. Pl. Mex. 160, 586, & 1010. 1964.

Rzedowski describes this plant as a tree, 5 m. tall, growing in subdeciduous tropical woods, at 100 m. altitude, flowering in June.

The type specimen, Jurgensen 68, deposited in the herbarium of the Conservatoire et Jardin Botaniques at Geneva, was photographed there by Macbride as his type photograph number 24702.

Additional citations: MEXICO: Colima: J. Rzedowski 15473 (Ip). Michoacán: Hinton 13789 (Rf). Oaxaca: Jurgensen 68 [Macbride photos 24702] (N--photo of type).

VITEX HENRYI Moldenke

Additional bibliography: Moldenke, Phytologia 5: 405--406. 1956; Moldenke, Résumé 171 & 476. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959; E. H. Walker, Bibliog. East. Asiat. Bot. Suppl. 1: 235. 1960.

VITEX HEPTAPHYLLA A. L. Juss.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213. 1895; A. W. Hill, Ind. Kew. Suppl. 9: 297. 1938; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1213 (1946) and pr. 3, 2: 1213. 1960; Moldenke, Phytologia 8: 40--41. 1961.

Additional citations: HISPANIOLA: Dominican Republic: Lavastre 1824 (N).

VITEX HIRSUTISSIMA J. G. Baker

Additional & emended bibliography: Durand & Jacks., Ind. Kew.

Suppl. 1, pr. 1, 457 (1906) and pr. 2, 457. 1941; Moldenke, Phytologia 5: 409—410. 1956; Moldenke in Humbert, Fl. Madag. 174: 73, 76, 129—131, & 272, fig. 20 (3—5). 1956; Moldenke, Résumé 157 & 476. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 457. 1959.

Additional illustrations: Moldenke in Humbert, Fl. Madag. 174: 129, fig. 20 (3—5). 1956.

VITEX HOCKII DeWild.

Additional bibliography: Prain, Ind. Kew. Suppl. 5, pr. 1, 273 (1921) and pr. 2, 273. 1960; Moldenke, Phytologia 8: 41. 1961; Moldenke, Résumé Suppl. 12: 7. 1965.

Additional citations: ANGOLA: Moxico: Barros Machado s.n. [Ang. 1.55-358] (Ul).

VITEX HOLOADENON Dop

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 9: 297. 1938; Moldenke, Phytologia 8: 41. 1961.

VITEX HOLOCALYX J. G. Baker

Additional bibliography: K. Schum. in Just, Bot. Jahresber. 28 (1): 497. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Moldenke, Phytologia 5: 411—412. 1956; Moldenke, Résumé 147, 386, & 476. 1959.

VITEX HORNEI Hemsl.

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; Moldenke, Phytologia 5: 412. 1956; Moldenke, Résumé 155, 389, & 476. 1959.

VITEX HUMBERTI Moldenke

Synonymy: Vitex humbertii Mold. ex Humbert, Trav. Sect. Scient. & Tech. Inst. Franç. Pond., ser. 6, Not. Carte Madag. 65. 1965.

Bibliography: Moldenke, Phytologia 3: 436—437 (1951) and 5: 412—413. 1956; Moldenke in Humbert, Fl. Madag. 174: 77, 142—145, & 272, fig. 23 (1—3). 1956; Moldenke, Résumé 157 & 476. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959; Humbert, Trav. Sect. Scient. & Tech. Inst. Franç. Pond., ser. 6, Not. Carte Madag. 65. 1965; Moldenke, Résumé Suppl. 15: 25. 1967.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 145, fig. 23 (1—3). 1956.

VITEX HUMBERTI var. ANGUSTATA Moldenke

Bibliography: Moldenke, Phytologia 3: 437—438 (1951) and 5: 413—414. 1956; Moldenke in Humbert, Fl. Madag. 174: 77, 143—145, & 272, fig. 23 (4). 1956; Moldenke, Résumé 157 & 476. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 145, fig. 23 (4). 1956.

VITEX HYPOLEUCA Schau.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew.,

pr. 1, 2: 1213 (1895) and pr. 2, 2: 1213. 1946; Moldenke, *Phytologia* 5: 414—415. 1956; Moldenke, *Résumé* 111, 381, 384, & 476. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 1213. 1960.

An isotype, Blanchet 1907, deposited in the herbarium of the Conservatoire et Jardin Botaniques at Geneva, was photographed there by Macbride as his type photograph number 7881. An isotype of V. blancheti, Blanchet 1028, in the same herbarium, is represented by his type photograph number 30186.

Additional citations: BRAZIL: Bahia: Blanchet 1907 [Macbride photos 7881] (W—photo of isotype). State undetermined: Blanchet 1028 [Macbride photos 30186] (W—photo).

VITEX IBARENSIS J. G. Baker

Additional bibliography: Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 1213 (1895) and pr. 2, 2: 1213. 1946; Moldenke, *Phytologia* 5: 415—416. 1956; Moldenke in Humbert, *Fl. Madag.* 174: 74, 108—110, & 272, fig. 16 (4). 1956; Moldenke, *Résumé* 157 & 476. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 1213. 1960.

Illustrations: Moldenke in Humbert, *Fl. Madag.* 174: 109, fig. 16 (4). 1956.

VITEX IMPRESSINERVIA Mildbr.

Additional & emended bibliography: A. W. Hill, *Ind. Kew. Suppl.* 8: 249. 1933; Moldenke, *Phytologia* 5: 416. 1956; Moldenke, *Résumé* 139 & 476. 1959.

VITEX INTEGRIFOLIA Urb.

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 7: 252. 1929; Moldenke, *Phytologia* 8: 41. 1961; Jiménez, *Supl. Cat. Fl. Doming.* 1: 222. 1966.

VITEX IRAQUENSIS Moldenke

Bibliography: Moldenke, *Phytologia* 4: 61—62 (1952) and 5: 417—418. 1956; Moldenke, *Résumé* 158 & 476. 1959; G. Taylor, *Ind. Kew. Suppl.* 12: 151. 1959; Moldenke, *Phytologia* 15: 78. 1967.

VITEX IRINGENSIS Gürke

Additional bibliography: K. Schum. in Just, *Bot. Jahresber.* 28 (1): 497. 1902; Moldenke, *Phytologia* 5: 418—419. 1956; Moldenke, *Résumé* 145 & 476. 1959.

VITEX ISOTJENSIS Gibbs

Additional & emended bibliography: Prain, *Ind. Kew. Suppl.* 4, pr. 1, 248. 1913; Moldenke, *Phytologia* 5: 419—420. 1956; Prain, *Ind. Kew. Suppl.* 4, pr. 2, 248. 1958; Moldenke, *Résumé* 148 & 476. 1959.

VITEX KAPIRENSIS DeWild.

Additional & emended bibliography: Prain, *Ind. Kew. Suppl.* 5,

pr. 1, 273. 1921; Moldenke, *Phytologia* 5: 420. 1956; Moldenke, *Résumé* 142 & 476. 1959; Prain, *Ind. Kew. Suppl.* 5, pr. 2, 273. 1960.

VITEX KENIENSIS Turrill

Additional bibliography: Prain, *Ind. Kew. Suppl.* 5, pr. 1, 273 (1921) and pr. 2, 273. 1960; Moldenke, *Phytologia* 8: 63. 1961.

Additional citations: KENYA: Drummond & Hemsley 4752 (B).

VITEX KLUGII Moldenke

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 9: 297. 1938; Hill & Salisb., *Ind. Kew. Suppl.* 10: 244. 1947; Moldenke, *Phytologia* 8: 42. 1961.

Guedes records the vernacular name "tarumã" for this species.

Additional citations: BRAZIL: Ceará: Guedes 567 (N).

VITEX KRUKOVII Moldenke

Additional bibliography: E. J. Salisb., *Ind. Kew. Suppl.* 11: 265. 1953; Moldenke, *Phytologia* 8: 42. 1961.

VITEX KUYLENII Standl.

Emended synonymy: Vitex longeracemosa Pittier ex Standl., *Trop. Woods* 37: 37. 1934. Vitex kuylenii Staudt. ex Menninger, *Flow. Trees World* 284, sphalm. 1962.

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 7: 252 (1929) and 8: 249. 1933; P. C. Standl., *Trop. Woods* 37: 37. 1934; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14362. 1958; Moldenke, *Phytologia* 8: 42. 1961; Menninger, *Flow. Trees World* 284. 1962.

Recent collectors describe this plant as a large tree, 13-15 m. tall, the trunk 6-12 inches in diameter, with the flowers in panicles, called "blue blossom" or "flor azul", and fruiting in May. The corollas are described as "blue" on Gentle 5551 and as "lovely blue" by Standley (1934).

Additional citations: MEXICO: Chiapas: Hernández Xolocotzi 232 (Rf). BRITISH HONDURAS: Gentle 4610 (Mi, Rf, Rf), 5551 (Ld, S), 6769 (Ld, S), 7774 (Ld).

VITEX KWANGSIENSIS P'ei

Additional & emended bibliography: A. W. Hill, *Ind. Kew. Suppl.* 9: 297. 1938; Moldenke, *Phytologia* 8: 42. 1961.

VITEX KWEICHOWENSIS P'ei

Additional & emended bibliography: P'ei, *Sinensia* 2: 71-74, fig. 1 & 2. 1932; A. W. Hill, *Ind. Kew. Suppl.* 9: 297. 1938; Moldenke, *Phytologia* 5: 428-429. 1956; Anon., U. S. Dept. Agr. Bot. Subj. Index 15: 14352. 1958; Moldenke, *Résumé* 171 & 476. 1959.

Emended illustrations: P'ei, *Sinensia* 2: 72 & 73, fig. 1 & 2. 1932.

VITEX LACINIOSA Turcz.

This binomial proves to be a synonym of V. polygama var. dusenii Moldenke, which see.

VITEX LAMIANA Pieper

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, Phytologia 5: 430. 1956; Moldenke, Résumé 145, 146, & 476. 1959.

VITEX LANIGERA Schau.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1214 (1895) and pr. 2, 2: 1214. 1946; Moldenke in Humbert, Fl. Madag. 174: 72, 85--88, & 272, fig. 11 (7--9). 1956; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1214. 1960; Moldenke, Phytologia 8: 42. 1961.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 85, fig. 11 (7--9). 1956.

VITEX LASIANTHA H. Hallier

Additional bibliography: H. J. Lam in Bakh. & Lam, Nov. Guinea 14, Bot. 1: 169. 1924; A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; Moldenke, Phytologia 5: 432--433. 1956; Moldenke, Résumé 202 & 476. 1959.

VITEX LASTELLEI Moldenke

Bibliography: Moldenke, Phytologia 3: 438--439 (1951) and 5: 433--434. 1956; Moldenke in Humbert, Fl. Madag. 174: 75, 121, 123--124, & 272, fig. 18 (8 & 9). 1956; Moldenke, Résumé 157 & 476. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 121, fig. 18 (8 & 9). 1956.

VITEX LEANDRII Moldenke

Bibliography: Moldenke, Phytologia 3: 439--440 (1951) and 5: 434--435. 1956; Moldenke in Humbert, Fl. Madag. 174: 77, 139--141, & 272, fig. 22 (5--7). 1956; Moldenke, Résumé 157 & 476. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 139, fig. 22 (5--7). 1956.

VITEX LEBRUNI Moldenke

Bibliography: Moldenke, Phytologia 4: 62--63 (1952) and 5: 435. 1956; Moldenke, Résumé 142 & 476. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959.

VITEX LEHMBACHII Gürke

Additional bibliography: Prain, Ind. Kew. Suppl. 3: 189. 1908; Moldenke, Phytologia 5: 435--436. 1956; Moldenke, Résumé 139 & 476. 1959; Huber in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 445 & 446. 1963.

Huber (1963) describes this plant as a "shrub or small tree up to 30 ft. high with glabrous branches and leaves, and long-

peduncled cymes of pale pink or white flowers." He cites Maitland 1725 and Olorunfemi FHI.30629 from Camerouns.

VITEX LEUCOXYLON L. f.

Additional bibliography: Bocq., Adansonia 3: [Rev. Verbenac.] 253. 1863; W. A. Talbot, Syst. List Trees Shrubs Bomb. 162 & 229. 1894; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1214. 1895; Haines, Bot. Bihar & Orissa 4: 711—713. 1922; Gamble, Fl. Madras 6: 1102 & 1103. 1924; H. F. MacMillan, Trop. Plant. & Gard., ed. 1, 207 & 592. 1925; Stapf, Ind. Lond. 6: 478. 1931; H. F. MacMillan, Trop. Plant. & Gard., ed. 4, 197 & 558. 1935; Fletcher, Kew Bull. Misc. Inf. 1938: 436. 1938; H. F. MacMillan, Trop. Plant. & Gard., ed. 5, pr. 1, 197 & 558. 1943; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1214. 1946; H. F. MacMillan, Trop. Plant. & Gard., ed. 5, pr. 2, 197 & 558. 1948; Anon., Kew Bull. Gen. Index 1929-1956, 293. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1214. 1960; Moldenke, Phytologia 8: 42. 1961; Nair & Rehman, Bull. Bot. Gard. Lucknow 76: 21. 1962; Jain, Bull. Bot. Surv. India 5: 225. 1963; D. S. Rao, Naturwiss. 52 (10): 262. 1965; Anon., Biol. Abstr. 47: 2888. 1966; Gausson & al., Trav. Sect. Scient. & Tech. Inst. Franç. Pond. Hors ser. 7: 50 & 104. 1966; Moldenke, Résumé Suppl. 15: 25. 1967.

Chand describes this plant as a tree, with a trunk 2 feet in diameter and the corollas "white with a purple brush in throat", flowering in March. Nair & Rehman (1962) describe the pollen as subprolate, $21 \times 17 \mu$; range $19-21 \times 17-19 \mu$, the ectine surface granulate. Jain (1963) records the vernacular names "bereundemaran", "jamela", and "undemaran", and tells us that aemic patients and those with fever are given baths in a decoction made of the leaves of this species. The specific epithet is very often uppercased.

Fletcher (1938) reduces "V. leucoxyton L." to synonymy under V. glabrata R. Br., but it is actually only the Schauerian homonym that belongs in that synonymy.

Additional citations: INDIA: Bastar: Chand 1349 (M1).

VITEX LIMONIFOLIA Wall.

Additional & emended bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 & 1214. 1895; Craib, Kew Bull. Misc. Inf. 9: 443. 1911; Fletcher, Kew Bull. Misc. Inf. 1938: 431 & 433. 1938; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1213 & 1214. 1946; Anon., Kew Bull. Gen. Index 1929-1956, 293. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1213 & 1214. 1960; Moldenke, Phytologia 8: 43. 1961; Moldenke, Dansk Bot. Arkiv 23: 92. 1963.

Recent collectors describe this plant as a tree, 6—10 m. tall, the blaze green and orange over tan, growing in open sun or "dominant in deciduous forest" or "in scrub with occasional trees to 15 m. tall, common genera are Vitex, Bauhinia, and Lantana", flowering in June. It has been found growing at altitudes of 40—400 m. The corollas are described as "cream-color" on R. M. King

5474 and "lavender" on his 5488. A wood voucher accompanies R. M. King 5474.

Additional citations: THAILAND: Gram & Syrach-Larsen 86 (Cp); R. M. King 5488 (Du--502281); K. Larsen 8101 (Z). CULTIVATED: Thailand: R. M. King 5474 (Du--502242).

VITEX LINDENI Hook. f.

Emended synonymy: Vitex lindenii Hook. f. ex Stapf, Ind. Lond. 6: 478. 1931.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1214. 1895; Stapf, Ind. Lond. 6: 478. 1931; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1214. 1946; W. J. Bean in Chittenden, Roy. Hort. Soc. Dict. Gard. 4: 2249. 1951; Moldenke, Phytologia 5: 440--441. 1956; Moldenke, Résumé 225, 385, & 476. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1214. 1960.

VITEX LOBATA Moldenke

Bibliography: Moldenke, Phytologia 3: 440--441 (1951) and 5: 442. 1956; Moldenke in Humbert, Fl. Madag. 174: 74, 107--109, & 272, fig. 16 (1--3). 1956; Moldenke, Résumé 157 & 476. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 109, fig. 16 (1--3). 1956.

VITEX LOBKOWITZII Ettingsh.

Additional bibliography: Moldenke, Phytologia 5: 442--443. 1956; Moldenke, Résumé 227 & 476. 1959.

VITEX LOKUNDJENSIS Pieper

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, Phytologia 8: 43. 1961.

Additional citations: CAMEROONS: Zenker 3899 (W--554334). TANGANYIKA: Schlieben 3148 (W--2214403).

VITEX LOKUNDJENSIS var. KRUCKEI Pieper

Additional bibliography: Moldenke, Phytologia 5: 444. 1956; Moldenke, Résumé 139, 142, 384, 385, & 476. 1959.

VITEX LONGIPETIOLATA Gürke

Additional bibliography: Prain, Ind. Kew. Suppl. 3: 189. 1908; Moldenke, Phytologia 8: 43. 1961.

Material of this taxon has been misidentified and distributed in herbaria as V. rivularis Gürke. On the other hand, the Monteiro & Murta 209 and Murta 39, distributed as V. longipetiolata, are actually V. vermoeseni DeWild.

Additional citations: CAMEROONS: Zenker s.n. [Bipindi] (Mi).

VITEX LONGISEPALA King & Gamble

Additional bibliography: Prain, Ind. Kew. Suppl. 4, pr. 1, 248. 1913; Fletcher, Kew Bull. Misc. Inf. 1938: 432 & 436. 1938; Prain,

Ind. Kew. Suppl. 4, pr. 2, 248. 1958; Anon., Kew Bull. Gen. Index 1929-1956, 293. 1959; Moldenke, Phytologia 8: 63-64. 1961; Moldenke, Dansk Bot. Arkiv 23: 92. 1963.

Recent collectors have found this species growing between 200 and 400 meters altitude in Thailand. Material has been misidentified and distributed in herbaria as V. pinnata L.

Additional citations: THAILAND: Gram & Syrach-Larsen 110 (Cp).

VITEX LUCENS T. Kirk

Additional synonymy: Ephialis pentaphylla Banks & Soland. ex A. Cunn., Ann. Nat. Hist., ser. 1, 1: 461, in syn. 1838. Vitex luscens T. Kirk ex Moldenke, Résumé Suppl. 3: 42, in syn. 1962.

Additional & emended bibliography: A. Cunn., Ann. Nat. Hist., ser. 1, 1: 461. 1838; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 1: 844 (1893) and 2: 1214. 1895; Perkin, Journ. Chem. Soc. 73: 1019. 1898; A. W. Hill, Ind. Kew. Suppl. 9: 297. 1938; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 1: 844 (1946) and 2: 1214. 1946; Neal, In Gard. Hawaii, ed. 1, 643. 1948; Karrer, Konstit. & Vork. Organ. Pflanzenst. 590. 1958; Briggs & Cambie, Tetrahedron 3: 269. 1958; Mattoon, Pl. Buyers Guide, ed. 6, 294. 1958; Seikel & Bushnell, Journ. Organ. Chem. 24: 1995. 1959; Cambie, N. Zeal. Journ. Sci. Technol. 2: 230. 1959; Seikel, Holder, & Birzgalis, Arch. Biochem. Biophys. 85: 272. 1959; Maun, Philip. Journ. Forest. 16: 108. 1960; R. E. Harrison, Handb. Trees & Shrubs, rev. ed., 330. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 1: 844 (1960) and 2: 1214. 1960; Moldenke, Phytologia 8: 64. 1961; Seikel in Runeckles, Proc. Sympos. Pl. Phenol. Group 31. 1963; S. A. Br., Science 142: 1198. 1963; E. E. Lord, Shrubs & Trees Austr. Gard., rev. ed., 97. 1964; Menninger, Seaside Pl. 186 & 188, pl. 287. 1964; Seikel & Mabry, Tetrahedron Lett. 16: 1105-1109. 1965; Hänsel, Leuckert, Rimpler, & Schaaf, Phytochem. 4: 19, 21, & 27. 1965; Neal, In Gard. Hawaii, new rev. ed., 729. 1965; Sampson & McLean, N. Zeal. Journ. Bot. 3: 104-112. 1965; H. Wagner in Swain, Compar. Phytochem. 310. 1966; T. Swain, Compar. Phytochem. 348. 1966; Seikel & Mabry, Biol. Abstr. 47: 3343. 1966; Sampson & McLean, Biol. Abstr. 47: 756. 1966; Anon., Biol. Abstr. 47 (8): S.146 (1966) and 47 (22): S.163. 1966; Moldenke, Résumé Suppl. 15: 15. 1967.

Additional illustrations: Menninger, Seaside Pl. 186, pl. 287. 1964.

Menninger (1964) describes this plant as a fast-growing evergreen tree, to 30 feet tall, with very dark-green glossy leaves. In spring it bears quantities of large red berries [actually they are drupes] that attract birds. Lord (1964) tells us that its figured and durable timber is highly valued in Australia". The Browns maintain that it is the "most valuable hardwood tree in the colony". Mattoon (1958) lists only one horticultural source for it. Sampson & McLean (1965) report that pits of a non-pathological nature are found on the under surface of the leaflets. Harrison (1960) describes some old trees of this species as 75 feet tall, with a trunk girth of 18 feet at breast height, estimated

to be 2000 years of age!

Brown (1963) says "Vitex lucens, the classical source of vitexin, has been shown by Seikel to contain additional glycoflavonoids, among which luteolin derivatives possibly containing two side chains are of greatest interest." Seikel & Mabry (1965) report the presence of the pigment, lucenin-1, a new type of glycoflavonoid, in this species.

Additional citations: NEW ZEALAND: North Island: Brown & Brown 166 (Bi), 311 (Bi); Herb. Coll. Hawaii s.n. [Wahauparei, June 29, 1912] (Bi); MacDaniels 1176 (Bi); Meebold 4972 (Bi, Bi). CULTIVATED: Hawaiian Islands: G. C. Munro s.n. [Jan. 13, 1940] (Bi). New Zealand: C. Morison s.n. [Nov. 1931] (Bi, Bi).

VITEX LUNDENSIS Gürke

Additional bibliography: Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457 (1906) and pr. 2, 457. 1941; Moldenke, Phytologia 5: 448. 1956; Moldenke, Résumé 142 & 476. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 457. 1959.

VITEX LUTEA Exell in Exell, Good, & Taylor, Journ. Bot. 69, Suppl. 2: 145. 1931.

Bibliography: Exell, Good, & Taylor, Journ. Bot. 69, Suppl. 2: 145. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 297. 1938; Moldenke, Résumé Suppl. 15: 7. 1967; Moldenke, Phytologia 15: 245. 1967.

Shrub or small tree, about 4 m. tall, branched toward the top, fulvous-tomentose on the young parts; stems several from the same rootstock; branchlets fulvous-pilose; leaves decussate-opposite, 3--5-foliolate, long-petiolate; petioles to 6 cm. long, fulvous-pilose or -pilosulous; leaflets more shortly petiolulate, the blades obovate or narrowly obovate, about 7 cm. long and 4 cm. wide, the lateral ones smaller, rounded at the apex, entire, rounded or cuneate at the base, shiny on both surfaces, sparsely puberulent especially along the venation; secondaries 7 or 8 per side, rather inconspicuous above, prominulous beneath; inflorescence to 17 cm. long; flowers small, short-pedicellate, borne in long-pedunculate many-flowered cymes; peduncles 2--3 times as long as the petioles; bractlets linear, fulvous-pilose; calyx campanulate, 1.2 mm. long to the ends of the teeth, sericeous-tomentose with fulvous hairs, the teeth deltoid; corolla lurid-yellow, with a violet lip, bilabiate, 2.5 mm. long, twice as long as the calyx, pubescent, the upper lip 1.6 mm. long or almost twice as long as the tube; stamens 4, 1.5 mm. long, subequal; ovary subglobose, 1 mm. in diameter, glabrous; style eventually 2.2 mm. long, bifid at the apex.

The type of this species was collected by John Gossweiler (no. 7250) in clearings in the forest at Buco Zau, Portuguese Congo, flowering in August. Exell (1931) says "The very small flowers are reminiscent of V. rivularis Gürke, but the shape of the leaflets is quite different. There is also a certain resemblance to some forms of the widespread V. madiensis Oliv., but the new spe-

cies can be distinguished by the reddish-brown indumentum." The earlier homonym, V. lutea A. Chev. (1920), is a synonym of V. grandifolia Gürke and was published without a description so does not preclude the use of the epithet "lutea" for the present taxon.

I know nothing of this plant except what is given in the literature.

VITEX LUTEOGLANDULOSA H. J. Lam

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; Moldenke, Phytologia 8: 44. 1961.

VITEX LUZONICA H. J. Lam

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 7: 252. 1929; Moldenke, Phytologia 5: 449—450. 1956; Moldenke, Résumé 185 & 477. 1959.

VITEX MACROFOLIOLA Moldenke

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; Moldenke, Phytologia 5: 450. 1956; Moldenke, Résumé 202, 386, & 477. 1959; G. Taylor, Ind. Kew. Suppl. 13: 144. 1966.

VITEX MADAGASCARIENSIS Moldenke

Bibliography: Moldenke, Phytologia 3: 441—442 (1951) and 5: 450—451. 1956; Moldenke in Humbert, Fl. Madag. 174: 76, 125, 127—128, & 272, fig. 19 (7—9). 1956; Moldenke, Résumé 157 & 477. 1959; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 125, fig. 19 (7—9). 1956.

VITEX MADIENSIS Oliv.

Additional synonymy: Vitex pobeguini Aubrév., Fl. Forest. Soudano-Guin. 502. 1950. Vitex nadiensis Oliv. ex Expirito Santo, Junt. Invest. Ultramar Est. Ens. & Docum. 104: 31, sphalm. 1963.

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1214. 1895; Gürke in Engl., Pfl. Ost-Afr. C:339. 1895; K. Schum. in Just, Bot. Jahresber. 28 (1): 497. 1902; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457. 1906; Volkens, Notizbl. Bot. Gart. Berl. 5, App. 22 (2): 34. 1909; Stapf, Ind. Lond. 6: 479. 1931; Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 276. 1937; Dalz., Useful Pl. W. Trop. Afr. 456. 1937; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 457. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1214. 1946; Aubrév., Fl. Forest. Soudano-Guin. 502, 504, 506, & 507, pl. 115, fig. 1—3. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 265. 1953; Moldenke, Phytologia 6: 80. 1957; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 457. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1214. 1960; Moldenke, Phytologia 8: 44. 1961; Cuf., Bull. Jard. Bot. Brux. 32: Suppl. 797. 1962; Huber in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 445 & 447. 1963; Espirito Santo, Junt. Invest. Ultramar Est. Ens. & Docum. 104: 27, 31, & 118. 1963; Moldenke, Résumé Suppl. 11: 8 (1964), 12: 7 (1965), and 15: 5, 6, & 25. 1967; Mol-

denke, Phytologia 15: 105 & 256. 1967.

Additional illustrations: Aubrév., Fl. Forest. Soudano-Guin. pl. 115, fig. 1-3. 1950.

Huber (1963) erroneously cites the original publication of V. madiensis to "Oliv. in Trans. Linn. Soc. 29: 35, t. 131 (1890)". He says that A. Chevalier 12467, cited by Chevalier, is actually Harrisonia abyssinica Oliv. He reduces V. barbata Oliv. to synonymy under V. madiensis, but with this disposition I do not agree.

Espirito Santo (1963) records the vernacular names "bômè" and "cetona" both for this species and for V. doniana Sweet, while Martins records "tshilongo-longo-tshamo-tshana". Recent collectors describe the plant as a bush, 10 feet tall, growing in savannas at 750 meters altitude, flowering in March, April, and September, and fruiting from May to July.

Huber (1963) describes the plant as a "Shrub or small tree with the young parts densely pubescent; flowers pilose, yellowish and blue-purple in long-peduncled cymes; in savanna." He cites: SENEGAL: Berhaut 106, Heudelot 30, Perottet 658. GAMBIA: Dalziel 8061, Frith 77, Ingram s.n. MALI: A. Chevalier 510 bis, 511, Vuillet 618. PORTUGUESE GUINEA: Espirito Santo 1142, 2484, 3030. GUINEA: A. Chevalier 496, Maclaud 64, Pobéguin 2007. SIERRA LEONE: Deighton 5430, Scott Elliot 4881 & 5189, Thomas 152 & 160. IVORY COAST: Herb. Serv. For. 428 bis. GHANA: Kitson 689 & 835, Vigne FH.3786. NIGERIA: Northern: Lely 14. He notes that the species is also found "in savanna areas of Camerouns, Gabon, Ubangi-chari, Sudan, Uganda, Congo, Northern Rhodesia, Mozambique, & Angola."

Material has been misidentified and distributed in herbaria as V. cienkovskii Kotschy & Peyr. On the other hand, the Torre 6264, distributed as V. madiensis, is actually var. milanjiensis (Britten) Pieper.

Additional citations: CONGO LEOPOLDVILLE: Bequaert 21 (W--1659334). ANGOLA: Lunda: Gossweiler 13623 (W--2074112), 13624 (Ul). Province undetermined: V. Martins s.n. [Sombo, VEG.105] (Ul).

VITEX MADIENSIS var. ANGUSTIFOLIA Pieper

Additional bibliography: Moldenke, Phytologia 5: 455. 1956; Moldenke, Résumé 134 & 477. 1959.

VITEX MADIENSIS var. AROMATICA Pieper

Additional bibliography: Moldenke, Phytologia 5: 455. 1956; Moldenke, Résumé 137, 143, 389, & 477. 1959.

VITEX MADIENSIS var. BAUMII Pieper

Additional bibliography: Moldenke, Phytologia 5: 455--456. 1956; Moldenke, Résumé 142, 147, 381, & 477. 1959; Moldenke, Résumé Suppl. 12: 7. 1965.

Recent collectors describe this plant as a small tree or shrub,

4-5 m. tall, or rhizomatous, few-stemmed, and to 60 cm. tall, flowering in February and March, fruiting in March, and called "tshilongu-lomgu".

Additional citations: ANGOLA: Bie-Cuando-Cubango: E. J. Mendes 2632 (Ul). Cuanza-Sul: Barbosa 8810 (Ul). Lunda: Luna de Carvalho s.n. [ANG. VI.54-87] (Ul).

VITEX MADIENSIS var. DARBANDENSIS A. Chev.

Additional bibliography: Moldenke, *Phytologia* 5: 456. 1956; Moldenke, *Résumé* 140 & 477. 1959.

VITEX MADIENSIS var. GLABERRIMA Moldenke

Bibliography: Moldenke, *Phytologia* 4: 63 (1952) and 5: 456. 1956; Moldenke, *Résumé* 142 & 477. 1959.

VITEX MADIENSIS var. GOSSWEILERI Pieper

Additional bibliography: Moldenke, *Phytologia* 5: 456-457. 1956; Moldenke, *Résumé* 146-148, 150, & 477. 1959.

VITEX MADIENSIS var. MILANJIENSIS (Britten) Pieper

Additional synonymy: Vitex madiensis ssp. milanjiensis (Britten) White, *Forest Fl. North. Rhodesia* 455. 1962.

Additional bibliography: Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 457. 1906; Prain, *Ind. Kew. Suppl.* 5, pr. 1, 273. 1921; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 2, 457. 1941; J. Hutchinson, *Botanist in South. Afr.* 501. 1946; Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 3, 457. 1959; Prain, *Ind. Kew. Suppl.* 5, pr. 2, 273. 1960; Moldenke, *Phytologia* 8: 44-45. 1961; White, *Forest Fl. North. Rhodesia* 455. 1962; Anon., *Assoc. Etude Taxon. Fl. Afr. Trop. Index* 1962: 63. 1963; Moldenke, *Résumé Suppl.* 12: 7. 1965; Moldenke, *Phytologia* 15: 258. 1967.

Recent collectors describe this plant as a subshrub, 50-80 cm. tall, a shrub 2-3 m. tall, or a small tree about 10 feet tall, many-stemmed, erect, with an irregular crown and arching stems with longitudinally fissured gray bark, the young stems greenish-purple; twigs sulcate, red-purple when young, gray- or brown-barked when older; leaflets bright-green and glossy above or pale-green, conspicuously bullate with impressed midrib and lateral veins, paler beneath with very prominent lateral veins and a whitish midrib, rigid, with undulate margins, peduncles and petioles dull-purple or purplish-brown; inflorescence axes dull-purple; calyx deep purplish-violet or deep violet-purple. On Brenan & Greenway 8059 the corollas are described as "white outside with violet tinge, inside lower lip lilac-violet, yellow at base, upper lip white; anthers blackish-violet; pollen white", while on their 8154 they are described as "lower lip of corolla violet with cream area at base, margins reflexed; lateral lobes white with faint violet tinge, upper lobes white; filaments white; anthers blackish-violet; style white; stigmas pale-green". Angolan collectors say "folhas de um verde claro. Frutos pequenos redondos.. Planta que surge aqui e ali am terrenos vermelhos da mata" and

"folhas verde ne parte superior, no verso amarelado. Flores creme amarelado roxo."

The variety has been found growing on the slopes of fixed sandhills with Hymenocardia, Vitex doniana, Hirtella bangweolensis, and Diospyros batocana, but not common, and in Brachystegia floribunda - Isoberlinia woodland with Triumfetta palmatiloba, Terminalia, Heeria, etc., at 1750 meters altitude, flowering in October. Hutchinson (1946) cites his no. 3704.

Material has been misidentified and distributed in herbaria as the typical form of V. madiensis Oliv.

Additional citations: ANGOLA: Huambo: Teixeira & Andrade 6656 (Ul); Teixeira & Sousa 6649 (Ul). Huila: Antunes or Dekindt 364 (Ul), s.n. [Mutyikavakai] (Ul); Gossweiler 13444 (Ul). NORTHERN RHODESIA: Brenan & Greenway 8059 (B), 8154 (B). PORTUGUESE EAST AFRICA: Manica e Sofala: Torre 6264 (Ul).

VITEX MADIENSIS var. NIVEA A. Chev.

Additional bibliography: Moldenke, *Phytologia* 5: 458. 1956; Moldenke, *Résumé* 140 & 477. 1959.

VITEX MADIENSIS var. SCHWEINFURTHII (Gürke) Pieper

Additional bibliography: K. Schum. in Just, Bot. Jahresber. 28 (1): 497. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457 (1906) and pr. 2, 457. 1941; Moldenke, *Phytologia* 5: 458-459. 1956; Moldenke, *Résumé* 134, 139, 142, 389, & 477. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 457. 1959.

VITEX MARANHANA Moldenke

Additional bibliography: Hill & Salisb., Ind. Kew. Suppl. 10: 244. 1947; Moldenke, *Phytologia* 5: 459-460. 1956; Moldenke, *Résumé* 111 & 477. 1959.

VITEX MARQUESII Pieper

Additional & emended bibliography: A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, *Phytologia* 5: 460. 1956; Moldenke, *Résumé* 148 & 477. 1959.

VITEX MARTII Moldenke

Additional bibliography: E. J. Salisb., Ind. Kew. Suppl. 11: 265. 1953; Moldenke, *Phytologia* 5: 460-461. 1956; Moldenke, *Résumé* 111 & 477. 1959.

VITEX MASONIANA Pittier

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; Stapf, Ind. Lond. 6: 479. 1931; Moldenke, *Phytologia* 8: 45. 1961.

VITEX MEDUSAECALYX H. J. Lam

Additional bibliography: A. W. Hill, Ind. Kew. Suppl. 7: 252.

1929; Moldenke, *Phytologia* 5: 463. 1956; Moldenke, *Résumé* 188 & 477. 1959.

VITEX MEGAPOTAMICA (Spreng.) Moldenke

Additional synonymy: Vitex multinervis Schau. apud Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 2: 1214. 1895. Vitex megapotamica (Spreng.) Moldenke ex Angely, *Bibl. Veg. Paran.* 196. 1964. Vitex montevidensis (Spreng.) Moldenke, *Résumé Suppl.* 15: 25, sphalm. 1967.

Additional & amended bibliography: Ettingsh., *Blatt-Skel. Di-* kot. 79, pl. 30, fig. 10. 1861; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 1: 297 & 304 (1893) and 2: 642 & 1214. 1895; A. W. Hill, *Ind. Kew. Suppl.* 6: 219. 1926; Herter, *Florul. Urug.* 106. 1930; Stapf, *Ind. Lond.* 6: 479. 1931; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 2, 1: 297 & 304 (1946) and 2: 642 & 1214. 1946; Hill & Salisb., *Ind. Kew. Suppl.* 10: 244. 1947; Reitz, *Sellowia* 6: 249 & 257. 1954; Hocking, *Dict. Terms Pharmacog.* 243. 1955; Rambo, *Sellowia* 7: 207. 1956; Angely, *Fl. Paran.* 7: 13. 1957; Moldenke, *Phytologia* 6: 14 & 84. 1957; G. Taylor, *Ind. Kew. Suppl.* 12: 151. 1959; Reitz, *Sellowia* 11: 75 & 135. 1959; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 1: 297 & 304 (1960) and 2: 642 & 1214. 1960; Reitz, *Sellowia* 13: 110. 1961; Moldenke, *Phytologia* 8: 45. 1961; Rambo, *Pesqueias* 5, *Bot.* 12: 21. 1961; Lombardo, *Arbust. & Arbustil. Pas. Publ.* 43, 242, 260, & 311. 1961; Klein, *Pesqueias* 5, *Bot.* 14: 30. 1961; Klein, *Sellowia* 15: 45, 47, 50, & 51. 1963; Reitz & Klein, *Sellowia* 16: 41. 1964; Angely, *Bibl. Veg. Paran.* 196. 1964; Hänsel, Leuckert, Rimpler, & Schaaf, *Phytochem.* 4: 19-23, 26, & 27. 1965; Hänsel, Leuchert, Rimpler, & Schaaf, *Biol. Abstr.* 46: 7723. 1965; Cristiani, *Notas Divulg. Inst. Municip. Bot. Buenos Aires* 3: 104, 106, & 108. 1965; Rambo, *Pesquis. Bot.* 21: 56-57 & [60]. 1965; Moldenke, *Phytologia* 15: 78. 1967; Moldenke, *Résumé Suppl.* 15: 25. 1967.

Reitz & Klein (1964) describe this plant as follows: "Fóllhas opostas, digitadas, com 5 foliólos, 12 x 5-6 cm. Pseudo-umbelas com flôres azuladas ou brancas de corola irregular. Fruto drupa roxo-negra, esférica, 1 cm de diâm. Madeira para construção civil, obras hidráulicas e expostas, dormentes, esteios e moirões. Frutos mucilaginosos, comestíveis e medicinais, fornecem também óleo medicinal e servem também para pesca." Hocking (1955) says "lvs. with volat. oil with pinene, cineol, camphene; used as diur.; seed kernel with intox. alk.; taruma bark used medicinally".

Additional vernacular names recorded for this species are "cinco folhas" and "tarumán sin espinhas", as well as "horse chestnut" [a name normally applied to Aesculus hippocastanum in the Northern Hemisphere]. Hänsel, Leuchert, Rimpler, & Schaaf (1965) report that the chemical composition of V. megapotamica is "strikingly" different from that of four other species examined chemically by them. A letter to me from Dr. Hänsel, dated November 26, 1963, says: "Wir untersuchen seit mehreren Jahren Inhaltsbestandteile von Vitex Arten. Von phytochemischen Standpunkt aus gesehen fällt nun im Vergleich zu anderen europäischen Vitex Arten

die Spezies Vitex megapotamica Moldenke sehr aus dem Rahmen: Vitex megapotamica enthält praktisch keine ätherischen Öle und sie enthält keine lipophilen Flavonoide vom Typus des Casticins und sie enthält keine Pseudoindikane von Typus des Agnosids. Wir haben hingegen aus Vitex megapotamica Moldenke einigartige Tri-terpene isoliert."

Recent collectors describe this plant as a slender tree about 20 feet tall, the leaves sweet-scented, the fruit the color and size of a cherry, growing in forests and at forest margins, at altitudes of 70--600 m., flowering in November and December, and fruiting in March. The corollas on MacIntyre s.n. are described as "lavender and white".

The type specimen of V. montevidensis var. multinervis Cham., Sellow s.n., deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17563, but is now destroyed; two cotypes of V. montevidensis Cham., Sellow 2355 & s.n., in the same herbarium, were photographed by him as his type photograph number 17561 and are now also destroyed.

Rosengurtt (1946) reduces Vitex montevidensis Spreng. to Lantana montevidensis (Spreng.) Briq., but this is entirely incorrect. The Lantana binomial is based on Lippia montevidensis Spreng. and has nothing to do with the Vitex montevidensis of Chamisso.

Rambo (1965) cites the following of his collections in the Herb. Anchieta: 448, 4813, 7839 [Theissen s.n.], 7842 [Theissen s.n.], 9214, 9216, 9572, 9965, 11263 [Puck s.n.], 11899 [Ernich s.n.], 25044 [Reckziegel s.n.], 25291 [Theissen s.n.], 25506 [Reitz s.n.], 27080, 27585 [Henz s.n.], 29358, 32667 [Henz s.n.], 32698 [Henz s.n.], 32908 [Friderichs s.n.], 34335 [Ernich s.n.], 34497 [Hatschbach 559], 35421 [Henz s.n.], 36965, 37993, 39236, 39819, 44520, 44611, 48069 [Sehnen 3516], 48629 [Sehnen 1441], 49156, 49270, 51795, 53149, 53210, 56210, 57379 [Camargo 49], 59126 [Pivetta 976], 60646 [Camargo 1415], 60739 [Freddiani s.n.], 61526 [Camargo 2622], 61542 [Camargo 2615], 61591 [Camargo 2697], 61731 [Camargo 2544], 62665 [Camargo 2372], 62853 [Camargo 3065], and 64048 [Sacco 440] from Rio Grande do Sul, and 55321 [Reitz 4699], 55671 [Reitz 5939], 58418 [Reitz 4610], and 58439 [Reitz 4653] from Santa Catarina, Brazil. He describes the plant as "a middle to tall tree, up to 20 m high; sometimes a pigmy treelet on rocky outcrops or in the shifting sanddunes near the sea coast", found in "Dry woodlets, Campos copses, rain forest..... Throughout the whole of the forested area" in Rio Grande do Sul, with a general distribution "From Nibas Gerais to Paraguay, Missions, RGS and Uruguay".

Additional citations: BRAZIL: Minas Gerais: Regnell I.38 (W--1706587). Paraná: E. A. Moreira 42 (W--2369335); Reiss 115 (Mi). Rio Grande do Sul: Herb. Inst. Pharmakog. s.n. (Fg); Rambo 37965

(W—2046855), 44611 (W—2026923), 49156 (Du—376540), 49270 (W—2055020), 51795 (W—2102205); Sehnen 3516 (B); Sellow 2355 [Macbride photos 17561, in part] (W—photo), s.n. [Brasilia; Macbride photos 17563] (W—photo), s.n. [Brasil. merid.; Macbride photos 17561, in part] (W—photo). Santa Catarina: Eq. Ecologia 106 (W—2027710), 151 (W—2027758); Reitz & Klein 7613 [Herb. Barb. Rodr. 22680] (N); Smith & Klein 13185 (Ac), 13222 (Ac), 14164 (Ac). PARAGUAY: Hassler 11117 (M); Pedersen 5222 (W—2432772). URUGUAY: Herter 1392 [Herb. Herter 88856] (W—1934709), 1392b [Herb. Herter 94042] (W—1934738); MacIntyre s.n. [Cunapiru Valley] (W—2369976).

VITEX MEGAPOTAMICA f. ALBIFLORA Moldenke

Bibliography: Moldenke, Biol. Abstr. 27: 2026. 1953; Moldenke, Phytologia 4: 183 (1953) and 5: 471. 1957; Moldenke, Résumé 111 & 477. 1959.

Klein describes this plant as a tree, 10 m. tall, growing at 30 m. altitude.

Additional citations: CULTIVATED: Brazil: Klein 2707 (W—2402932).

VITEX MEXIAE Moldenke

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1213 (1895) and pr. 2, 2: 1213. 1946; A. W. Hill, Ind. Kew. Suppl. 10: 244. 1947; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1213. 1960; Moldenke, Phytologia 8: 46. 1961.

VITEX MICRAMTHA Gürke

Additional bibliography: Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457. 1906; A. W. Hill, Ind. Kew. Suppl. 6: 219. 1926; F. R. Irvine, Fl. Gold Coast 438. 1930; Cooper & Record, Yale Univ. Sch. Forest. Bull. 31: 117—118 & 153. 1931; Dalz., Useful Pl. W. Trop. Afr. 458. 1937; A. W. Hill, Ind. Kew. Suppl. 9: 297. 1938; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 457 (1941) and pr. 3, 457. 1959; Moldenke, Phytologia 8: 46. 1961; Huber in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 445 & 446. 1963; Kunkel, Willdenovia 3: 652. 1964.

Irvine (1930) describes this as a tree to 30 feet tall. Dalziel (1937) says "The wood is whitish or light yellow-brown, the sapwood and heart not differentiated, fairly light and of medium texture, taking a good polish. It furnishes a useful timber, used locally for light construction work, but liable to insect attack and decay. In Sierra Leone Koran boards are made of it. In Liberia the stem is hollowed out to make drums. Snakes are said to frequent the tree and to eat the fruit, accounting for the Liberian name ['sah-sah'], which means also a person with an evil reputation and maker of trouble (Cooper in Herb. Kew.). The leaves are applied to cure craw-craw." It has been collected in anthesis from February to May, and in fruit in February, April, June to August, and December. The vernacular name, "fevei", recorded for

this species, is applied also to V. oxycuspis J. G. Baker.

Huber (1963) describes this species as a "Forest tree, 15—80 ft. high, with fairly small, mostly 5-foliolate leaves and small white flowers, in poor, long-pedunculate cymes." He cites the following collections: GUINEA: Jacques-Félix 845. SIERRA LEONE: Aylmer 46, Deighton 658 & 3010, Mann 860 bis. LIBERIA: Baldwin 6114 & 10531, Barker 1230, G. P. Cooper 70, Linder 279. IVORY COAST: Aubréville 54, 907, & 1171; A. Chevalier 15409, 16229, & 17808; Schnell 6082. GHANA: Cummins 74, Irvine 2128, Kinloch FH. 3234, Kitson 1001, Vigne FH.2798.

VITEX MICROPHYLLA Moldenke

Bibliography: Moldenke, *Phytologia* 3: 442—443. 1951; Moldenke in Humbert, Fl. Madag. 174: 72, 90—92, & 273, fig. 12 (5 & 6). 1956; G. Taylor, Ind. Kew. Suppl. 12: 151. 1959; Moldenke, Résumé 157 & 477. 1959.

Illustrations: Moldenke in Humbert, Fl. Madag. 174: 91, fig. 12 (5 & 6). 1956.

VITEX MILNEI Pieper

Additional bibliography: K. Schum. in Just, Bot. Jahresber. 28 (1): 497. 1902; A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 1, 2: 276. 1937; Moldenke, Phytologia 5: 475. 1957; Moldenke, Résumé 138, 140, 382, 383, & 477. 1959; Huber in Hutchinson & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 448. 1963.

Huber (1963) includes in the synonymy of this species "V. cienkowskii of F. W. T. A., ed. 1, 2: 276, partly (syn. & Milne)."
He comments that "Further material is required in order to decide the status of this plant. It differs from V. doniana in having a smaller calyx (2 mm. long) and a laxer inflorescence, and when better known it may prove to be recognisable as a distinct infraspecific taxon of that species." He claims that the Isert collection, cited by Pieper, is also from Togoland.

VITEX MOLLIS H.B.K.

Additional & emended synonymy: Vitex lasiophylla Benth., Bot. Voy. Sulphur 155. 1846. Vitex mollis Hook. & Arn. ex Benth., Bot. Voy. Sulphur 155, in syn. 1846. Vitex mollis Humb. & Kunth ex Benth., Bot. Voy. Sulphur 155. 1846.

Additional & emended bibliography: Benth., Bot. Voy. Sulphur 155. 1846; Bocq., Adansonia 3: [Rev. Verbenac.] 253. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1214. 1895; J. Ramirez, An. Inst. Méd. Nac. Méx. 2: 35—36. 1896; J. N. Rose, Contrib. U. S. Nat. Herb. 5: 223. 1899; Loes., Verh. Bot. Ver. Brand. 53: 81 [Abhandl. 246]. 1912; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1235 & 1236. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 56 & 252. 1929; Stapf, Ind. Lond. 6: 479. 1931; H. B. Davis, Life & Works Pringle 174. 1936; Moreno Bello, Med. Homeop. Mex. 1 (3): 14—25. 1944; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1214. 1946; Mol-

denke, *Phytologia* 6: 81. 1957; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 3, 2: 1214. 1960; Moldenke, *Phytologia* 8: 46—47. 1961; Shelford, *Ecol. N. Am.* 448 & 607. 1963; Langman, *Select. Guide Lit. Flow. Pl. Mex.* 524, 607, & 1010. 1964; C. M. Rowell, *Sida* 1: 268. 1964; Moldenke in Shreve & Wiggins, *Veg. & Fl. Son. Des.* 2: 1261. 1964; Neal, in *Gard. Hawaii*, new rev. ed., 729 & 730. 1965.

In Shreve & Wiggins (1964) it is stated that this species grows "On dry or partly wooded hillsides, stream banks, in valleys and arroyos, along roadsides, and in the short-tree forest and lower margin of the oak forest, Sonoran to Tropical Zones, from central Baja California, Sonora, and Chihuahua to Oaxaca", Mexico. Gentry & Gilly found it "in oak forest on steep slopes of deeply dissected hills" in Sinaloa, and describe it as a tree, 4 m. tall, with a spreading crown, and trunk diameter of 15 cm. at breast height. Other collectors have found it in sandy alluvial soil at streamsides and among tall grass, trees, and shrubs in rocky loam soil in Guerrero; in woods and at streamsides in Nayarit; and in high dense forests dominated by Brosimum in Jalisco. Stange says that it is a "common tree in dry washes" in Jalisco.

Recent collectors describe the species as a shrub, 3 m. tall, or a slender tree, 6--10 m. tall, with a trunk diameter to 45 cm. at breast height, growing at the sides of arroyos, in Ipomoea matorral, or in the deciduous forest on ridges, subdeciduous in ravines, along with Trichilia, Hura, Jacaratia, Bursera simaruba, Tabebuia, and Brosimum. McVaugh refers to it as "occasional in disturbed woodland" in Michoacán and "occasional in tropical subdeciduous forest" in Nayarit. The corollas are described as "purple" on Rzedowski 16695, "violet, edged paler" on McVaugh & Koelz 1526, "light purplish-blue" on R. McVaugh 23573, and "zygomorphic, lavender, lower lip marked purple, ridged in the throat" on R. McVaugh 22621. A note on Hinton 3384 says "flower white, previous collection had flower blue", so this may be representative of an as yet unnamed albino form of the species. This same collector notes that a "concoction" is "used for stomach ache".

Additional vernacular names are "coyotomate prieto", "gualamo", and "igualama". An isotype of V. hawaiiensis H. J. Lam is deposited in the herbarium of the Bishop Museum at Honolulu. The Bentham (1846) reference given in the bibliography of V. mollis is often dated "1844", but the page in question was not issued until the year 1846.

Material has been misidentified and distributed in herbaria as "Virex" pyramidata Robins. and as Sophora sp. On the other hand, the Cox & Guzmán MCC.631 and J. Rzedowski 15267, distributed as V. mollis, are actually V. pyramidata B. L. Robinson.

Additional citations: MEXICO: Chihuahua: Knobloch 527 (Mi), 901 (Id). Colima: A. R. Moldenke 1711 (Rf). Guerrero: Hinton 9970 (Rf), 9971 (Rf); Irby & Rowell 3515 (Mi); Rowell 3743 (Mi). Jalisco: Diquet s.n. (Mi); McVaugh & Koelz 1526 (Mi); Puga 22 (Mi); J. Rzedowski 15514 (Ip); Stange s.n. [23 March 1962] (Mi). México:

Hinton 3384 (Rf). Michoacán: R. McVaugh 22621 (Mi); J. Rzedowski 16695 (Ip, Mi, Ws). Nayarit: Feddema 1381 (Mi); R. McVaugh 23573 (Mi); A. R. Moldenke 1631 (Ac); Paray 2702 (Ip); J. Rzedowski 14280 (Ip). Oaxaca: E. J. Alexander 1033 (N, N); R. M. King 1259 (N). Puebla: Smith, Peterson, & Tejeda 3695 (N, W—2397739); S. S. White 5069 (Ip, Mi). Sinaloa: Gentry & Gilly 10642 (Rf); Herb. Inst. Politec. Nac. s.n. [San Ignacio, Junio 1945] (Ip). Sonora: Arguelles s.n. [San Bernardo, 12 Agosto 1958] (Rf). State undetermined: "X. A. 7" (N, N, N). CULTIVATED: Hawaiian Islands: H. M. Curran 127 (Bi); J. F. C. Rock 2690 (Bi); Woolford s.n. [June 22, 1949] (Bi).

VITEX MOMBASSAE Vatke

Additional bibliography: Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 1, 2: 1214. 1895; K. Schum. in Just, Bot. Jahresber. 28 (1): 497. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 194. 1904; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 1, 457. 1906; Prain, Ind. Kew. Suppl. 5, pr. 1, 273. 1921; A. W. Hill, Ind. Kew. Suppl. 8: 249. 1933; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 2, 457. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 2, 2: 1214. 1946; J. Hutchinson, Botanist in South. Afr. 487. 1946; Durand & Jacks., Ind. Kew. Suppl. 1, pr. 3, 457. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., pr. 3, 2: 1214. 1960; Prain, Ind. Kew. Suppl. 5, pr. 2, 273. 1960; Moldenke, Phytologia 8: 47. 1961; H. P. Riley, Fam. Flow. Pl. S. Afr. 129. 1963; Moldenke, Résumé Suppl. 12: 7. 1965.

Recent collectors describe this plant as a shrub, many-branched from the base, 1--2.5 m. tall, or a small tree, to 6 m. tall, spindly; bark gray, smooth; calyx pale-yellow; filaments rose. The corolla is described as "blue" on Barbosa 2359 and on R. Santos 237, "blue-lilac" on Barbosa 9549, "violet" on Torre 1070, "rose" on Torre 4562, and "with a violet-purple lip" on Mendonça 896. It has been found growing in forests or open forests of Brachystegia, open forests of Brachystegia spp. and Julbernardia globiflora, forests of Baikiaea plurijuga, in sandy soil, and on hillsides overlooking lakes. Bullock refers to it as "common" in Tanganyika, while Barbosa says "pouco abundante no local" in Angola. It has been found in flower and fruit in February and December. An additional vernacular name reported for it is "mucuvu".

A note attached to Barbosa 2359 states that this collection matches Hildebrandt 1972 and Wigg 517 in the herbarium of the British Museum. Hutchinson (1946) cites his no. 3342.

Additional citations: TANGANYIKA: Bullock 2372 (B); L. Thomas s.n. [12.11.1949] (B). ANGOLA: Huila: Antunes or Dekindt 467 (UL), s.n. (UL); Barbosa 9549 (UL), 9714 (UL); Gossweiler 12667 (UL); C. Henriques 225 (UL); E. J. Mendes 1625 (UL), 1700 (UL); R. Santos 237 (UL); Torre 8641 (UL). Mossamedes: Gossweiler

13442 (U1). RHODESIA: Lovemore 147 [Govt. Herb. Salisbury 35169] (N); Mullins 119/51 [Govt. Herb. Salisbury 35024] (N). PORTUGUESE EAST AFRICA: Cabo Delgado: F. A. Mendonça 896 (U1, U1); Torre & Paiva 9710 (U1). Manica e Sofala: Andrada 1245 (U1); Garcia 456 (U1), 788 (U1). Mozambique: Barbosa 2359 (U1); M. F. Correira 119 (U1); Gomes e Sousa 44 (U1), 848 (U1); Torre 900 (U1), 985 (U1), 1070 (U1). Tete: Torre 4562 (U1, U1). Zambezia: Torre 4786 (U1).

VITEX MOMBASSAE var. ACUMINATA Pieper

Additional bibliography: Moldenke, *Phytologia* 5: 483--484. 1957; Moldenke, *Résumé* 146 & 477. 1959.

VITEX MOMBASSAE var. ERYTHROCARPA (Gürke) Pieper

Additional bibliography: A. W. Hill, *Ind. Kew. Suppl.* 8: 249. 1933; Moldenke, *Phytologia* 5: 484. 1957; Moldenke, *Résumé* 148, 383, & 477. 1959.

VITEX MOMBASSAE var. PARVIFLORA (Gibbs) Pieper

Additional bibliography: Moldenke, *Phytologia* 5: 484. 1957; Moldenke, *Résumé* 149, 383, 386, & 477. 1959.

VITEX MONROVIANA Pieper

This taxon proves to be conspecific with V. phaeotricha Mildbr.

VITEX MOSSAMBICENSIS Gürke

Additional bibliography: Durand & Jacks., *Ind. Kew. Suppl.* 1, pr. 1, 457 (1906), pr. 2, 457 (1941), and pr. 3, 457. 1959; Moldenke, *Phytologia* 8: 64. 1961.

VITEX MOSSAMBICENSIS var. OLIGANTHA (J. G. Baker) Pieper

Additional bibliography: K. Schum. in *Just, Bot. Jahresber.* 28 (1): 497. 1902; Thiselt.-Dyer, *Ind. Kew. Suppl.* 4: 194. 1904; Moldenke, *Phytologia* 8: 64. 1961.

VITEX NEGUNDO L.

Additional synonymy: Agnus-castus negundo Carr. ex Jacks. in Hook. f. & Jacks., *Ind. Kew.*, pr. 1, 1: 59, in syn. 1893. Vitex negundo L. ex B. Singh, *Bull. Nat. Bot. Gard.* 69: 57, sphalm. 1962. Vitex nigundo L. ex Moldenke, *Résumé Suppl.* 11: 8, in syn. 1964. Vitex trifolia Graham ex Chavan & Oza, *Mahar. Savaj. Univ. Baroda Bot. Mem.* 1: 187, in syn. 1966 [not V. trifolia Hemsl., 1949, nor L., 1753, nor L. f., 1923, nor Moon, 1895, nor Sessé & Moc., 1940, nor Vahl, 1946].

Additional & emended bibliography: L., *Fl. Zeyl.*, ed. 1, 194--195 [genus 444]. 1747; W. Jones, *Treat. Pl. Ind.* 5: 136. 1790; Bocq., *Adansonia* 3: [Rev. Verbenac.] 253. 1863; Carr., *Rev. Hort.* 42--43: 415--416. 1871; Beddome, *Forster's Man. Bot. S. Ind.* 171. 1873; Boiss., *Fl. Orient.* 4: 535. 1875; Murray, *Pl. & Drugs Sind* 175. 1881; E. T. Atkinson, *Him. Dist. Statist. Acct. NW. Prov.* 10: 315 & 753. 1882; Aitch., *Journ. Linn. Soc. Lond. Bot.* 19: 182.

1882; Campbell & Watt, *Descrip. Cat. Econom. Prod. Chutia Nagpur* No. 8498. 1886; H. O. Forbes, *Wand. Naturforsch. Malay. Arch.* 2: 226. 1886; Jacks. in *Hook. f. & Jacks., Ind. Kew.*, pr. 1, 1: 59. 1893; W. A. Talbot, *Syst. List Trees Shrubs Bomb.* 161 & 229. 1894; Jacks. in *Hook. f. & Jacks., Ind. Kew.*, pr. 1, 2: 1213 & 1214. 1895; Lorimer, [*Peshawar*] *Dist. Gazetteer* 27. 1897-1898; *Koord., Meded. Lands Plant-tuin Buitenz.* 19: 560. 1898; J. L. Stewart, *Punjab Pl.* 166-167. 1899; Beissner, *Schelle, & Zabel, Handb. Laubh.* 426. 1903; E. D. Merr., *Philip. Journ. Sci. Bot.* 1, *Suppl.* 1: 121. 1906; Borm., *Beih. Bot. Centralbl.* 22 (2): 118. 1907; C. K. Schneid., *Ill. Handb. Laubholz.* 594-595. 1911; J. Matsumura, *Ind. Pl. Jap.* 2 (2): 534. 1912; Dunn & Tutchet, *Kew Bull. Misc. Inf. Addit. Ser.* 10: 204. 1912; E. D. Merr., *Interpret. Rumph. Herb. Amboin.* 453, 524, & 594. 1917; Bose, *Man. Ind. Bot.* 131 & 252. 1920; F. Miranda, *Indiana For.* 48: 596. 1922; Haines, *Bot. Bihar & Orissa* 4: 711 & 712. 1922; H. J. Lam in *Bakh. & Lam., Nov. Guinea* 14, *Bot.* 1: 169. 1924; H. J. Lam in *Engl., Bot. Jahrb.* 59: 27-28. 1924; Gamble, *Fl. Madras* 6: 1101 & 1102. 1924; L. H. Bailey, *Man. Cult. Pl.*, ed. 1, pr. 1, 632 & 849 (1924) and pr. 2, 632 & 849. 1925; H. F. MacMillan, *Trop. Plant. & Gard.*, ed. 1, 380 & 592. 1925; Sasaki, *List Pl. Formos.* 353. 1928; Stapf, *Ind. Lond.* 6: 478 & 479. 1931; P'ei, *Sinensia* 2: 70-71. 1932; Svenson, *Brooklyn Bot. Gard. Record* 22: 7. 1933; Kanehira, *Fl. Micrones.* 457. 1933; Tu, *Chinese Bot. Dict.*, abrdg. ed., 462. 1933; *Hand.-Mazz.*, *Ann. Hort. Gothenb.* 9: [67]-68. 1934; H. F. MacMillan, *Trop. Plant. & Gard.*, ed. 4, 366 & 558. 1935; Ghose & Krishna, *Journ. Indian Chem. Soc.* 13: 634-640. 1936; Kanehira, *Form. Trees*, ed. 2, 652, fig. 607. 1936; Fletcher, *Kew Bull. Misc. Inf.* 1938: 431-433. 1938; L. H. Bailey, *Man. Cult. Pl.*, ed. 1, pr. 3, 632 & 849. 1938; Corner, *Gard. Bull. Str. Settl.* 10: 256-259. 1939; Itakawa & Yamasita, *Chem. Abstr.* 1942: 36 & 7241. 1942; H. F. MacMillan, *Trop. Plant. & Gard.*, ed. 5, pr. 1, 366 & 558. 1943; N. K. Basu, *Indian Journ. Pharm.* 6: 71-73. 1944; L. H. Bailey, *Man. Cult. Pl.*, ed. 1, pr. 4, 632 & 849. 1944; Jacks. in *Hook. f. & Jacks., Ind. Kew.*, pr. 2, 1: 59 (1946) and 2: 1213 & 1214. 1946; H. F. MacMillan, *Trop. Plant. & Gard.*, ed. 5, pr. 2, 366 & 558. 1948; L. H. Bailey, *Man. Cult. Pl.*, ed. 2, 843, 844, & 1114. 1949; W. J. Bean in *Chittenden, Roy. Hort. Soc. Dict. Gard.* 4: 2249 & 2250. 1951; *Dastur, Useful Pl. India* 221. 1952; Razi, *Poona Univ. Journ.* 1 (2): 47. 1952; *Dastur, Med. Pl. India* 347. 1952; V. S. Rao, *Journ. Indian. Bot. Soc.* 31: [297], 304-306, & 312-314, fig. 36-38. 1952; Moldenke in *Humbert, Fl. Madag.* 174: 71, 78-80, & 273, fig. 10 (3 & 4). 1956; Santapau, *Fl. Purandhar* 104 & 158. 1957; Moldenke, *Phytologia* 6: 14 & 21. 1957; Anon., *U. S. Dept. Agr. Bot. Subj. Index* 15: 14362. 1958; Karrer, *Konstit. & Vork. Organ. Pflanzenst.* 36, 356, & 358. 1958; Moldenke, *Biol. Abst.* 32: 1135. 1958; Anon., *Biol. Abstr.* 30: 4370. 1958; Anon., *Kew. Bull. Gen. Index* 1929-1956, 293. 1959; Sebastine, *Bull. Bot. Surv. India* 1: 95. 1959; Nayar, *Bull. Bot. Surv. India* 1: 124. 1959; Anon., *Bull. Bot. Surv. India* 2: 270-271. 1960; Kitamura, *Fl. Afghan.* 327. 1960; *Jath, Bot. Surv. Shan States* 304. 1960; Jacks. in *Hook. f. & Jacks., Ind. Kew.*, pr. 3, 1: 59 (1960) and 2: 1213 & 1214. 1960.