

var. lanceolata (Bisch.) Fern. & Schub., with the rays 3.5—5 cm. long.

f. pleniflora (Moldenke) Fern. & Schub. [R. hirta f. multiligula Clute], with the rays or ligules very numerous.

f. pulcherrima (Farwell) Fern. & Schub. [R. hirta var. bicolor Clute], with a red or brown spot at the base of each ligule, or else with red or brown for the lower half or two-thirds of each ray.

f. rubra (Clute) Fern. & Schub., with the rays entirely red or red-brown.

var. sericea (T. V. Moore) Fern. & Schub., with the pubescence appressed on both leaf-surfaces.

f. tubuliformis (Burnham) Fern. & Schub., with the rays all tubular.

f. viridiflora (Burnham) Fern. & Schub., with the rays partly or wholly green.

The so-called Rudbeckia hirta var. monticola (Small) Fern. is best regarded as a synonym of the true R. hirta L., while R. hirta var. brittonii (Small) Fern. is a valid variety of the latter species with the inner phyllaries oblong in shape.

MATERIALS TOWARD A MONOGRAPH OF THE GENUS VITEX. IV

Harold N. Moldenke

VITEX COLUMBIENSIS Pittier

Leaf-scars large and very corky; nodes annulate; principal internodes 1--2.4 cm. long or less, or even elongate to 5 cm. on young growth; leaves decussate-opposite, 4--6-foliolate; petioles medium-stout, 3.5--6.5 cm. long, convex beneath, decidedly flattened and subcanaliculate above, floccose-furfuraceous with short and cinereous or sordid hairs, somewhat ampliate at the base; leaflets very unequal in size, the 2 lateral ones usually much smaller, all short-petiolate with the petiolules densely furfuraceous-tomentellous and 1--7 mm. long, usually margined; leaflet-blades thin-chartaceous [coriaceous according to Castañeda], dark-green and shiny above, sordid-gray beneath, the central one oblong-elliptic or obovate, 8.5--20 cm. long, 4--7 cm. wide, varying from obtuse or even emarginate to acute or acutely short-acuminate at the apex, entire, acutely attenuate at the base, glabrous above or pilose along the midrib and secondaries, densely furfuraceous-tomentose beneath, the lateral ones similar in all respects but smaller, 3.5--7 cm. long and 1.7--3.4 cm. wide; midrib very slender, deeply impressed above, prominent beneath; secondaries slender, 12--13 per side, arcuate-ascending, rather obscurely joined at the margins, deeply impressed above, prominulous beneath; vein and veinlet reticulation abundant,

rather deeply impressed above, the larger parts prominulous beneath; inflorescence axillary, paniculate, 7--19 cm. long, 2--5 cm. wide, mostly elongate and narrow, composed of several pairs of often rather distant long-stalked cymes which are 3 cm. long or less; peduncles 4--7 cm. long, slender, flattened, sordid-furfuraceous; rachis slender, flattened, sordid-furfuraceous, the sympodia usually elongate (at least the lower ones); pedicels slender, 1--3.5 mm. long, densely short-pubescent with grayish hairs; bracts few or absent, 3-foliolate, about 3 cm. long and 1.5 cm. wide; bractlets linear or varying to oblong or lanceolate, 3--10 mm. long, 1--3 mm. wide, glabrate above, densely short-pubescent beneath, sessile; prophylla linear, pubescent; calyx campanulate, about 4 mm. long, grayish-hairy, its rim 5- or 6-toothed, the teeth nearly 1 mm. long, narrow, obtuse or subacute at the apex; corolla blue, about 1 cm. long, glandular-pubescent outside, hairy at the insertion of the stamens and at the base of the median lobe within, its tube about 3.8 mm. long, the inferior median lobe suborbicular, about 4 mm. long and wide, the upper lobes rounded and very small, about 1 mm. long; stamens didynamous, exserted, the larger ones about 4.5 mm. long; filaments densely hairy at the base and apex, sparsely so between; anther-cells divaricate; style straight, about 4.7 mm. long, glabrous, thicker at the apex; stigma bifid; ovary subglobose, hairy; fruiting-pedicels pubescent or glabrous; fruiting-calyx persistent, sometimes 3-lobed, pubescent or subglabrate on the outside, glabrous within, the lobes irregularly split at the apex; fruit pyriform or globose, green, 1.5--2 cm. long, 1.5--2.5 cm. wide, covered with small tawny scales, often short-apiculate at the apex, when globose often somewhat truncate at the base, with whitish and insipid pulp, which blackens on contact with the air; seed solitary, pale-orange, more or less globose, 1--1.5 cm. wide, with a hard testa, blackening on exposure.

The type of this species was collected by Hugh McCollum Curran (no. 131) along the trail from Norosí to Tiquisio, in the lands of the Loba, Bolívar, Colombia, in April or May of 1916, and is deposited in the United States National Herbarium at Washington. Sandwith says that one mutilated flower which he examined seemed to possess six stamens, but he does not think the plant is bignoniaceous. The common name "acietuno" is recorded for it, and it has been collected in anthesis from April to July, growing at altitudes of less than 50 meters to 600 meters, but, according to Castañeda, not above 600 meters.

Curran, in the reference cited above, describes the tree as a fair-sized one, 75 to 100 feet tall, with a trunk 2 to 3 feet in diameter, the wood grayish-white to yellowish, varying in density from moderately hard to rather soft, easy to work, taking a high polish, suitable for interior construction and, in some instances, for furniture. He cites, however, his no. 111, and Yale nos. 1559, 1578, 1579, and 1581. The first of these, at least, is Vitex cymosa Bert. He himself suggests that two species are here represented, basing his conclusion on the characters of the wood specimens. It is very probable, therefore, that some, at least,

of the above characters given by him apply to V. cymosa.

Romero Castañeda says that all the species of Vitex growing on the Caribbean coast of Colombia are called "acietuno". He says that this one grows well in poor soil and would be good for the reforestation of depleted land. He also states that "Las raíces tabulares, poco desarrolladas, no alcanzan a 1 m. de alto". He cites his no. 1155 from Cordoba and no. 4666 from Chocó.

Citations: COLOMBIA: Antioquia: Haught 4902 (N). Bolívar: H. M. Curran 131 (F--588532--isotype, N--isotype, N--photo of type, N--isotype, W--537283--type, Y--isotype, Z--photo of type). Córdoba: Romero Castañeda 1790 (N, N).

VITEX COMPRESSA Turcz., Bull. Soc. Nat. Mosc. 36 (2): 224. 1863.

Synonymy: Vitex berteroa Pittier, Contrib. U. S. Nat. Herb. 20: 485. 1922. Vitex brittoniana Moldenke, Torreya 33: 67. 1933. Cornutia pentaphylla Pavon ex Moldenke in Fedde, Repert. 40: 196, in syn. 1936 [not C. pentaphylla Sessé & Moc., 1889]. "Vitex umbrosa Sw." sensu Pulle ex Moldenke in Pulle, Fl. Surinam. 4 (2): 307, in syn. 1940 [not V. umbrosa Sw., 1799, nor G. Don, 1824]. Vitex schlimii Briq. ex Moldenke, Prelim. Alph. List Invalid Names 52, in syn. 1940. Vitex umbrosa Schau. ex Moldenke, Prelim. Alph. List Invalid Names 52, in syn. 1940 [not V. umbrosa Sw., 1799, nor G. Don, 1824].

Literature: Sw., Prodr. Veg. Ind. Occ. 93. 1799; Sw., Fl. Ind. Occ. 2: 1076--1077. 1800; Willd., Sp. Pl. 3: 392--393. 1801; Sabine, Trans. Hort. Soc. 5: 455. 1824; Benth., Ann. Nat. Hist. 2: 449. 1839; Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 224. 1863; Sessé & Moc., La Naturaleza, ser. 2, 1: app. 103. 1889; G. F. W. Mey., Prim. Fl. Esseq. 218--219. 1918; Pittier, Contrib. U. S. Nat. Herb. 20: 485. 1922; Moldenke, Torreya 33: 67. 1933; Moldenke in Fedde, Repert. 40: 196. 1936; Pittier, Suppl. Plant. Usual. Venez. 55. 1939; Moldenke, Alph. List Common Names 1--3, 6, 13, 14, 19, 29--31, & 33. 1939; Moldenke, Geogr. Distrib. Avicenn. 11, 12, 19--22, 24, 26, & 40. 1939; Moldenke, Lilloa 4: 324. 1939; Moldenke in Pulle, Fl. Surinam. 4 (2): 307. 1940; Moldenke, Prelim. Alph. List Invalid Names 23, 50, & 52. 1940; Moldenke, Suppl. List Common Names 1 & 23. 1940; Moldenke, Alph. List Invalid Names 22, 52, & 55. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 29, 31--33, 35, 39, 75, & 103. 1942; Moldenke, Phytologia 2: 118. 1944; Schauensee, Caldasia 5 (22): 338. 1948; Beard, Oxford Forest. Mem. 21: 33--38 & 107--122. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 56--58, 62, 65, 67--69, 74, 94, 165, & 200. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 15. 1949; Greig-Smith, Journ. Ecology 40: 289, 290, 292, & 309. 1952; Lindeman, Veget. Coast. Reg. Surinam. 116 & 118. 1953; Romero Castañeda, Caldasia 7 (31): 49. 1955.

Stout tree, to 30 m. tall; trunk straight, to 1 m. in diameter, free of limbs for 1/3 its height; crown fairly dense, irregular; branches few, thick; wood black, heavy, hard; bark scaly, grayish-green or dark-brown, rough, slightly rimose; branchlets

rather stoutish, corky, medullose, gray, obscurely puberulent with very minute hairs; twigs stoutish, gray or buff, obtusely tetragonal, puberulent with minute hairs, lenticellate; leaf-scars on branchlets rather large and prominent, very corky; nodes often slightly annulate; principal internodes mostly abbreviated, 0.3--3.5 cm. long or elongate to 7 cm. on young shoots; leaves decussate-opposite, 3--7-foliolate; petioles slender, 5--12 cm. long, convex beneath, decidedly flattened above, somewhat ampliate at the base, densely or sparsely puberulent, disk-shaped at the apex, the disk usually very conspicuous, to 6 mm. wide, with irregularly undulate margins; leaflets subequal in size or the lowermost somewhat smaller, all distinctly petiolulate; petiolules 1--22 mm. long, margined and canaliculate above, puberulent beneath; leaflet-blades usually thin-chartaceous or submembranous (those on old leaves thicker and firm), rather uniformly dark-green on both surfaces and brunnescent in drying, the central one oblong-elliptic or elliptic, 7--26 cm. long, 2.5--11 cm. wide, acute or short-acuminate (rarely obtuse or emarginate) at the apex, entire or often subundulate along the margins, acute or attenuate at the base, glabrous and shiny (rarely more or less pulverulent) above, puberulent (especially on the larger venation, which may even be brownish mealy-tomentose) beneath, soon becoming glabrous and shiny, the lateral ones similar; midrib slender, mostly flat above, prominent beneath; secondaries slender, 7--12 per side, ascending, usually slightly arcuate at the apex and near the margins, rather obscurely joined at the margins, flat or slightly subprominent above, prominent beneath; vein and veinlet reticulation very fine and abundant, plainly visible and often subprominent above, flat or usually the larger portions prominent beneath; inflorescence axillary, 2--4 at the termination of each branchlet, erect, showy, simple, paniculate, solitary in each axil, opposite, conic, usually 11--30 cm. long, narrow, mostly 3--5 cm. wide (rarely reduced to 5 cm. long and 2 cm. wide), many-flowered, composed of 5--8 pairs of opposite or subopposite long-stipitate dichotomous and loosely spreading cymes; peduncles 3--8 cm. long, these and the rachis slender, often somewhat flattened, brunnescent in drying, varying from very minutely puberulent to subglabrate; sympodia 1--3.5 cm. long, the uppermost ones usually greatly abbreviated and the lowermost ones elongate; pedicels very slender, gray-green, 1--3 mm. long, densely puberulent with sordid-gray hairs; bracts few, 3-lobed, 3-laciniate, 3-foliolate, or entire, small, often obsolete; bractlets numerous, lanceolate-oblong to linear-lanceolate or even linear, 3--10 mm. long, 3--10 mm. long, to 1.7 mm. wide, often recurved, glabrous or minutely puberulent, sessile or subsessile; prophylla minute, linear or setaceous, usually recurved, about 1 mm. long; flowers fragrant; calyx campanulate, gray-green, 2--3 mm. long and wide, more or less puberulent or lightly pubescent, its rim 5-toothed or 5-lobed, slightly 2-lipped, the teeth or lobes short, ovate-triangular, acute, mostly recurved, usually about 0.7 mm. long and 1 mm. wide at the base but very variable in length; corolla varying from blue, pale-blue, or

purple-blue to pale-lilac, lilac, lilac-purple, purple, or violet with a yellow lip [or even "yellowish-white", according to Schomburgk], 12--13.5 mm. long, bilabiate, its tube 4--5.2 mm. long, more than 2 mm. wide, ampliate above, glabrous at the base on the outer surface, minutely pilosulous or densely appressed-puberulent above, more or less densely long-pilose at the insertion of the stamens within and on the side corresponding to the inferior median lobe and at the mouth, 4 of its lobes reflexed, the superior lip 2-lobed, its lobes irregularly rotund or oblong, about 3.6 mm. long and wide, more or less obtuse or rounded at the apex, the inferior lip 3-lobed, the lateral lobes much smaller, broadly oblong, about 4.1 mm. long and 3.6 mm. wide, entire, irregularly rounded, pubescent on the outer surface, glabrous within, the lowest (central) lobe conspicuously enlarged, erect, orbicular, clawed, with a more or less rotund blade, the claw about 1.5 mm. long and 3.3 mm. wide, the blade 5.2--6.5 mm. long and 7.8--8.5 mm. wide, subglabrous on the outer surface, its margin irregularly sinuate-lobulate, pulverulent toward the apex within, sublanuginous or long-barbellate and yellow at the base, the hairs white; stamens 4, didynamous, inserted about 3.6 mm. above the base of the corolla-tube, exerted, the longest ones about 6 mm. long; filaments filiform, about 4.6 and 6.3 mm. long, densely pilose throughout; anthers deep-purple, the sacs ovate-fusiform, attached only at their apex, widely divergent, about 0.7 mm. long and 0.3 mm. wide; pistil exerted, surpassing the stamens; style capillary, 7--8.3 mm. long, sparsely long-pilose or glabrous; stigma bifid, its branches short, about 0.4 mm. long, acute; ovary globose, about 1 mm. long and wide, densely pubescent, 4-celled, 4-ovulate; fruiting-calyx indurated, coriaceous, campanulate, about 2 mm. long and 5 mm. wide, glabrate, its rim irregularly lobed; fruit drupaceous, varying from subglobose or obovoid-subglobose to oblong-ovate, 1--1.5 cm. long and wide, fleshy, glabrous, 4-seeded, much wrinkled in drying.

The type of this rather widespread species was collected by Louis Joseph Schlim (no. 518) at Ocana, near Enllanada, at an altitude of 3000 feet, Norte de Santander, Colombia, between 1846 and 1852. This collection is also the one on which Vitex schlimii was based by Briquet, the type of which is at the Conservatoire et Jardin Botaniques at Geneva. The type of V. berteroana was collected by Herbert Huntington Smith (no. 2107) in the forests of Santa Marta, Magdalena, Colombia, in 1898 or 1899, deposited in the United States National Herbarium at Washington. The type of V. brittoniana was collected by George Samuel Jerman (no. 6921) at Berbice, British Guiana, in January of 1896, and is deposited in the Britton Herbarium at the New York Botanical Garden. The name Cornutia pentaphylla of Pavon is based on his unnumbered collection in the Conservatoire Botanique at Geneva.

Vitex compressa resembles V. stahelii Moldenke of Venezuela and the Guianas in its bark, habit, and slash. It is found from Grenada, Trinidad, and Curaçao through Colombia, Venezuela, and the Guianas, to Peru and northern Brazil. It is cultivated in

British Guiana and Peru. It is said to be a riparian species, inhabiting savanna groves, dry forests, the banks of streams, and thickets on dry slopes, at altitudes of from 125 to 1800 meters. It has been collected in anthesis from January to July and in September and November, and in fruit in June, July, and November. The species has in the past been widely confused with the West Indian V. umbrosa Sw., with V. divaricata Sw., and even with members of the Bignoniaceae.

Mostly the leaves are 5-foliolate, but C. W. Anderson 591 (from British Guiana) exemplifies the 3-foliolate and Jenman 2164 (also from British Guiana) the 7-foliolate form. A cultivated specimen from the same country has both 5- and 7-foliolate leaves. The transition from simple to 3-laciniate, 3-lobed, and 3-foliolate bracts is well shown on Schomburgk 923 (from British Guiana) in the Geneva herbarium and on Splitgerber 1044 (from Surinam) at Leiden. Large 3-foliolate bracts are also seen on Jenman 2164 and C. W. Anderson 591 at Kew. The Curaçao specimens are usually smaller-leaved, while the continental specimens are larger-leaved. A small pulverulent-leaved abbreviated-pedunculate specimen collected in Peru by Pavon is exactly duplicated by a Leiden sheet of Kappler 107 from Surinam. The H. H. Smith 2101 collection from Colombia differs from the usual material in its smaller and more obtuse leaflets, shorter petioles, and large flowers, but all transitions are found, as may be seen on Pittier 8883 (from Venezuela) in the Gray Herbarium.

Fanshawe describes the inflorescence as terminal and the peduncles, rachis, and lower leaf-venation as brownish mealy-tomentose. Actually the inflorescence are always axillary, although they are often aggregated at the tips of the branchlets, and the pubescence is never more than puberulent. He also describes the leaves as "palmately lobed", while they are always compound.

Common names for the species include "acetuno-totumillo", "acetuno", "acietu", "acietuno", "acietuno blanco", "alasoabo", "apokotja", "arbor procera", "bosch kalebas", "boschkalebas", "fruta de gonzalo", "hakai balli", "hakia-balli", "hakiaballi", "kalabashout", "leon pintado", "taroema", "totumillo", "white fiddlewood", and "white-fiddlewood". Romero Castafeda, in the reference cited above, states that the species is called "acietuno", grows in poor soil, and has edible fruit. He keeps V. berteroa separate and reports that it has hard, heavy wood that takes polish well, while V. compressa does not. He is of the opinion that the species would be good for reforesting depleted land. He reports the flowers as nectariferous, so it should be of interest to beekeepers, and says that it does not grow above 600 meters altitude in the area where he observed it. Pittier reports that "the hairy Maracaibo species is also seen" in Trujillo, Venezuela. I assume that he refers to V. cymosa Bert. Beard, in his "Vegetation of the Windward and Leeward Islands", cited above, lists V. compressa from Dominica, but I have not as yet seen any specimens of it from that island and doubt that it occurs there.

Citations: GRENADA: Eggers 6318 (B). TRINIDAD: D. A. Anderson s.n. (Cb); Greig-Smith 1051 (N), 1060 (N), 1245 (N), 1331 (N); Pinder s.n. [Trin. Bot. Gard. Herb. 11645] (R); R. O. Williams s.n. [Trin. Bot. Gard. Herb. 12166] (K, R). CURAÇAO: Boldingh 4945 (Le, Ut), 5015 (B, N, Ut), 5514 (Ut), 5533 (Cp, K, P, Ut), s.n. (Ut); Suringar s.n. (B, Le, Le). COLOMBIA: Atlántico: Dugand 736 (F--766847). Magdalena: Romero Castañeda 100 (F--1323056), 1057 (N); Dugand 1009 (F--859143); Haught 4159 (N); H. H. Smith 2107 (A, B, Cb, D--599022, E--116076, F--138907, K, Le, N, N--photo, S, S--photo, Ut, W--704075, Z--photo). Norte de Santander: Schlim 518 [Macbride photos 24704] (Bm--isotype, Bm--isotype, Br--isotype, Br--isotype, Cb--isotype, Cb--isotype, F--770967--photo of isotype, F--869042--isotype, K--isotype, Kr--photo of isotype, N--isotype, N--photo of isotype, P--isotype, X--isotype); Triana 693 (Bm), 2070 (Cb, V). Department undetermined: Dugand 1045 [Casacoima] (F--859150), 1050 [Casacoima] (F--859108); Karsten 33 (B, B); Schlim 821 [Río Moieha, Sierra Nevada] (P). VENEZUELA: Amazonas: Ll. Williams 14993 (W--1877380). Anzoategui: Pittier 15069 (Ve--12875). Aragua: Ll. Williams 10257 (F--946452, Ve--12859, W--1459424). Carabobo: Funck & Schlim 649 (Bm, Br, Cb, P, P, X); Pittier 7932 (G, Ve--12860, Ve--12861, W--988029), 8883 (Cb, G, N, Ve--12858, W--1065275), 8975 (B, Cb, G, N, Ve--12862, W--1186498). Federal District: Karsten s.n. [Caracas] (V). Lara: Steyermark 56822 (F--1221919, N). Trujillo: Curran 761 (N); Pittier 10848 (Cb, Cb, G, N, P, Ve--12863, W--1187416). Zulia: Tejera 117 (W--1066088). BRITISH GUIANA: C. W. Anderson s.n. [Brit. Guian. Forest. Dept. 591] (K); Fanshawe F. 831 [Brit. Guian. Forest. Dept. 3567] (N, N), F.1327 [Brit. Guian. Forest. Dept. 4033 & 4063] (N, N); Graham 323 (N, W--1444109); Hohenkerk G.31 [Brit. Guian. Forest. Dept. 647a] (K); Jenman 2164 (K), 5367 (C, K, N, U), 6921 (B, K, N, N, N, U), 7586 (B, B, B, K, Ut), 7637 (K, N, U); B. Maguire 2390 (N); M. R. Schomburgk 206 (Cb, Cb, F--876670, K, P, V), 923 (Bm, C, Cb, Cb, G, K, N, P, P, V, V, X), s.n. [1837] (K, Ut); R. H. Schomburgk 119 (B, B, B, B), 1056 (Bm, K, K, V), 1256 (B, B, K); A. C. Smith 3532 (F--1023524, N, S). SURINAM: B. W., Bureau of Forestry 1396 [trees no. 108 & 168] (N, N, N, Ut, Ut), 2220 [tree no. 176] (Ut), 4764 [tree no. 542] (Ut, Ut), 4808 [tree no. 552] (Ut), 4899 [tree no. 504] (Ut), 4987 [tree no. 578] (Ut), 5030 [tree no. 625] (Ut), 5273 (Lg, N, Ut), 5899 [tree no. 552] (Ut), 5912 [tree no. 504] (N, Ut); Hostmann & Kappler 160 (S); Kappler 107 (Le), 1696 (Cb, Gt, P, S, Ut, V, V, X); B. Maguire 23902 (N), 23940 (N), 24011 (N); Pulle 445 (Ut); Splitgerber 1044 (Le, Le, N--photo, P, Z--photo), s.n. [Jun. 1838] (V); Stahel & Gonggrijp 1078 (Ut); Tresling 131 (Ut); Wigman 36 (Ut). FRENCH GUIANA: Crévaux s.n. [Maroni supérieur, 1877] (P); Mélinon 33 (G, N, P, P), 197, in part (Bm). PERU: Department undetermined: Pavon s.n.

["Peru"] (Cb, P). BRAZIL: Ceará: G. Gardner 1056 (Cb, Cb). Pará: Sampaio 5397 [Herb. Mus. Rio de Janeiro 18777] (B, N), 5627 [Herb. Mus. Rio de Janeiro 18701] (B), 5769 [Herb. Mus. Rio de Janeiro 19246] (B, N). CULTIVATED: British Guiana: Brit. Guian. Gard. Pl. s.n. [1887] (U).

VITEX CONGENSIS A. Chev., Sudania 71, nom. nud. 1911.

Literature: A. Chev., Sudania 71. 1911; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 80. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49 & 103 (1942) and [ed. 2], 115 & 200. 1949.

Nothing is known of this species except that it is supposed to be native to the Belgian Congo.

VITEX CONGESTA Oliv. in Hook., Icon. Pl. 23: pl. 2240. 1892.

Synonymy: Colea hispidissima Seem., Trans. Linn. Soc. Lond. 23: 9, in part [flowers only]. 1860. Varengvillea hispidissima (Seem.) Baill., Hist. Pl. 11: 116, in part [flowers only]. 1892. Varangevillea hispidissima Baill. apud Durand, Ind. Kew. Suppl. 1: 449, sphalm. 1906. Neoseemannia Boivin, in herb.

Literature: Seem., Trans. Linn. Soc. Lond. 23: 9. 1860; Baill., Bull. Soc. Linn. Paris 1: 686. 1887; Baill., Hist. Pl. 11: 116. 1892; Oliv. in Hook., Icon. Pl. 23: pl. 2240. 1892; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 178. 1895; Durand, Ind. Kew. Suppl. 1: 449. 1906; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 79 & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 53 & 103. 1942; Moldenke, Alph. List Invalid Names Suppl. 1: 22. 1947; Perrier de la Bâthie, Not. System. 13: 290—291. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 123 & 200. 1949.

Illustration: Oliv. in Hook., Icon. Pl. 23: pl. 2240. 1892.

Tree or shrub; branches rather stout; branchlets medium-stoutish, gray, rather obtusely tetragonal, densely hirsute-villous or setose-pilose with fulvous-brownish or ferruginous hairs on the younger parts, soon glabrescent; nodes not annulate; principal internodes 1.5--5 cm. long; leaves decussate-opposite, 3--5-foliolate; petioles rather stoutish, 3--8 cm. long, rather densely setose or hirsute with fulvous-ferruginous divergent hairs, glabrescent in age; petiolules varying in length, those on the two lowest leaflets of 5-foliolate leaves and sometimes also of 3-foliolate leaves much shorter, often only 2--4 mm. long, those of the central leaflets 9--20 mm. long, rather densely villous-hirsute, glabrescent in age; central leaflets thin-coriaceous, oblanceolate-oblong or oblong, 8--16 cm. long, 2.4--4.5 cm. wide, varying from obtuse or rounded-emarginate to subacute or very shortly subacuminate at the apex, acute at the base, very sparsely and obscurely setose or pilose above, soon becoming glabrous and shiny, very slightly scabrous, rather obscurely pilose or setose with fulvous appressed hairs on the midrib beneath, otherwise glabrous or nearly so, entire but usually somewhat undulate along the margins; midrib slender, impressed above,

prominent beneath; secondaries slender, 8--14 per side, plane or very slightly subimpressed above, sharply prominent beneath, short; divergent, regular, prominently arcuately joined several mm. from the margins beneath; tertiaries few; veinlet reticulation rather abundant, indiscernible above, only the larger parts subprominulous beneath; inflorescence cymose, axillary, sessile, many-flowered, densely congested, fasciculate; peduncles obsolete; pedicels filiform, very short, 2--5 mm. long, very densely ferruginous-hirsute or -setose; bractlets linear, 4--7 mm. long, densely ferruginous-hirsute; calyx campanulate, small, apiculate-lobed for about 1/3 to 1/2 its length, the tube about 3--4 mm. long and wide, densely ferruginous-setose, the 5 lobes unequal, about 3 mm. long, erect, subulate, densely ferruginous-setose; corolla tubular, 6--8 times as long as the calyx, 2.5--3 cm. long, incurved, densely ferruginous-setose with spreading hairs outside, slightly ampliate at the apex, its limb 2-lipped, the upper lip shortly bifid with ovate-rounded lobes, the lower lip 3-fid with ovate subequal lobes 4--5 mm. long; stamens 4, didynamous, inserted near the base of the corolla-tube; filaments somewhat setulous on the included portion, slightly exerted; anthers hippocrepiform-cordiform, with a deep sinus, rounded at the apex; style glabrous; stigma bifid, its lobes subulate, divergent.

The type of this endemic species was collected by Richard Baron (no. 6676) in northern Madagascar in or before January of 1892, and is deposited in the herbarium of the Royal Botanic Gardens at Kew. The type of Varegevillaea hispidissima was collected by Louis Hyacinth Boivin (no. 1820) at Ste. Marie, Madagascar, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris. The specific epithet "hispidissima", although the oldest, cannot be used for this species because it was based on a mixture of material -- the flowers being of this species while the pinnate leaves are those of Rhodocolea racemosa var. humblotiana (H. Bn.) Perrier of the Bignoniaceae. The genus Varegevillaea, of which this binomial is the type, was named in honor of the town of Varegevillaea-sur-mer, in France.

Briquet, in the reference cited above, accepts Varegevillaea as a valid genus (his genus no. 60) between Glossocarya Wall. and Peronema Jack in Tribe Caryopteridoideae. Oliver states in the reference cited above that the floral structure of V. congesta is most closely related to that of V. trichantha J. G. Baker, a 1-foliolate species also endemic to Madagascar.

Citations: MADAGASCAR: Baron 6676 (K--type, N--isotype, N--photo of type, P--isotype, Z--photo of type); Boivin 1820, in part (N--photo, P, P, Z--photo).

VITEX CONGOLENSIS DeWild. & Th. Dur., Bull. Soc. Bot. Belg. Compt. Rend. 38: 134. 1899.

Synonymy: Vitex aesculifolia J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 325. 1900. Vitex gillettii Mildbr., Ergebn. Zentral-Afr. Exped. 2: 12. 1910 [not V. gillettii Gürke, 1904].

Literature: DeWild. & Th. Dur., Bull. Soc. Bot. Belg. Compt. Rend. 38: 134. 1899; Th. Dur. & DeWild., Mat. Fl. Congo 5: 15. 1899; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 325. 1900; DeWild. & Th. Dur., Contr. Fl. Congo 2: 50. 1900; DeWild. & Th. Dur., Reliq. Dewevr. 184. 1901; Th. Dur., Syllog. Fl. Congol. 436--437. 1909; Mildbr., Ergebn. Zentral-Afrik. Exped. 2: 12. 1910; DeWild., Compagnie du Kasai 401. 1910; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 45, 59, & 81. 1928; DeWild., Plant. Bequaert. 5: 7--8. 1932; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48, 49, & 103. 1942; Moldenke, Alph. List Invalid Names 51. 1942; Moldenke, Alph. List Invalid Names Suppl. 1: 28. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 114, 115, & 200. 1949; Mullenders, Webbia 11: 510. 1955.

Tree, 8--16 m. tall; wood white, soft; branches ferruginous-tomentose, becoming glabrescent in age; branchlets densely brownish-pubescent with short hairs; leaves long-petiolate, 3--5-foliolate; petioles 5--11 cm. long; leaflets short-petiolulate or sessile; blades subcoriaceous, obovate or obovate-cuneate, 6--15 cm. long, 3--7.5 cm. wide, abruptly acuminate at the apex into a short and acute acumen, entire, attenuate at the base, undulate, green and shiny above, obscurely pubescent or sparsely pilose (especially on the veins) above, pilose all over and paler beneath; secondaries 10--14 per side, arcuately anastomosing toward the margins; cymes axillary or supra-axillary, about 12 cm. wide, pedunculate, dichotomous, pubescent or velutinous, the hairs red-brown; peduncles 4--10 cm. long, flattened; bractlets lanceolate, 4--5 mm. long, narrow, velutinous; flowers short-pedicellate; calyx campanulate, about 2.3 mm. long, tomentose, its rim 5-toothed, the teeth deltoid, about 0.6 mm. long, acute, accrescent with the calyx-tube; corolla white or ochraceous with a violet spot on the lip, its tube short, slightly longer than the calyx, pilose outside, its limb 2-lipped, the upper lip 2-lobed, white, the labellum 3-lobed, the median lobe violet, about 3 mm. long and 2.5 mm. wide, undulate; stamens and style slightly exerted; fruiting-calyx about 5 mm. wide, pubescent, its rim short-toothed; fruit oblong, about 1 cm. long

The type of V. aesculifolia is Schweinfurth 3442 from Monbuttu near Munza in the Belgian Congo. The species inhabits shrubby or wooded savannas and "débroussements", ascending to 860 meters altitude. It has been collected in anthesis in March, June, and July, and in fruit in July and August. It has been confused by herbarium workers with V. rufa A. Chev. An infusion of its bark is used as an enema, the wood is used in making native tomtoms, and the fleshy part of the fruits is used in treating eye afflictions. Vernacular names include "bolombe", "dihodi", "gadja", "kafutufutu", "likilongo", "okulumu", and "wungu".

Baker unites this species with V. ferruginea Schum. & Thonn., saying that it "is not separable from V. ferruginea by the description". Pieper, however, correctly notes that "V. congolensis kann aber ebensowenig mit V. ferruginea vereinigt werden, wie V. Guerkeana von der sie sich ebenfalls gut unterscheidet."

DeWildeman cites also the following Congo collections: De Giorgi 318 and 541, Goossens 4661, 4663, and 4756, Mortehan 633, and Reygaert 193 and 273. Pieper cites Dewevre 926a, Luja s.n., Schweinfurth 3442, and Mildbraed 3748 and 8357 -- the last-mentioned being from the Cameroons.

Citations: LIBERIA: G. P. Cooper 355 (N). BELGIAN CONGO: Bequaert 2002 (S); Callens 3640 (N), 4314 (Z), 4432 (Cb); Claessens 675 (N, S); Dewulf 659 (Br, Br); Dubois 435 (Br), 677 (Br, Br, Br); Gillardin 615 (Br, Br, Br, N); Herman 2242 (Br); Lebrun 2342 (Br, Br), 5952 (Br, Br), 6190 (Br, Br), 6426 (Br, Br, N); Louis 1456 (N), 1761 (N), 3227 (S); Mullenders 2330 (Br); Overlaet 984 (Br, Br); Quarré 5096 (Br), 6865 (Br, N); Rossignol 137 (Br); Vanderyst 16378 (Br), 22393 (Br), 23250 (Br), 23252 (Br), 23302 (Br), 23303 (Br), 23312 (Br), 23800 (Br, Br), 23835 (Br), 23982 (Br), 23997 (Br), 24267 (Br).

VITEX CONGOLENSIS var. GILLETII (Gürke) Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 59. 1928.

Synonymy: Vitex gilletii Gürke in Engl., Bot. Jahrb. 33: 298. 1904 [not V. gilletii Mildbr., 1910].

Literature: DeWild., Etud. Fl. Bas & Moyen Congo 72. 1903; Gürke in Engl., Bot. Jahrb. 33: 298. 1904; DeWild., Fl. Bas & Moyen Congo 129. 1909; Th. Dur., Sylloge Fl. Congol. 437. 1909; DeWild., Compagnie du Kasai 401. 1910; DeWild., Fl. Bas & Moyen Congo 467. 1912; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 59 & 81. 1928; Moldenke, Alph. List Invalid Names 53. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49 & 103 (1942) and [ed. 2], 115 & 200. 1949.

This variety differs from the typical form of the species in the denser hairiness of its inflorescences and in the calyx-teeth occasionally being as many as 7. It inhabits savannas and forests, and has been collected in anthesis in July.

Pieper cites the type, Gillet 2163, from Kimuenza, and also Pogge 698. DeWildeman records the variety from Bumba, Madibi, Kisantu, Lulua, etc.

Citations: BELGIAN CONGO: Overlaet 987 (Br, Br, N).

VITEX COOPERI Standl., Trop. Woods 16: 26, 29, & 32, nom. nud. (1928); Publ. Field Mus. Bot. 4: 256. 1929.

Literature: Standl., Trop. Woods 16: 26, 29, & 32. 1928; Standl., Publ. Field Mus. Bot. 4: 256. 1929; Moldenke, Alph. List Common Names 10 & 26. 1939; Moldenke, Geogr. Distrib. Avicenn. 15 & 18. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 20, 21, 24, & 103. 1942; Moldenke, Phytologia 2: 118. 1944; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 15. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 36, 37, 41, & 200. 1949.

Tree, to 26 m. tall; trunk buttressed and fluted, to 75 cm. in diameter; wood durable; bark very thin; branchlets rather slender or medium, rather acutely tetragonal, varying to terete or compressed, grayish or brunnaceous, glabrate; twigs slender,

short, rather acutely tetragonal, dark-brown, rather densely fulvous-puberulent when young, less so in age; nodes slightly annulate (especially noticeable on young shoots); principal internodes 1.5--7 cm. long; leaves decussate-opposite, 3-foliolate; petioles slender, 1.3--9.5 cm. long, finely appressed-puberulent throughout, convex beneath, decidedly flattened and canaliculate above, not noticeably ampliate at the base nor disciform at the apex; leaflets usually very unequal in size, the 2 lateral ones much smaller than the central one, all distinctly petiolulate on stout, more or less finely puberulent, flattened, and decidedly margined petiolules 1--8 mm. long, those of the lateral leaflets usually much shorter; leaflet-blades thin-chartaceous or submembranous in all seasons, dark- or bright-green above, lighter beneath, subnitid, the central one rather broadly elliptic, 4.5--22 cm. long, 2.5--10.5 cm. wide, rounded and short-acuminate or abruptly acuminate at the apex (the acumen obtuse and apiculate), entire, varying from acute to acuminate or abruptly contracted at the base, glabrous above, finely puberulent beneath (especially on the larger venation) when young, becoming glabrous in age (very immature leaflets thin-membranous, nigrescent in drying, finely puberulent above, densely canescent-puberulent beneath), the lateral ones similar but usually smaller and with shorter petiolules and proportionately much less broad; midrib slender, impressed above, prominent beneath; secondaries slender, 12--18 per side, mostly subimpressed above, prominent beneath, diverging from the midrib at a wide angle, ascending, straight almost to the margins, arcuately joined at the margins; vein and veinlet reticulation rather obscurely subprominent on both surfaces; inflorescence axillary, solitary, cymose, blooming after the leaves are practically matured, 3.5--14 cm. long, 4--6 cm. wide, about 4 times dichotomously branched, rather many-flowered, usually loose and divergent, finely puberulent throughout; peduncles slender, conspicuously flattened, 4.5--7.5 cm. long, finely puberulent, more densely so at the apex and at every furcation of the cyme; pedicels very slender, 1--3 mm. long, densely puberulent; bracts few, foliaceous, about 1.5 cm. long and 4 mm. wide, long-stipitate, simple; bractlets and prophylla linear, 1--3 mm. long, puberulent; corolla blue or lavender, fragrant.

The type of this species was collected by George Proctor Cooper and George Mackay Slater (no. 156) at Progreso, Chiriquí, Panama, in July or August, 1927, and is deposited in the herbarium of the Chicago Natural History Museum. The species is described by collectors as a medium-sized tree, often 40 feet to the first limbs. The wood splits easily in straight lines and is used for implement handles, posts, cross-ties, and stringers, as well as in house construction. It is said to be durable in contact with soil. It has a very thin bark -- this being one of its most decided characteristics. The fruit is described as "a small green berry". On Cooper & Slater 195 the sapwood was 3 inches thick, "which is the case with smaller-sized trees". The mature leaves are somewhat firmer than those seen at time of anthesis, but are still thin-chartaceous. Common names are "cua-ja",

"cuajada", "raja bien", "rajate bien", and "yellow manwood". It has been collected in anthesis from June to August, and in fruit in July and August. In May the leaves are already unfolding and attain a good size. The species inhabits wet thickets from sea level to 600 meters altitude and is said to be fairly common on hilly land bordering Gatun Lake on the Atlantic watershed.

The species has in the past been confused with V. floridula Duchass. & Walp., but in the latter species the leaves are usually not developed at the time of anthesis, the cymes are only half as large and are short-pedunculate, the corolla is much larger, and the mature leaves are much thicker. It is also closely related to V. divaricata Sw., but the latter has glabrate pedicels and calyxes. The Honduran material cited below was mis-identified as V. kuylenii Standl. by Standley. A wood sample of Pittier 5267 is deposited in the United States National Museum at Washington.

Cooper reports that this is a very valuable and durable wood in the Costa Rican-Panamanian evergreen rain forest. It seems to have a perishable heart, because one frequently finds the old trees standing in a shell-like state, and this outer shell is cut and made into posts. It is more probable, however, that insects and other animals use the heart for living quarters after some injury causes decay. Samples of wood from this tree have been made into beautiful turnery and canes. Cooper has some pieces of this wood in a table made of inlaid assorted woods. It works up under plane and knife not unlike teak (Tectona grandis L. f.). It often has a streaked or mottled figure with light and dark areas which further enhance its natural beauty. The name "yellow manwood", used by the Panamanian and Costa Rican negroes, refers to its strength and durability, and the wood is sometimes confused with a "black manwood" which is Minquartia guianensis Aubl. of the Olacaceae.

Citations: GUATEMALA: Izabal: Shank IV (N), V (N); Whitford & Stadtmiller 42 (N, W--1037023, Y). HONDURAS: Atlántida: P. C. Standley 53238 (A, F--582626, N--photo, W--1407600, Z--photo). COSTA RICA: Alajuela: J. León 1755 [Herb. Inst. Interamer. Turrialba 941] (W--2021498). Puntarenas: P. H. Allen 5294 (N). PANAMA: Chiriquí: Cooper & Slater 156 [Mus. Yale School Forest. 10509] (A--isotype, F--573061--type, G--isotype, I--photo of type, Mi--photo of type, N--isotype, N--photo of type, W--1317613--isotype, Y--isotype, Z--photo of type), 195 [Mus. Yale School Forest. 10548] (F--573126, G, N, W--1317619, Y), 241 [Mus. Yale School Forest. 10594] (F--573100, N, W--1317624, Y); Pittier 5267 (G, N, W--715478); Woodson & Schery 937 (N). Veraguas: F. H. Fischer 1 [Mus. Yale School Forest. 17086] (F--618913, Y).

VITEX CORDATA Aubrév., Fl. Forest. Soudano-Guin. 504. 1950.

I know nothing about this species except that it is supposed to grow in French Soudan and French Guinea. The name occurs only in a key in the original publication.

VITEX COURSI Moldenke, Phytologia 3: 433--434. 1951.

Tree, 5--10 m. tall; branches very densely brown-velutinous; branchlets stout, obtusely tetragonal, very densely brown-velutinous, slightly canaliculate; principal internodes apparently much elongated, 7 or more cm. long; leaves decussate-opposite, 9-foliolate; petioles rather stout, firm, about 19.5 cm. long, densely brown-pubescent or velutinous; petiolules rather slender, unequal, elongate, the central ones to 3.5 cm. long, the lower ones about 1 cm. long, all densely brown-pubescent or hirsutulous-velutinous; leaflets subcoriaceous, dark-green above when fresh, rather uniformly colored on both surfaces when dry, long and narrow, oblanceolate, the largest ones 5--6 times as long as wide, glabrous (except for the midrib) and shiny above, rather sparsely velutinous-pubescent with brown hairs beneath, the central ones 21--25 cm. long and 4.4--5.3 cm. wide, acuminate at the apex, entire but often more or less undulate along the margins, mostly short-acuminate at the base, with the margins strongly revolute or inflexed there, the lower ones 15--20 cm. long and 3--4.3 cm. wide, sometimes asymmetric at the base; midrib slender, impressed above, very prominent beneath, densely brown-hirsutulous on both surfaces; secondaries slender, 12--15 per side, mostly obscure or indiscernible above, sharply prominent beneath, divaricate-ascending, irregularly arcuate-anastomosing in many irregular loops near the margins beneath; veinlet reticulation very abundant, indiscernible above, prominent to the ultimate divisions beneath, irregular; inflorescence axillary, the cymes sessile or subsessile, very densely congested and many-flowered; peduncles and cyme-branches obsolete or very short and densely fulvous-villous; pedicels slender, 5--8 mm. long, very densely fulvous-villous; bractlets linear or oblong, about 5 mm. long, very densely fulvous-villous on both surfaces, mostly hidden in the inflorescence-pubescence; calyx cyathiform, garnet-red, about 6 mm. long and 5 mm. wide, very densely fulvous-villous with antrorsely appressed or subappressed velutinous hairs, the rim subtruncate, very shortly 5-dentate; corolla tubular, incurved, 2--2.5 cm. long, wine-red, very densely villous on the outer surface with long antrorsely subappressed silvery hair, the tube about 2 mm. wide at the base and 6 mm. wide at the apex, the lobes 2--2.5 mm. long, erect; stamens and pistil red, exerted about 5 mm. from the corolla during anthesis; anthers brown.

The species is known only from the type collection, made by G. Cours (no. 180) at Ankarota, at an altitude of 1300 meters, Ambatondrazaka district, Madagascar, on January 31, 1938, and deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris.

Citations: MADAGASCAR: Cours 180 (N--isotype, N--photo of type, P--type, Z--photo of type).

VITEX CRENATA A. Chev., Etud. Fl. Afr. Cent. Franc. 1: 243, nom. nud. 1913.

Literature: A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 243. 1913; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 79.

1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48 & 103 (1942) and [ed. 2], 114 & 200. 1949.

The type of this species is Chevalier 8536 from Nyellim, Ubangi-chari, French Equatorial Africa, collected among rocks on May 28, 1903. The species is said to be a tree 2--5 meters tall. Since the name is definitely attached to a herbarium collection it is not a true nomen nudum, by is a hyponym.

VITEX CUSPIDATA Hiern, Cat. Afr. Pl. Welw. 4: 835. 1900.

Literature: Hiern, Cat. Afr. Pl. Welw. 4: 835. 1900; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 521. 1900; DeWild., Fl. Bas- & Moyen-Congo 467. 1912; Pieper in Engl., Bot. Jahrb. 62, Beibl. 441 ["42"]: 50, 70, & 81. 1928; DeWild., Plant. Bequaert. 5: 9--10. 1932; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1] 49, 51, & 103 (1942) and [ed. 2], 115, 119, & 200. 1949.

The type of this species was collected by Friedrich Martin Josef Welwitsch (no. 5665) at Golungo Alto, Angola. DeWildeman cites also a Laurent specimen from Mayombe, Belgian Congo, and Pieper cites Dupuis s.n. from Bingila, Belgian Congo. The flowers are not yet known, but Pieper believes that the species probably belongs in the group Elongatae of the genus. Hiern and Baker both place it in the affinity of V. welwitschii Gurke.

VITEX CYMOSA Bert. ex Spreng., Syst. Veg. 2: 757. 1825.

Synonymy: Jatropha tomentosa Spreng., Syst. Veg. 3: 77. 1826. Vitex discolor Glaz., Bull. Soc. Bot. France Mém. 3: 547. 1911. Vitex cujabensis Mart. ex Moldenke, Prelim. Alph. List Invalid Names 50, in syn. 1940. Vitex paraensis Moldenke, Prelim. Alph. List Invalid Names 52, in syn. 1940 [not V. paraensis Mart., 1940]. Vitex florida Mart., in herb.

Literature: Spreng., Syst. Veg. 2: 757. 1825; Spreng., Syst. Veg. 3: 77. 1826; Schau. in Mart., Fl. Bras. 9: 296--298. 1851; Briq., Ann. Conserv. & Jard. Bot. Genève 7--8: 319. 1904; Huber, Bol. Mus. Goeldi 5: 218, pl. 4. 1908; Glaz., Bull. Soc. Bot. France Mém. 3: 547. 1911; Seckt, Rev. Univ. Nac. Cordoba 17: 19, pl. 17, fig. 485. 1930; Moldenke, Phytologia 1: 17--18. 1933; Parodi, Rev. Argent. Agron. 1: 202. 1934; Le Cointe, A Amaz. Brasil. III. Arv. e Pl. Uteis 429. 1934; Trab. Inst. Bot. y Farm. 54: 79. 1935; Latzina, Lilloa 1: 189. 1937; Pittier, Supl. Plant. Usual. Venez. 55. 1939; Moldenke, Alph. List Common Names 1, 3, & 29. 1939; Moldenke, Geogr. Distrib. Avicenn. 19, 20, 26, 27, & 40. 1939; Moldenke, Prelim. Alph. List Invalid Names 50--52. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 31, 32, 39--41, 44, 75, & 103. 1942; Moldenke, Alph. List Invalid Names 52 & 54. 1942; Moldenke, Phytologia 2: 118. 1944; F. C. Hoehne, Relat. Anual Inst. Bot. 44. 1947; Ragonese & Martinez-Crovetto, Revist. Invest. Agric. 1: 197 & 202. 1947; Moldenke, Alph. List Invalid Names Suppl. 1: 11. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 62, 65, 95, 98, 99, 107, 165, & 200. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 15. 1949; F. C. Hoehne, Ind. Bibl. e Num. Pl. Col. Com. Rondon 350--351. 1951; Stellfeld,

Trib. Farmac. 19 (10): 170--171. 1951; Rometo Castafeda, *Caldasia* 7 (31): 49. 1955.

Illustrations: Huber, *Bol. Mus. Goeldi (Mus. Para.)* 5: pl. 4. 1908; Seckt, *Rev. Univ. Nac. Cordoba* 17: pl. 17, fig. 485. 1930; Ragonese & Martinez-Crovetto, *Revist. Invest. Agric.* 1: 197. 1947.

Varying from a shrub to a medium-sized or large tree, spreading and leafy or low and deliquescent, to 28 m. tall, with a low rounded crown; trunk to 60 cm. in diameter at 1.5 m. above the ground; bark fissured, peeling; branchlets rather stoutish, varying from gray or grayish to brown, acutely or very obtusely tetragonal, with small pith, often irregular, the youngest parts densely short-puberulent with sordid-grayish or yellowish hairs, soon becoming glabrate; twigs slender or stoutish, mostly short, acutely tetragonal or flattened, densely puberulent or short-pubescent with appressed cinereous, canescent, or sordid-yellowish hairs; nodes on the twigs usually somewhat annulate with a U-shaped band of denser pubescence, on older wood usually not annulate; principal internodes 0.5--7.5 cm. long, often greatly abbreviated throughout; leaf-scars prominently elevated, usually with the base much more elevated than the top; leaves decussate-opposite or subopposite, 3--7-foliolate; petioles slender or stout, 2.3--15 cm. long, convex beneath, conspicuously flattened and somewhat sulcate above, not noticeably ampliate at the base, often somewhat ampliate and disciform at the apex, densely puberulent or short-pubescent throughout like the twigs; leaflets usually quite unequal in size (or subequal when only 3), the two lowermost usually considerably smaller, all normally petiolulate when mature; petiolules 1--17 mm. long, rather slender, densely puberulent with conspicuously yellowish hairs, margined and deeply canaliculate above, the lateral ones usually shorter than the central ones, on very immature leaves often subobsolete; leaflet-blades rather uniformly green on both surfaces when mature or somewhat lighter beneath, brunnescent or nigrescent above and varying from albidous or cinereous to sordid-flavescent beneath when immature, very thin-membranous when immature, firmly chartaceous or even (rarely) subcoriaceous when mature, the central one varying from oblong or elliptic to obovate, oblanceolate-elliptic, or rarely lanceolate, 4--23 cm. long, 2.4--7.2 cm. wide, acute or abruptly short-acuminate or even caudate-acuminate at the apex (rarely obtuse or subtruncate on stunted leaves), the acumen itself blunt at the apex, entire, acute or acuminate at the base (usually considerably attenuate on mature leaves), symmetrical, obscurely and very lightly pulverulent-puberulent above when immature, becoming glabrate except for the minutely pulverulent-puberulent midrib and adjacent portions or completely glabrous and nitid throughout when mature, very densely or sparsely short-pubescent-tomentellous or merely puberulent to short-pubescent with yellowish-brown hairs beneath when immature, usually becoming rather sparsely short-pubescent or puberulent when mature, more densely so along the midrib and larger venation, especially dense in the axils of the secondaries; midrib slender, usually impressed above when mature (sometimes deeply so), flat

when immature, very prominent beneath; secondaries slender, 10--20 per side, arcuate-ascending, usually rather straight and not much arcuate except near the margins where they are arcuately joined, flat or impressed above, prominent beneath; vein and veinlet reticulation abundant, fine, flat or sometimes the larger portions subimpressed on mature leaves, mostly prominulent beneath; inflorescence axillary, cymose, abundant but solitary in the axils and opposite at the nodes, much shorter than the subtending petioles, 2--9.5 cm. long, 1--10 cm. wide, 1 to $\frac{1}{2}$ times dichotomous with wide-spreading branches, 3--31-flowered or occasionally more times dichotomous and many-flowered, usually flowering while the leaves are expanding, or, at least, before they are completely mature, varying from albidous or canescent to cinereous or sordid-flavescent throughout with dense closely appressed puberulence, the hairs denser at all the joints, fruiting-cymes usually 4--6.5 cm. long and very lax; peduncles slender, 0.7--4.5 cm. long, flattened, densely yellowish-puberulent throughout like the twigs and petioles; cyme-branches conspicuously flattened, densely puberulent like the peduncles; pedicels slender, 1--2 mm. long, densely puberulent or short-pubescent; bracts often present, subtending the first cyme-furcation, foliaceous, simple, obovate-spatulate or oblong-elliptic, stipitate, 1--1.5 cm. long, similar to the immature leaflets in pubescence; bractlets linear, 1-- $\frac{1}{2}$ mm. long; prophylla minute, setaceous, about 1 mm. long; flowers odorless; calyx campanulate, 2--3 mm. long, 2--5 mm. wide, densely puberulent, its rim 5-dentate, the teeth ovate, obtuse or acute, often recurved or reflexed, often nigrescent on the inner surface; corolla hypocrateriform, zygomorphic, varying from blue, pinkish-blue, or bluish-purple to violet, heliotrope, purple, lilac, violet-blue, mauve, or rose, rarely white, its tube broadly cylindrical, 6--7 mm. long, ampliate above, puberulent above the calyx outside, its limb conspicuously 2-lipped, the $\frac{1}{2}$ small lobes about 4 mm. long and 2 mm. wide, obtuse, the remaining lobe much enlarged, rounded, about 7 mm. long and 8 mm. wide, the margins crisped; stamens and style exerted 5--6 mm. from the corolla-mouth; fruiting-pedicels 1--5 mm. long, strigose-pubescent; fruiting-calyx flattened-campanulate, about 5 mm. long and 12 mm. in diameter, coriaceous, dark, very shallow, finely short-strigose on the outside, its rim 4- or 5-lobed, the lobes broadly triangular-ovate and often more or less obscurely toothed; fruit drupaceous, purplish-black or violet-black, succulent, 1.1--2 cm. long, 0.9--1.5 cm. wide, glabrous, black and greatly wrinkled in drying, edible.

The type of this widespread and well-known species was collected by Giovanni Battista Balbis [Bertero 2755] on Santa Marta island in the Magdalena River, Colombia. This collection is probably also the type collection of Sprengel's Jatropha tomentosa. The type of V. discolor is Glaziou 19723 from Serrinha de Santa Barbara, Minas Gerais, Brazil, while the type of V. paraensis was collected by Boris Alexander Krukoff (no. 5903) on varzea land near Parana do Ricardo, Pará, Brazil, on August 28, 1934. The species ranges from Colombia and Venezuela through Brazil and

Paraguay to the province of Formosa in Argentina and to Bolivia. It is cultivated in the Hawaiian Islands, Jamaica, Martinique, Paraguay, and Peru. Briquet, in the reference cited above, reports that it is cultivated in gardens at Assomption, Paraguay, and describes it as a tree 10 meters tall, with large rounded cymes, pale-blue (rarely white) flowers, and edible fleshy fruit. Dawe says that it is "a tree of spreading habit, the fruits known to civilizados as 'azietunos' or olives which are edible". Pittier reports that the tree has a flat crown and that the "fruit is olive-shaped and -sized, very sweet with a peculiar after-taste; the wood little used; a common and characteristic tree in Zulia", Venezuela. In his discussion of V. compressa Turcz. he notes that "the hairy Maracaibo species is also seen here" [Trujillo, Venezuela]. I assume that he refers to V. cymosa, although I have seen no specimens of it from that state. Krukoff describes the species as a tree 30--75 feet tall, with a trunk 8 inches to 2 feet in diameter at breast height. Capucho reports that the wood is used for making yokes for animals. Romero Castañeda, in the reference cited above, says it grows in poor soil, is called "acietuna", and produces edible fruit. Its wood, he says, is hard, heavy, and takes polishing well. It would be a good tree to reforest depleted land, and its flowers are nectariferous, so it should be of interest to beekeepers. It is not found over 600 meters altitude, according to his observations. Cardenas also reports the fruit as edible and adds that the bark is used as an expectorant and antidiysenteric in Bolivia.

The Fróes 11695 collection is far less pubescent than the typical form, but the species is very variable in this regard. Subcoriaceous mature leaves can be seen on Killip & Smith 21091 from Colombia and on Krukoff 1472, 1259, and 5903, Ducke 3628, and Dahlgren & Sella 213, all from Brazil, and on Pittier 10477 from Venezuela. The pubescence seen on the young leaves of H. H. Smith 1936, Schwacke 4546 (especially), and Glaziou 19723 reminds one of V. flavens H.B.K. Warming 318 and D'Orbigny 829 remind one of V. vauthieri P. DC. because of their longer peduncles and other characters, and may even prove to be that species.

V. cymosa has been widely confused in herbaria with V. umbrosa Sw., V. montevidensis Cham., V. multinervis (Cham.) Schau., V. gigantea H.B.K., V. pseudolea Rusby, and V. columbiensis Pittier, and even with Saldauhaea lateriflora (Mart.) Burr. It has been collected in anthesis in practically every month of the year and in fruit in April, June, July, August, November, and December. It grows on varzea land and igapó land, in sandy and loamy soils, on river shores, on both high and inundated land, in thickets, at the margins of woods, along roadsides, on islands, in arid places and arid coastal land, in cactus deserts, savannas, open woods, and virgin forests, ascending to 450 meters in Colombia. Dugand describes it in Colombia as a "frequent tree 10--14 m. tall; the crown elongate; the branches somewhat divaricate, thick, covered with a brownish rugose bark; the foliage dark-green; the trunk

60--75 cm. in diameter, irregular, its bark rugose, blackish; the flowers abundant, in short cymes, the calyxes and pedicels reddish, pubescent; the corolla blue-violet, the larger petal purple with an oblong yellowish-green spot near the throat of the corolla; stamens and style purplish; anthers black, small; ovary in early stages of maturity light-purple, later decidedly wine-red; fruit a cherry-shaped drupe with the skin brownish-purplish, thin, its pulp edible but unsavory, its taste being somewhat oily". Balansa, in Paraguay, also reports the fruit as fleshy and edible. Parodi includes the species among his list of native Argentinian trees with edible fruit.

Seckt, in the reference cited above, records the common name "tarumá", Pittier lists "aceituno", Le Cointe lists "tarumá do igapó", "tarumá do alagado", and "jaramantaia", while Ragonese and Martínez-Crovetto record "tarumá-guazú". Other recorded names or variants are "acietuna", "azietuno", "cafiaguate", "ipé preto", "taroma", "taruma", "tarumã", "tarumá de varzea", "taruman", and "taryma guazu". Galled leaves are seen on Ginzberger 820. There is a wood sample of Vogeler 141 in the Botanisches Museum at Berlin and a fruit specimen in the New York Botanical Garden's Economic Museum (no. 6950).

Schauer, in the reference cited above, lists a Riedel collection from near Cujaba, Brazil, collected in September, and a Sieber collection from Pará, not yet seen by me. He says that the species is related to V. orinocensis H.B.K. Huber, in the reference cited above, lists Ducke 3699 and Huber 1630 and 4341, not seen as yet by me. Duss states that the original plant from which he took his collection came to the Jardin Botanique on Martinique from Jamaica (where, if his statement is correct, it must also have been cultivated) and that it is a large tree producing wood excellent for construction purposes. He gives the common name "bois lezard", but since this name applies to V. umbrosa in Jamaica -- a species with which he mis-identified his material -- it is probable that his other notes also apply to it. Stellfeld refers to this species as "Vitex cymosa Bert. non Benth.", but I do not know the supposed Benthalian binomial to which he thus refers or to what he means to reduce it.

Citations: COLOMBIA: Antioquia: Vogeler 141 (B). Atlántico: Dugand 395 (F--675954, F--675955, F--635275, Y); Elias 1191 (F--723913, N, N, W--1574290, W--1574291), 1285 (F--771874, N, N, W--1691509). Bolívar: H. M. Curran 114 (F--588531, W--537263, Y), 394 (Ew, G), s.n. [San Martín de Loba] (F--588530, W--537574, Y); Elias 1307 (F--771875, W--1691519). Goajira: Dawe 547 (K, W--1423310); Hanbury-Tracy 289 (K, K, N). Huila: Rusby & Pennell 329 (G, N, W--1041305). Magdalena: C. Allen 936 (K); Balbis s.n. [Bertero 2755; Macbride photos 7883] (B--type, B--isotype, B--isotype, B--photo of isotype, Dc--isotype, Dc--isotype, F--645722 --photo of type, Kr--photo of isotype, N--photo of type, N--photo of isotype, N--photo of isotype, Z--photo of type, Z--photo of isotype); Bertero 2544 (Mu--628); Espíña 12 [Mus. Yale School Forest. 20461] (F--692418, Y); Killip & Smith 21091 (A, G, N),

21099 (A, G, N); Romero Castañeda 687 (W-1954751), 952 (N), 1014 (N), 1029 (N), 1121 (N); A. Schultze 272 (B), 378 (B, B); H. H. Smith 1936 (A, B, Bm, Br, Cb, Cb, Cm, D-528756, E-116110, Ed, F-138762, G, K, Le, N, P, S, Ut, Vt, W-600337); Stübel 30 (B, B). Tolima: Haught 6325 (W-2045930). VENEZUELA: Falcon: Curran & Haman 744 (A, G, K, N, W-1043304). Zulia: Karsten s.n. [Perija, Maracaibo] (V); A. S. Müller 1114 (Ve); Pittier 10477 (B, Cb, G, N, P, Ve-12865, W-1187170), 10491 (G, N, Ve-10866, W-1187181); Plée 12 (P, P, P). BRAZIL: Amazonas: Ducke 148 [Mus. Yale School Forest. 22608] (A, F-699129, Y), 476 (F-901850, N, S), s.n. [Herb. Rio de Janeiro 24394] (B, W-1692635); Fröes 21058 (Be-16459, N), 26214 (N), 26506 (N); Krukoff 4502 (A, B, Cb, K, N, Ut). Bahia: Martius s.n. [Catingas, pr. Caiteta] (Mu-634). Goyaz: Burchell 7977 (K, K). Maranhão: Fröes 11695 (N); Murça Pires & Black 1532a (N), 2093 (N). Matto Grosso: Collector undesignated 17 (Br); Collenette 161 (K, K); F. C. Hoehne, Com. Rondon 495 (B), 4608 (Ja-5977), 5069 (Ja-5973); Krukoff 1472 (A, B, Cb, K, N, P, Ut); Malme 2307 (N, S, S, Us); Martius 1023 (B, Br, Dc, K, M, Mu-635, P, V); S. Moore 278 (B, Bm, C, Vu); Schwacke 4546 (Cb); Silva-Manso s.n. [Cuyaba] (Br). Minas Gerais: Glaziou 19723 (B, Cp, K, N--photo, P, Z--photo); Macedo 730 (N, Sp-53707), 2529 (S, S); Martius 1784 (Mu-629), s.n. [Vao de Paranã] (Mu-630, Mu-631, Mu-632, Mu-633); Saint-Hilaire A¹. 496 (P, P, P, P); Warming 818 (Cp). Pará: G. A. Black 929 (Be-29418), 50-9115 (N), F.30 [47-1127] (Be-29585); Capucho 342 (F-659491); Dahlgren & Sella 213 (F-602543, F-602544, I); Ducke 3628 (Cb), 6734 (Bm); Fröes 22451 (Be-28985), 30223 (Z); Ginzberger 820 (F-935042); Krukoff 1259 (A, B, Bm, Cb, E-1031721, K, Mi, N, P, S, Ut), 5903 (Br, Br, F-874502, F-874503, K, N, S, W-1660269); Murça Pires & Silva 4288 (N); Spruce 690 (Mu-636), 981 (K), s.n. [Vicinity of Santarem, July 1850] (B, Bm, Cb, Ed, K, K, N, V, X); Zierny 821 (F-935096). Paraná: Ducke 1268 (B). Pernambuco: Pickel 3525 (I). Rio de Janeiro: Burchell 1718 (K); Saint-Hilaire A¹. 497 (P). State undetermined: Burchell 7982-2 (K, K, K, Le, P); Glaziou s.n. (P); Martius 1097 (Br); Sellow 461 (B, B). BOLIVIA: Chiriqui: D'Orbigny 827 (P). El Beni: Cárdenas 3527 (N); Werdermann 2336 (S). La Paz: E. Fleischmann 571 (S, S). Santa Cruz: Bourke-Borrowes 80 (K); D'Orbigny 829 (Br, Cb). PARAGUAY: Collector undesignated 81 (Ug-9223); Fiebrig 265 (A, B, B, Bm, Cb, Cb, Ed, Ed, Ed, F-176146, G, K, Le, Mu-4041, V, W-1159386); Hassler 1252 (Bm, Ca-944368, K, N, N, P, S, X), 3443 (A, B, Bm, Cb, Cb, F-869613, K, N, P, S, V, X), 3443a (A, B, Bm, Ca-944367, Cb, Cb, F-876608, K, K, N, P, V, X), 12307 (A, B, Bm, Ca-930293, Cb, Cb, Cp, E-848246, Ed, G, K, Le, N, S, W-1057261), 12307a (Ca-930292, N, S); Kuntze s.n. [Sud Paraguay, Sept. 1892] (B, N, W-701069); Malme 1050 (G, N, S, S, Us, Us, W-1124361, W-1183-510); Morong 797 (Bm, C, C, D, E-116204, Ed, F-13065, G, K, Mi,

W--58260, W--1416722, X, X); T. Rojas 1883 [Herb. Hort. Paraguay 10068; Herb. Osten 13570] (N, Ug). ARGENTINA: Formosa: Jørgensen 2475 [Herb. Osten 13674] (E--331857, G, N, Ug, W--1055183). CULTIVATED: Hawaiian Islands: Yuncker 3597 (Dp). Martinique: Bélangier 299 (P); Duss s.n. (B). Paraguay: Balansa 1022 (B, Bm, Br, Cb, Cb, K, Lu, P, P, S, X). Peru: Weberbauer 5341 (B).

VITEX DEGENERIANA Moldenke, Alph. List Common Names 21, hyponym (1939); Trop. Woods 64: 32--33. 1940.

Literature: Moldenke, Alph. List Common Names 21. 1939; Moldenke, Geogr. Distrib. Avicenn. 27. 1939; Moldenke, Trop. Woods 64: 32--33. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; Moldenke, Phytologia 2: 118. 1944; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 200. 1949.

Shrub or tree, to 8 m. tall; branches and branchlets medium-slender, obtusely tetragonal, gray, densely puberulent with ferruginous or fulvous hairs, becoming less so in age, more or less flattened and ampliate at the nodes; twigs very slender, very densely hirsutulous-pubescent with longer decidedly fulvous hairs; nodes annulate; principal internodes 0.5--3 cm. long or elongate to 12.5 cm. on vigorous shoots; leaves decussate-opposite, 3--5-foliolate; petioles slender, 1.5--2.5 cm. long, densely hirsutulous with decidedly fulvous hairs when young, becoming more appressed short-pubescent and ferruginous or brown in age, flattened above, not canaliculate nor margined, convex beneath, not ampliate at the base; petiolules absent or to 1 mm. long and densely hirsutulous like the petioles; leaflet-blades membranous when young, firmly chartaceous in age, uniformly dark-green on both surfaces, the central one elliptic, 4.5--6.5 cm. long and 1.2--2.8 cm. wide, obtuse or acute at the apex, entire, attenuate or acute at the base, the lateral ones slightly smaller, densely velutinous with brownish hairs on both surfaces when young, becoming merely short-pubescent or densely puberulent in age; inflorescence terminal, much abbreviated and congested, densely many-flowered, densely and conspicuously velutinous-villous throughout with fulvous hairs; peduncles very short or obsolete; pedicels obsolete; bractlets linear, 4--5 mm. long; calyx campanulate, about 5 mm. long and 3 mm. wide, densely villous with fulvous hairs, its rim short-dentate; corolla hypocrateriform, white, with light red-violet and yellow patches on the lobes, its tube narrow-cylindric, about 6 mm. long and 1.5--1.9 mm. wide, not noticeably ampliate at the apex, glabrous at the base outside, pulverulent-puberulent above the base, appressed-pubescent toward the apex outside, its limb 8--10 mm. wide, densely fulvous-pubescent or tomentellous on both surfaces, the lower lip conspicuously enlarged; stamens somewhat exserted, projecting about 4 mm. beyond the corolla-mouth; filaments dark-violet; style slightly longer than the stamens; stigma bifid, its branches less than 1 mm. long; fruiting-calyx and fruit not known.

The type of this species was collected by Emil Heinrich Snethlage (no. 653) in a light forest at Urussuby (Remanso) in

Piauhy, Brazil, on July 7, 1925, and is deposited in the herbarium of the Botanisches Museum at Berlin. The wood is said to be used by the natives, and common names recorded for the tree are "mamma-cacharro" and "mannua cachorro". It is named in honor of my esteemed friend and colleague, Otto Degener (1899--), who has botanized and collected so extensively in Massachusetts, Louisiana, Mississippi, New Mexico, Texas, Arizona, California, Bermuda, the Bahamas, the Fiji Islands, and the Hawaiian Islands and whose name will certainly always be associated indelibly with the flora of the Hawaiian Islands.

Citations: BRAZIL: Piauhy: Sneathlage 653 (B--type, N--isotype, N--photo of type, Z--photo of type).

VITEX DENTATA Klotzsch in Peters, Naturwiss. Reise Mossamb. Bot. 265. 1862.

Literature: Peters, Naturwiss. Reise Mossamb. Bot. 265. 1862; Gürke in Engl., Pflanzenw. Ost-Afr. C: 340. 1895; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 320--321. 1900; Sim, For. Fl. & Res. Port. East Afr. 94. 1909; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 57 & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 51 & 103 (1942) and [ed. 2], 120 & 200. 1949.

Branchlets white-villous; leaves remote, 3-foliolate; leaflets ovate, petiolulate, 5--6.5 cm. long, 2.5--3.2 cm. wide, short-cuspidate at the apex, sparsely dentate with a few large teeth on the margins, bright-green and glabrous above, pale beneath with a hairy midrib; cymes axillary, pedunculate, their branchlets pubescent; bractlets linear, pubescent; calyx campanulate, sparsely pubescent, with 5 very acute teeth; corolla hairy, 3 times as long as the calyx; drupe small, obovoid.

The species is known only from the type collection made by Peters in the neighborhood of Tete on the Lower Zambesi River in Portuguese East Africa.

VITEX DINKLAGEI Gürke in Engl., Bot. Jahrb. 33: 294. 1904.

Literature: Gürke in Engl., Bot. Jahrb. 33: 294. 1904; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 57 & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48, 80, & 103 (1942) and [ed. 2], 114 & 200. 1949.

A sparsely hairy plant; leaves opposite; leaflet-blades large, chartaceous to thin-coriaceous, entire, abundantly glanduliferous, the central one over 10 cm. and up to 30 cm. long, those beneath the inflorescence often reduced; peduncles long, over 1.5 cm. in length; flowers over 8 mm. long; calyx plainly separate from the pedicel, to 2.5 cm. long, its tube narrowed below, ampliate to 2 mm. at the level of the teeth, abundantly glanduliferous, its rim plainly toothed, its pubescence appressed, the hairs 2- or 3-celled, with a 1- or 2-celled basal portion and a longer more or less thicker end cell; corolla-tube abundantly glanduliferous, more than 1 1/2 times the length of the calyx-tube, the tip of the upper lip 1/5 to 1/3 the length of the tube; ovary smooth, glanduliferous or marked with only a few hairs, not elongate.

Pieper cites Dinklage 493, 805, 852, 1341, 1344, and 1394, and Ledermann 742 from the Cameroons.

VITEX DIVARICATA Sw., Prodr. 93. 1788.

Synonymy: Tanaecium ? paniculatum Sieber ex Schau. in P. DC., Prodr. 9: 245. 1845. Arrabidaea paniculata (Sieber) Seem., Trans. Linn. Soc. Lond. Bot. 23: 14. 1862. Vitis divaricata Sw. ex Moldenke, Prelim. Alph. List Invalid Names 52, in syn. 1940.

Literature: Sw., Prodr. 93. 1788; P. DC. in A. DC., Prodr. 9: 245. 1845; Griseb., Fl. Br. W. I. 502. 1861; Seem., Trans. Linn. Soc. Lond. Bot. 23: 14. 1862; Urb., Symb. Ant. 4: 537--538. 1911; Britton & P. Wils., Scient. Surv. P. Rico & Virg. Isls. 6: 149. 1925; R. O. Williams, Guide Roy. Bot. Gard. Trinidad 30. 1927; Freeman & Williams, Useful Pl. Trin. 167. 1928; Seymour, Host Ind. Fungi N. Amer. 588--589. 1929; Trop. Woods 27: 27. 1931; Marshall, Trees Trin. & Tob. 77. 1934; Wolcott & Otero, Journ. Agr. Univ. P. Rico 20: 137, 300, 467, & 626. 1936; Pittier, Suppl. Plant. Usual. Venez. 55. 1939; Moldenke, Geogr. Distrib. Avicenn. 6--12, 20, & 40. 1939; Moldenke, Lilloa 4: 325--327. 1939; Moldenke, Prelim. Alph. List Invalid Names 5, 43, & 52. 1940; Moldenke, Suppl. List Common Names 17. 1940; Moldenke, Alph. List Invalid Names 4, 43, & 56. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 26--30, 32, 75, & 103. 1942; Hodge, Journ. N. Y. Bot. Gard. 43: 198. 1942; Moldenke, Phytologia 2: 119. 1944; Gregory & Vélez, Caribb. Forester 7: 16, 20, 22, & 33. 1946; Beard, Caribb. Forester 7: 41, 50, & 56. 1946; Daniel, Verb. Cent. Antioq. 7. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 47--51, 53--57, 65, 165, & 200. 1949; Greig-Smith, Journ. Ecology 40: 290 & 309. 1952; Roig, Dicc. Bot. 1: 708 & 827 and 2: 1115. 1953.

Varying from a bush or shrub to a tree, to 20 m. tall; trunk to 80 cm. in diameter, often branchless for 3--6 m.; branches rather stout, white, obtusely tetragonal; branchlets slender, light-gray or whitish, rather obtusely tetragonal, obscurely and minutely puberulent on the younger parts, soon becoming glabrous; twigs slender, often more acutely tetragonal or flattened, brunnescent or nigrescent (in drying), rather sparsely puberulent with very short appressed whitish hairs; nodes not noticeably annulate; principal internodes 0.5--6 cm. long, usually much abbreviated; leaf-scars large and prominent, corky; leaves decussate-opposite or subopposite, 3-foliolate, rarely 1-foliolate or 5-foliolate; petioles slender, 1--8.5 cm. long, convex or keeled beneath, flattened and shallowly canaliculate above, minutely puberulent throughout, usually blackish or dark-brown in drying, not noticeably ampliate at the base nor disciform at the apex; leaflets mostly very unequal in size, the central one much larger than the two lateral ones, all petiolulate on slender lightly puberulent blackish and pronouncedly flattened and margined petiolules 1--8 mm. long, the lateral petiolules usually considerably shorter than the central one; leaflet-blades thin-chartaceous or membranous or even becoming firmly thick-chartaceous in age, dark-green above, lighter beneath, usually brunnescent or

nigrescent in drying, the central one broadly oblong, oblong-elliptic, or elliptic, 4.5--21.5 cm. long, 2.3--9 cm. wide, acuminate or short-caudate at the apex, entire, acuminate at the base, often very abruptly acuminate at both ends, glabrate or glabrous on both surfaces except for a slight pulverulence or puberulence along the midrib and sometimes the larger venation, the lateral ones usually much smaller, often greatly reduced, occasionally absent, not as broad and more uniformly elliptic and less abrupt at both ends; midrib slender, flat or usually subimpressed above, prominent beneath; secondaries slender, 9--14 per side, mostly numerous and rather close together, ascending, rather straight, not much arcuate except near the margins beneath where they are arcuately joined, flat or obscurely subimpressed above, quite prominent or prominulous beneath; vein and veinlet reticulation fine and abundant, often subprominulous above, usually not at all prominulous beneath or only the largest portions prominulous, often only the larger portions at all visible beneath, but all the finest portions prominulous above; inflorescence axillary, cymose, divaricate, 5--14 cm. long, 2--9 cm. wide, usually 3 or 4 times dichotomous, each dichotomy widely spreading, usually about 6--31-flowered, the cyme-branches slender and conspicuously flattened; peduncles slender, flattened, 1.8--9.5 cm. long, blackish, minutely and sparsely puberulent or glabrate; cyme-branches elongate, flattened, blackish, minutely and obscurely puberulent or glabrate; pedicels slender, 1--3 mm. long, minutely and sparsely puberulent or glabrate, blackish; bracts few, foliaceous, simple, stipitate, to 1.5 cm. long, or usually absent; bractlets linear, 2--4 mm. long, mostly caducous; prophylla linear, about 1 mm. long, obscure; calyx campanulate, about 2 mm. long and wide, its rim subtruncate; corolla varying from violet, blue, or pale-purple to heliotrope, lavender, or delicate lilac, 8--10 mm. long, sweetly scented, densely puberulent; fruit obovoid-ellipsoid, black, 8--10 mm. long.

The species inhabits mountain ridges, woods and mountain forests, thickets, and second growth on hillsides, ascending to 1500 meters in Venezuela. It has been collected in anthesis from March to July, and in fruit from July to September and in January. One collector states that the "primary pedicels 2--4 (rarely 9) mm. long", but I have not as yet seen any that long. Smith & Smith report that the species is not rare on St. Vincent and that the leaves are partly deciduous at about flowering time. The brunnescent or nigrescent twigs, petioles, leaflet-blades, peduncles, and cyme-branches and the white branches and branchlets are most distinctive. The Missouri Botanical Garden's specimen of Sieber, Pl. Trinit. 247 is 5-foliolate and has thicker leaflet blades than usual. It may possibly represent a hybrid with V. compressa Turcz.

The species is called "totumillo" or "totumillo blanco" in Venezuela; "higuerillo", "palo de pendula", "pendola", and "pendolo blanco" in Puerto Rico; "bastard fiddlewood" on St. Vincent; "timber fiddlewood" in Tobago; "black fiddlewood" in Trinidad; "bois lézard" on Martinique and Dominica; and "bois agouti"

"bois manive agouti", "manive agouti", and "côte lizard" on Guadeloupe. Van Wijk also records the name "bois d'agati", "bois d'agouti", and "bois de lézard". The "ofón criollo", "roble guayo", and "roble del cauto" of Roig, however, probably apply to var. cubensis Urb. only, although credited by him to the typical form of the species.

Cowles reports that the leaves are deciduous in May and the bark shredding. Marshall states that the tree yields a very valuable timber. He calls it "a nearly evergreen tree, not exacting as to soil and site; has large and deep root system; flowers in June; fruit a small, purplish black, fleshy drupe, ripens in July and can be collected from under the tree; care must be taken to avoid unripe fruit, which after a day or two on the ground, turns black and appears ripe; germination variable and erratic over a period of a few weeks to several months. Seedling and subsequent growth rapid. Transplanting is easy -- one-year seedlings pruned back to within a few inches of the ground give the best results. Species is a light demander. Coppices well. Has no serious pests. Wood light to dark brown, of medium density, strong, durable." The wood is used for construction in Martinique. Daniel says of it "Arbol mediano muy distribuído en las Antillas, de buena madera y que se está difundiendo mucho para fines de reforestación; tiene las hojas trifoliadas y las flores azules". Johansen says "hard wood used for building, timber, and tools". Hodge says that in Dominica the wood is used to shingle roofs.

The Trin. Bot. Gard. Herb. 3782, cited below under "CULTIVATED", bears a label reading "Bush near carpenter's shop" and so may possibly be from wild material. The type of Tanaecium ? paniculatum is Sieber, Fl. Mart. 81 -- one of which specimens in the herbarium of the Botanisches Museum at Berlin is mis-identified as Jacaranda bahamensis R. Br. The Curran & Haman 399 distributed as Vitex divaricata is actually Tabebuia serratifolia (Vahl) Nichols. and their numbers 459 and 587 are either that species or Tabebuia billbergii (Bur. & K. Schum.) Standl. The Cardona 2382 distributed as Vitex divaricata is not verbenaceous. Cowgill 519 was originally mis-identified as Cornutia obovata Urb., and a Pavon specimen labeled "Peroú" was distributed as "Cornutia sp. nova". The Herb. Mus. Stockholm s.n. specimen cited below was identified as Duranta sp. and the Herb. Reichenbach f. 220002 as Duranta plumieri Jacq. The Herb. Pavon s.n. cited below was identified as Vitex trifoliata Pav., a synonym of V. pyramidata B. L. Robinson of Mexico. The Sessé, Mociffo, Castillo, & Maldonado 2187 bis, cited below, was mixed with 2187, which is Vitex mollis H.B.K. of Mexico.

Box, in his Fl. Antigua (mss.), states that V. divaricata is found in forests approaching the rainforest type in the southwestern district of the island, where it is rare and local. He says it is "another survivor of the original forest covering of this part of the island, showing affinities with the Caribbean mountain-forest."

The species is infested in Puerto Rico by the insects Aspidiotus cyanophylli Signoret, Lachnopus coffeae Marshall, and Pyrausta cerata F., as well as by the fungi Laschia dussii Pat., Phyllachora taruma Speg., Plicatura guadelupensis (Pat.) Murrill [Xerotus guadelupensis Pat.], Coriolus hirsutus (Wulf.) Quél. [Polyporus hirsutus Wulf.], Melanopus nephridius (B.) Pat. [Polyporus nephridius B.], and Phellinus scruposus (Fries) Pat. [Polyporus scruposus Fries].

Citations: JAMAICA: Caley s.n. (Bm); W. Harris s.n. [23.VII. 95] (Ol). HISPANIOLA: Dominican Republic: R. A. Howard 12207 (N). Haiti: Desportes s.n. [Herb. Jussieu 5045a] (P). PUERTO RICO: Britton & Britton 7250 (N), 7254 (N), 7368 (N); Chardon Palacios s.n. [4-13-18] (It); M. T. Cook 25 (N); Cowgill 519 (It); Cowles 304 (N); Durland s.n. (Y, Y); Eggers 997 (B, B, B, Br, Mu—3898, P, V, Vu, X); Fredholm 4625 (J); Gundlach 1487 (B); Horne s.n. [Casa Maria, April 24, 1933] (N); Johansen 44 (Oa); J. R. Johnston 340 (N); Otero 750 (Bt—58049, N, N); Plée 940 (P); Sintenis 2601 (B, B, Bm, Cb, G, Go—photo, I—photo, K, Lu, Mu—3900, N—photo, Po—63437, S, Us, W—1323351, X, Z—photo), 2663 (B, Bm, Br, Cb, Cb, Cb, Cb, Cm, D, E—116207, Ed, Es, F—79637, Le, Lu, N, P, Pa, V, Vu, W—58253, W—1323350), 4562 (B), 4691 (B, Bm, Cb, Cb, E—116205, Ed, Es, F—79960, G, Io—75759, K, Le, Lu, Mu—3750, N, P, S, V, Vu, W—404150, X), s.n. [V.1889] (Ol); Stahl 91 (B), 802, in part (B), 876 (B), 876b (B); J. A. Stevenson 553 (W—1475746). VIRGIN ISLANDS: St. Croix: Crudy 14 (Mu—637); L. C. Richard s.n. [St. Croix] (P); Ryan s.n. [1778] (Bm). St. Thomas: Eggers s.n. [22 Sept. 1876] (Br—photo, G, Le—photo, N—photo, Z—photo), s.n. [Sept. 1881] (W—1323352). LEEWARD ISLANDS: Antigua: Box 1006 (N). Dominica: Eggers 796 [Herb. Prager 18677] (B, B, B, Br, Ca—453282, Cb, Gg, Gg—31480, Le, Mu—3899, N, V, Vu, X), s.n. [Mai 1882] (B, Cp); Hodge 3847 (N); Imray 8^a (K), 144 (K), 264 (K), 348 (K), s.n. (G); Nicholls 122 (B); Ramage s.n. [May 24, 1888] (B, Bm). Guadeloupe: Badier 124 (Dc, P); Duchassaing s.n. (P); Duss 218 (P), 306 (P), 2385 (B, N), 3489 (B, N); Grisebach s.n. (E—116122); Imray s.n. (K); L'Herminier s.n. [Guadeloupe] (P, P, P, P, X). Montserrat: Ryan s.n. (Cp, Cp). WINDWARD ISLANDS: Martinique: Duss 1967 (B, E—116089, E—116090, F—203537, N, W—849743); Hahn 840 (Bm, Br, Cb, Cb, P), 936 (G, K, P, P); Herb. Reichenbach f. 220002 (V); Sieber, Fl. Mart. 81 (B, B, B, Bm, Br, K, Mu—1469, N—photo, P, X, Z—photo); Terrasson 17 (P), s.n. [Herb. Jussieu 5045] (P). St. Lucia: Masson s.n. (Bm); Ramage s.n. [April 23, 1889] (B, K). St. Vincent: Smith & Smith 616 (B, C, G), 663 (G, K), 1536 (Bm, C, Ed, Ed, G), 1800 (B). TOBAGO: W. E. Broadway 2863 (Br, Cb), 3521 (B, Bm, Cb, Cb, Cb, Cp, E—703109, E—photo, Ed, F—344596, G, Le, Le, N, N—photo, P, P, S, S, Ut, Z—photo), 3984 (B, Bm, F—376550), 4580 (B, Bm, Cb, Cb, Cb, Cp, E—718286, F—409430, G, Mi—photo, Mu—4321, N, N—photo, N—

photo, P, Ut, W—756015, Z—photo, Z—photo). TRINIDAD: W. E. Broadway 2710 (B, B, Ed, Ed, F—249083), 6636 (Bm, E—972707, Po—195402, W—1343491); Crüger 34 (K); R. C. Marshall s.n. [Trin. Bot. Gard. Herb. 11906] (K, R); McLean s.n. [Trin. Bot. Gard. Herb. 7722] (N, R, R); Sieber, Fl. Trinit. 247 (B, Cb, Cb, E—116192, Ed). VENEZUELA: Aragua: Jahn 483 (Ve, Ve, W—1065393); H. Pittier 8628 (W—58259); Ll. Williams 10111 (F—940645, F—1004683), 11119 (F—990521). Federal District: Whitford 43 (A, G, Y). CULTIVATED: Belgium: Nyst s.n. (Br). Scotland: Herb. Mus. Stockholm s.n. (S). Trinidad: W. E. Broadway s.n. [Trin. Bot. Gard. Herb. 3694] (R, W—940097), s.n. [Trin. Bot. Gard. Herb. 3782] (B, R). LOCALITY OF COLLECTION UNDETERMINED: Collector un-
designated s.n. [West Indies] (Cb); Herb. Adanson s.n. [West Indies] (P); Herb. Liebmann s.n. [West Indies] (Cp); Herb. Pavon s.
n. [Nueva España] (X); Herb. Vahl s.n. (Cp); Sessé, Mociffo, Cas-
tillo, & Maldonado 2187 bis [West Indies] (F—847134, Q). MOUNTED
 ILLUSTRATIONS: Krug, Icon. Pl. Portoric. pl. 98 (B).

VITEX DIVARICATA var. CUBENSIS Urb., Symb. Ant. 7: 357—358. 1912.

Synonymy: Vitex divaricata Griseb. apud Urb., Symb. Ant. 7: 358, in syn. 1912 [not V. divaricata Sw., 1738, nor Baker, 1900]. Vitex divaricata var. haitiensis Urb., Arkiv Bot. 22A, no. 17: 110. 1929. Vitex divaricata subsp. cubensis Urb., in herb.

Literature: Griseb., Cat. Fl. Cub. 216. 1866; Sauv., Fl. Cub. 113. 1868; Urb., Symb. Ant. 7: 357—358. 1912; Moldenke, Geogr. Distrib. Avicenn. 6 & 7. 1939; Moldenke, Alph. List Common Names 26. 1939; Moldenke, Prelim. Alph. List Invalid Names 50. 1940; Moldenke, Alph. List Invalid Names 53. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 25, 26, & 103. 1942; Moldenke, Phytologia 2: 119. 1944; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 15. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 45, 48, 165, & 200. 1949; Roig, Dicc. Bot. 1: 708, 827, & 2: 1115. 1953.

This variety differs from the typical form of the species in its usually smaller leaves, the secondaries being distant, few, 6—9 in number (rarely to 13 on larger leaflets), flat or only very slightly prominulous beneath; the entire secondary, vein, and veinlet reticulation obscure or indiscernible above, the veins and veinlets usually also obscure or indiscernible beneath (except for the larger portions), and much smaller inflorescences.

It is said to be a shrub or even a tall tree, 2—10 m. tall, the bark light-brown and shreddy, the leaves 3—5 (or rarely 7) -foliolate, the petioles 1—6 cm. long, the leaflet-blades 1.5—13 cm. long and 1—4.5 cm. wide, rounded or acute at the apex, acute or shortly-acuminate at the base, the vein and veinlet reticulation usually indiscernible or very obscure on both surfaces even on old mature leaves, the secondaries sometimes visible above, the primary pedicels 5—12 mm. long, the corolla purple, violet, or blue, and the fruit fleshy and black.

The variety is based on C. F. Baker 3409, collected at La Mag-

dalena to Cayamas, Las Villas, Cuba, on February 12, 1905, P. Wilson 1066 from near Rincon, Havana, collected on August 9, 1904, C. Wright 3179 from along the Rio Agabama, Las Villas, collected on March 12, 1865, Combs 203 from the savannas at Cieuequita, near Cienfuegos, Las Villas, collected on June 18, 1895, and Sagra s.n. from Havana, all deposited in the herbarium of the Botanisches Museum at Berlin.

The type of var. haitiensis was collected by Erik Leonard Ekman (no. H.10502) on cliffs between Trou-d'Enfer and Faux-Cap, Dame Marie, in the western group of the Massif de la Hotte, Haiti, on August 9, 1928, and is also deposited at Berlin. Its leaves are 5--7-foliolate.

The vernacular names "ofón criollo", "roble guayo", and "roble del cauto" listed by Roig for V. divaricata probably apply only to this variety; likewise the "ofon criollo" and "roble gttiro" of Sauvalle. Other common names recorded for it are "olon criollo" and "roble guiro". The "Vitex divaricata" of Grisebach, Cat. Fl. Cub. 216 (1866) and Sauvalle, Fl. Cub. 113 (1868) are this variety, too. It has also been mis-identified in herbaria as V. trifolia L.

The variety inhabits savannas, thickets, woods, open pastures, and river banks, and is found among dry rocks and especially limestone rocks, ascending to 500 meters altitude, collected in anthesis in February, March, April, July, and August, and in fruit from June to September. A bark specimen is preserved on P. Wilson 1066 in the Britton Herbarium at New York. Leaves with 5 leaflets are seen on C. Wright 3179 in the Gray Herbarium, Jack 5487 at Kew and in the United States National Herbarium, León & Roca 7831 in the Britton Herbarium, Roig 3239 in the Britton Herbarium, León 11481 in the Britton Herbarium, and on Ekman 6274, 6518, and 11448 at Stockholm. According to Roig, the wood is used in Cuba.

Citations: CUBA: Camagüey: Roig 868 (Es); Roig, Luaces, & Arango 6171 (Es). Havana: Ekman 759 (B, N, S); León 11481 (Ha); León & Roca 7245 (Ha, N); Sagra 527 (Dc), s.n. (B-cotype, Dc-cotype); P. Wilson 1066 (A-cotype, B-cotype, Es-cotype, N-cotype, Po-63844-cotype, Po-64787-cotype, W-523673-cotype). Las Villas: Alain A.1614 (N); C. F. Baker 3409 (A-cotype, B-cotype, Ha-cotype, N-cotype, Po-63840-cotype, Po-64788-cotype); Combs 203 (B-cotype, E-116206-cotype, F-358008-cotype, G-cotype, Io-35350-cotype, K-cotype, Ka-61193-cotype, N-cotype, W-1409905-cotype); Cuesta 540 (N); R. A. Howard 6613 (N); Jack 5487 [Sept. 21, 1927] (F-702518, K, N, P, W-1477761, W-1477819), 5487 [July 6, 1930] (A, B, Ba, W-1477837), 6034 (Ha, N, P, P), 7186 (A, K, P, Po-196674, W-1477559), 8113 (A, B, N, S); León 14623 (Ha, N); León & Clément 5304 (Ha, N); León & Roca 7831 (Ha, N); C. Wright 3179 [1860--1864; Herb. Sauvalle 1784] (Bm-cotype, Cb-cotype, Cb-cotype, E-116123-cotype, G-cotype, Hv-cotype, Hv-cotype, Hv-cotype,

K—cotype, N—photo of cotype, Os—cotype, P—cotype, S—cotype, T—cotype, V—cotype, X—cotype, X—cotype, Z—photo of cotype), 3179 [1865] (Br—photo of cotype, E—photo of cotype, Go—photo of cotype, Le—photo of cotype, Mi—photo of cotype, N—photo of cotype, Pa—cotype, S—photo of cotype, T—cotype, W—58258—cotype, Z—photo of cotype), 3179 [no date] (B—cotype, B—cotype, S—cotype). Oriente: Clément 4626 (Ha); Ekman 6206 (N), 6274 (N). Pinar del Rio: Alain 2905 (Ha), 4278 (Z); Britton & Cowell 9917 (N); Ekman 11448 (B, S); Fors 16203 (Es); León 7369 (N), 11481 (N), 12684 (Ha, N), 13473 [Mus. Yale School. Forest. 16306] (F—689287, Y—16305); León & Roca 7369 (Ha); Roig 1187 (Es), 3235 (S), 3239 (N), 8539 (Es); Shafer 13471 (B, Bm, F—391918, N, W—757341), 13821 (B, Bm, D—555977, E—707411, N, W—757525). Province undetermined: Lambert 37 (Dc); Schott s.n. (F—41527). HIS-PANIOLA: Haiti: Ekman H.10502 (B, I—photo, Mi—photo, N, N—photo, N—photo, S, W—1144035, W—1479699, Z—photo, Z—photo), CULTIVATED: Cuba: Moldenke & Moldenke 19890 (Es, Lg, Mg, Mr, N, No, Ot, Sm).

VITEX DIVERSIFOLIA Kurz, Rep. Veget. Andaman Isls. A.45 [& B.14]. 1870 [not V. diversifolia Baker, 1900].

Baker's Vitex diversifolia is a synonym of V. simplicifolia Oliv., an African species. The "B.14" reference in Kurz's book has not been found in the New York Botanical Garden library copy, but is cited by Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 64 (1928). The species has been collected in hill jungles, blooming in May.

Citations: ANDAMAN ISLANDS: South Andaman: King s.n. [23-5-91] (Bz—24042, N—photo, Z—photo).

VITEX DJUMAENSIS DeWild., Fl. Bas- & Moyen-Congo 128. 1909.

Literature: DeWild., Fl. Bas- & Moyen-Congo 128. 1909; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 51, 70, & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49 & 103 (1942) and [ed. 2], 115 & 200. 1949.

This is a shrub or small tree, to 7 m. tall; leaves ternate, glabrous on both surfaces; flowers medium to large, to 2 cm. long, the upper corolla-lip short-lobed; calyx small, to 2.5 mm. long, cupuliform, shorter or slightly longer than wide, actinomorphic to slightly zygomorphic, its rim subtruncate or short-toothed; corolla mauve; style thickened at the base; ovary subobovate to broadly elliptic.

The species is said to be very abundant on mountains and is also found in sandy soil and wooded savannas, in flower in November, in fruit in February and April. Common names recorded for it are "kafutufutu", "kafutunieka", "kafutwanieka", and "kanfulu". Luxen reports that it is used as a purgative by the natives, while Saeger says "la decoction à chaud des feuilles est utilisée particulièrement par les femmes indigènes pour se laver et se débarrasser des poux."

Pieper cites Gillet 2793 and Gentil s.n. from the Djuma Valley

in the Belgian Congo.

Citations: BELGIAN CONGO: Bredo 3063 (Br, Br); Comité Spec. Katanga 104 (Br); Gilbert 420 (Br), s.n. (Br); Louis 13325 [Isalowe Coll. 870] (Br); Luxen 153 (Br, Br); Pittery 820 (Br, Br); Quarré 1817 (Br), 2751 (Br, Br, Br, Br, Br, N, N--photo, Z--photo), 7444 (Br, N); Saeger M.2 (Br, Br, Br, N).

VITEX DONIANA Sweet, Hort. Brit., ed. 1, 323. 1826 [not V. doniana Hiern, 1900].

Synonymy: Vitex umbrosa G. Don ex Sabine, Trans. Hort. Soc. 5: 455. 1824 [not V. umbrosa Sw., 1788]. Vitex cuneata Schum. & Thonn., Kongl.-dansk. Videerst. Salsk. Afh. 4: 63. 1827. Vitex cuneata Thonn. in Schum., Beskr. Guin. Fl. 289--290. 1827. Vitex cienkowskii Kotsch. & Peyr., Pl. Tinn. 27, pl. 12. 1867. Vitex paludosa Vatke, Linnaea 43: 534. 1882. Vitex dewevrei DeWild. & Th. Dur. in Th. Dur. & DeWild., Bull. Soc. Bot. Belg. Compt. Rend. 38: 133--134. 1899. Vitex divaricata J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 327. 1900 [not V. divaricata Sw., 1788]. Vitex homblei DeWild. in Fedde, Repert. 13: 142. 1914. Vitex obtusifolia Vahl ex Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 72, in syn. 1928.

Literature: Sw., Prodr. Veg. Ind. Occ. 93. 1788; Sabine, Trans. Hort. Soc. Lond. 5: 455. 1824; Sweet, Hort. Brit., ed. 1, 323. 1826; Schum. & Thonn., Kongl.-dansk. Videersk. Salsk. Afh. 4: 63. 1827; Schum., Beskr. Guin. Fl. 289--290. 1827; Sweet, Hort. Brit., ed. 3, 551. 1839; Schau. in A. DC., Prodr. 11: 694. 1847; Kotsch. & Peyr., Pl. Tinn. 27, pl. 12. 1867; Vatke, Linnaea 43: 534. 1882; Jacks., Ind. Kew. 2: 1213. 1895; Gürke in Engl., Pflanzenw. Ost-Afr. C: 339. 1895; Th. Dur. & DeWild., Bull. Soc. Bot. Belg. Compt. Rend. 38: 133. 1899; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 323 & 327--328. 1900; Hiern, Cat. Afr. Pl. Welw. 4: 836. 1900; DeWild. & Th. Dur., Contrib. Fl. Congo 2: 50. 1900; DeWild. & Th. Dur., Reliq. Dewev. 185. 1901; DeWild., Etudes Fl. Bas- & Moyen-Congo 1: 198. 1906; Mildbr. in Von Mecklenb., Ergebn. Deutsch. Zentral-Afrik. Exped. 1: 281. 1907--1908; Sim, For. Fl. & Res. Port. East Afr. 94. 1909; Th. Dur., Syll. Fl. Congol. 436--437. 1909; Mildbr., Ergebn. Deutsch. Zentral-Afrik. Exped. 2: 12 & 68. 1910--1911; S. Moore, Journ. Linn. Soc. Lond. Bot. 40: 168. 1911; Fries, Ergebn. Rhodesia-Kongo Exped. 273. 1911--1912; DeWild., Fl. Bas- & Moyen-Congo 467. 1912; DeWild. in Fedde, Repert. 13: 142. 1914; Pellegrin, Bull. Mus. Nat. Hist. Nat. Paris 385. 1919; Menzel, Beitr. Geol. Erforsch. Deutsch. Schutzg. 18: 30. 1920; A. Chev., Explor. Bot. Afr. Occ. Franç. 506. 1920; DeWild., Contrib. Fl. Katanga 164. 1921; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 64 & 71--72. 1928; D. Bois, Les Plant. Aliment. 2: 440. 1928; DeWild., Contrib. Fl. Katanga Suppl. 2: 101. 1929; DeWild., Pl. Bequaert. 5: 8--9. 1932; Junell, Symb. Bot. Upsal. 4: 93. 1934; Moldenke, Alph. List Common Names 1, 5, & 23. 1939; Moldenke, Geogr. Distrib. Avicenn. 6 & 40. 1939; Moldenke, Prelim. Alph. List Invalid Names 50--52.

1940; Moldenke, *Alph. List Invalid Names* 52--55. 1942; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 25, 45--51, 53, 75, & 103. 1942; Moldenke, *Phytologia* 2: 119. 1944; F. R. Irvine, *Journ. N. Y. Bot. Gard.* 49: 233. 1948; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 45, 109--120, 123, 165, 166, & 200. 1949; H. N. & A. L. Moldenke, *Anal. Inst. Biol. Mex.* 20: 15. 1949; Roig, *Dioc. Bot.* 1: 708 & 2: 1115. 1953; F. R. Irvine, *Lejeunia* 16: 40. 1953; Keay, *Lejeunia* 16: 23. 1953; Brennan, *Mem. N. Y. Bot. Gard.* 9: 38. 1954.

Shrub or tree, to 16 m. tall; trunk to 20 cm. in diameter; branches stout, obtusely tetragonal or subterete, gray, medullose, glabrate; branchlets and twigs rather stout, dark-brown in drying, lenticellate with very slender linear lenticels, very obtusely tetragonal or subterete, finely pulverulent-puberulent on the youngest parts, becoming merely pulverulent in age; nodes on the twigs annulate with rather obscure often deeply U-shaped annulations which are usually more densely puberulent on the youngest parts; principal internodes 2.5--7.5 cm. long, usually elongated; leaves decussate-opposite or subopposite, 5--7-foliolate; petioles stout, 7.5--17 cm. long, convex beneath, conspicuously flattened and canaliculate above, very slightly or not at all ampliate at the base, disciform at the apex, minutely puberulent throughout; leaflets subequal or very unequal in size, the lowest often much reduced, all petiolulate on long, stout, minutely puberulent, deeply canaliculate, and margined petiolules 2--25 mm. long, the lowest (if the leaflets are reduced in size) much shorter or all approximately the same length; leaflet-blades rather uniformly dark-green on both surfaces or somewhat lighter or grayish beneath, nitidulous, thin-chartaceous during anthesis, becoming very firm or even coriaceous in age, the central one elliptic or obovate, 10--28 cm. long, 2.5--10.5 cm. wide, abruptly acute or short-acuminate at the apex (rarely obtuse, emarginate, or even slightly cuspidate), entire, attenuate or cuneate at the base (rarely acute), glabrate on both surfaces or very minutely and obscurely pulverulent beneath and along the midrib above; midrib slender or stout, flat above, very prominent beneath; secondaries slender, 10--12 per side, arcuate-ascending, rather straight and not much arcuate except toward the margins where they are arcuately joined, flat above, prominent beneath; vein and veinlet reticulation obscure or indiscernible above, apparently obscure beneath, but conspicuous throughout in a rather unique thick reticulum when viewed under a hand-lens, not much prominent, flattened; inflorescence axillary or supra-axillary, cymose, 6--10 cm. long, 5.5--12 cm. wide, 4--7 times dichotomous, the lowest 1 or 2 furcations widely divergent, the remainder often not divergent, many-flowered; peduncles rather stoutish, 3.5--7 cm. long, decidedly flattened, minutely puberulent throughout; cyme-branches decidedly flattened, usually ampliate at the apex; pedicels obsolete or (on the central flowers in each dichotomy) to 2 mm. long and puberulent; bractlets and prophylla oblong-lanceolate or linear, 1--4 mm. long, to 1.5 mm. wide, puberulent or velutinous; flowers sessile or subsessile, 2-bracteolate at

the base; calyx campanulate, about 3.5 mm. long, tomentose, its rim 5-dentate, the teeth deltoid, acute, about 1 mm. long; corolla varying from yellowish-brown to mauve or scarlet, 1-3 times as long as the calyx, pubescent on the outer surface, densely bearded in the throat within; fruiting-calyx accrescent, to 6.5 mm. long, with very small or obsolete teeth; fruit globose, about the size of a large cherry or plum, edible, olive-like, sweet, yellow when young, later violet, purple-black, blackish, or black; seeds edible.

This species is found widespread throughout tropical Africa and is occasionally cultivated for its edible fruit. It is known from Pleistocene tufa formations in the fossil form in the Cameroons. In Cuba it is known as "ofón" and has escaped from cultivation at Retiro, Santa Cruz de los Pinos, Pinar del Río, where it was collected by Ekman on March 5, 1924. In Cuba it has in the past been mis-identified as *V. umbrosa* Sw. The Creoles in Sierra Leone call it "black plum" and cultivate it for its fruit. In Nyasaland it is called "npindimbi", and in Nigeria "edi". Other common names include "abisoa", "ada", "adaga", "ade", "afetewa", "African oak", "African teak", "angalem", "aranga", "bita", "bokoloko", "burzun", "dínchi", "dinya", "dumniya", "dunya", "dyob", "ebisaa", "ebite lo lowe", "edin", "éji", "ele-ele", "fò", "fò-ti", "fò yi", "fò yi-ti", "fóyi-tsho", "galbihi", "galbiye", "gidjiko", "heul", "ingari", "ink tree", "kafundanieké", "koto", "kudu", "kukpweli", "kukui", "kurugh", "lubei", "lugbei", "luwu-wului", "makwaiwa", "narenga", "ngalbihi", "ngunge", "ngungupia", "nya", "nyarina", "ócha koro", "ofon", "ojelo", "òrì", "òrì-ńlá", "òrì-òdán", "panyerò", "puno-tsho", "roble guiro", "samanibir", "song-sho", "sò-tsho", "tschangbaio", "tschangmaro", "tschingmara", "ucha koro", "um bindois", "um-digulgul", "um-dugulgul", "uoli", and "West African plum".

Chase reports that the species is occasional in forests among *Brachystegia*, in sand and in leaf-mold soil. Pole-Evans and Erens say it is found in moist places in the forest, while Brass says it grows in gullies in *Brachystegia* woodlands. Others describe its habitat as "terra firma". It has been collected in anthesis in February, March, and September, and in fruit in August, November, December, and January. Schweinfurth describes the fruit as olive-like and sweet, prized by the natives. It ascends to 1350 meters in Nyasaland.

Vitex cuneata, based on Thonning 244 from Guinea, deposited at Leningrad, was formerly distinguished from *V. cienkowskii* by the former having the corolla-tube as long as the calyx and the latter having it longer than the calyx. Pieper, however, aptly notes that "Mit *V. cuneata* identisch ist *V. Cienkowskii*, die bisher praktisch nicht von *cuneata* geschieden wurde, wenn auch die Zusammenziehung der beiden Arten nicht erfolgte; denn ausser einem mir aus Petersburg zur Verfügung gestellten Teil des Typus zu *cuneata* scheint von dem Original nichts mehr zu existieren. Ein vielleicht zum Typus gehöriges Exemplar aus Kopenhagen enthielt ausser dem Namen keinerlei Beschriftung. Baker bezeichnet daher alle Exemplare, ausser dem Typus zu *cuneata*, als *Cienkowskii*. Da

ich aber an Hand der Originale die Identität der beiden Arten feststellen konnte, musz der Name Cienkowskii eingezogen werden. Die Aufstellung von V. Homblei und V. Dewevrei erfolgte offenbar auf Grund ungenügenden Materials von cuneata, da die Abweichungen nur sehr geringfügig sind."

The type of V. dewevrei is a Dewevre specimen from Lukungu in Lower Congo. Pieper also states that Sabine's description of his V. umbrosa is not full enough to render its disposition here certain and no type specimen seems to be available. Hiern and Baker both keep it separate. The Sweet, Hort. Brit., ed. 1, 323 reference is often cited as "1827", but the book actually seems to have been published in 1826. Schumacher's Beskr. Guin. Fl. 289--290 is often cited as "1829", but seems to have been issued in 1827.

Roig quotes Pichardo as saying of this species as it occurs in Cuba: "El Sr. Fernández y Jiménez trae un árbol exótico, originario del Africa, donde es conocido de los congos por ofón, aclimatado aquí; se eleva 14 varas, 5 1/2 pies de circunferencia; sus brazos desparramados, gruesos, hojas oblongas sobre-redondas en la parte superior, aterciopeladas por debajo. Florece dos veces al año y entonces echa espigas parecidas a las de las verbenas, a cuya familia pertenece; el fruto como ciruela loca, achocolatado cuando madura y comestible, agridulce, mejor que nuestra ciruela; flores pequeñas, blanco-amarillosas." He adds "En la finca El Retiro, que perteneció a Don José Blain, botánico aficionado, situada al pie de la Sierra Rangel en Taco-Taco, Pinar del Río, existen ejemplares de esta árbol que fructifican abundantemente y sus frutos son como los describe Pichardo."

Junell cites R. E. Fries 670 in the Upsala herbarium. Baker cites Heudelot 379 from Senegal, Millen 118 from Nigeria, Vogel 67 from southern Bornu, Cienkowsky s.n. from Upper Sennar, Heughlin s.n. from Kenya, Schweinfurth 1307 from Denka Territory, Speke & Grant 81 from Nadi, Scott-Elliot 7179 from Usoga, Smith s.n. from the Congo, Welwitsch 5633, 5645, and 5746 from Angola, Cameron s.n. from Lake Tanganyika, Kirk 40 from Portuguese East Africa, Kirk s.n. from Lake Nyasa, Buchanan 80 from the Shire highlands, and Scott s.n. from Karonga. Pieper cites the following additional material: from Guinea: Isert 1785; from Sierra Leone: Scott-Elliot 5211; from French West Africa: Chevalier s.n.; from Togoland: Baumann 6, Busse 3419, Buttner 417, Kersting 36, 376, 428, 549, and 619, Mellin 13, Mildbraed 7318, Warnecke 156b, and Zech s.n.; from Nigeria: Barter 1108 and Rowland s.n.; from Cameroons: Dinklage 404, Ledermann 1939, 2406, 2801, and 3941, Mildbraed 4832, 7947, and 8862, Tessmann 858, Zenker 742, and Zenker & Staudt 302; from the Belgian Congo: Dewevre 459, Homblé 318, Laurent s.n., and Mildbraed 3271 and 3671; from Tanganyika Territory: Döhm & Reichard 101, 101a, and 110a, Drehmer 332 and 780, Busse 3109, Conrads 406, Engler 2169 and 3343, Goetze 1397, Herb. Inst. Amani 3054, Holtz 30, Scholz VIII, Stolz 1350, and

Stuhlmann 6175, 6530, 6683, 8574, and 8627; from Uganda: Nägele 321; from Zanzibar: Hildebrandt 1123, Kirk 1, and Stuhlmann 1089; from British Nyasaland Protectorate: Buchanan 194 and 340 and Meller 5; from Portuguese East Africa: Swynnerton 1056; and from the Comoro Islands: Kirk 4 and Schmidt 225.

The Brass 17074 specimen at the New York Botanical Garden was mis-identified as Vernonia tolypophora Mattf., while Chase 935 was called V. golungensis and Dubois 90 as something in the Bigoniaceae.

Citations: CUBA: Pinar del Rio: Acuffa 10656 (Es); Ekman 18616 (B, N, N, S); C. Wright 505 [Herb. Sauvalle 1784] (Hv). SENEGAL: Leprieur 1830 [Herb. Reichenbach f. 71001] (V). GUINEA: Thonning s.n. [Guinea] (N--photo, S, Z--photo). FRENCH GUINEA: Caille s.n. [Chevalier 14799] (K). GOLD COAST: C. Vigne 3541 (N). TOGOLAND: Baumann 127 (S). NORTHERN NIGERIA: Dalziel 350 (N, N). CAMEROONS: Zenker 742b (N, N, S). FRENCH EQUATORIAL AFRICA: Chad Territory: Schweinfurth 1890 (S). BELGIAN CONGO: Dacremont s.n. (Br, Br, Br, Br, S); DeGraer 224 (Br, N); DeGroof 1 (Br, Br, Br, N); Delevary 189 (S); DeWitte 592 (Br, Br, N); DeWulf 165 (Br, Br, N); L. Dubois 90 (Br, Br, Br, Br); 907 (Br, Br, Br, N), 1001 (Br, Br, Br, N); Germain 23 (Br, Br); Gilbert 383 (Br, N); Herman 2027 (Br, Br, Br, N), 2287 (Br, Br, Br); Hulstaert 213 (Br, N); Lathouwers III. 26 (Br, N); Leontovitch 171 (Br, Br, Br, Br); Louis 10673 (N), 12133 (S); Pittery 63 (Br); Quarré 183 (Br), 1250 (Br, Br, Br), 2651 (N); Robyns 1144 (Br, Br, Br, N); Staner 1405 (Br, Br, Br, Br, Br, Br); Steyaert 61 (Br, Br, Br); Vanderyst 22199 (Br, N). UGANDA: Mearns 2564 (Br, N). TANGANYIKA TERRITORY: Schlieben 1282 (S). BRITISH NYASALAND PROTECTORATE: Brass 17074 (N, N); Pole-Evans & Erens 569 (Rh); Stolz 402 (N, S). PORTUGUESE EAST AFRICA: N. C. Chase 935 (Rh--23683); Honey 928 (Af). COMORO ISLANDS: Humboldt 246 (P, P). MADAGASCAR: Richard 223 (P), 283 (N, P). CULTIVATED: Cuba: C. Wright s.n. (E--116126, G, N--photo, Os, S--photo, Z--photo). Sierra Leone: Deighton 2921 (K). LOACLITY OF COLLECTION UNDETERMINED: Herb. Jard. Colonial Lisboa 7851 (N).

VITEX DONIANA var. PARVIFOLIA (Engl.) Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 79. 1942.

Synonymy: Vitex cienkowskyi var. parvifolius Engl., Pflanzenw. Afr. 5 (1): 40 & 46, nom. nud. 1925. Vitex cuneata var. parvifolia Engl. ex Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 73. 1928.

Literature: Engl., Pflanzenw. Afr. 5 (1): 40 & 46. 1925; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 73 & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 48, 79, & 103 (1942) and [ed. 2], 114 & 201. 1949.

The variety differs from the typical form of the species in having its leaflets only to 10 cm. long.

Pieper cites Ledermann 3437, 3675, 4536, and 4765 from the Cameroons. The common name "kilemba" has been recorded for the

variety, and it has been found in anthesis in October.

Citations: BELGIAN CONGO: DeWitte 18 (Br, Br, Br, Br, N). NORTHERN RHODESIA: Pole-Evans 2988 [45] (Rh). BRITISH NYASALAND PROTECTORATE: N. C. Chase 3863 [Govt. Herb. Salisb. 34298] (Bm, Le, N).

VITEX DRYADUM S. Moore, Journ. Linn. Soc. Lond. Bot. 40: 169. 1911.

Literature: S. Moore, Journ. Linn. Soc. Lond. Bot. 40: 169. 1911; Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 [142]: 49, 66, & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 51 & 103 (1942) and [ed. 2], 120 & 201. 1949.

Large tree; branches often "prostrate"; branchlets about 2 mm. in diameter, leafless toward the base, fulvous-pubescent when young, later glabrescent; leaves mostly 5-foliolate; petioles 5.5--7.5 cm. long, slender, short-pubescent; petiolules rather long, the basal ones 2--4 mm. long, the intermediate ones 4--10 mm. long, and the central ones 15--20 mm. long; leaflet-blades thin-membranous, lanceolate or oblanceolate-oblong, caudate-acuminate at the apex, narrowed toward the obtuse or acute base, entire from the middle to the base, serrate-crenate above the middle, glabrous above, puberulent beneath especially on the larger venation, the basal ones 2--3 cm. long and 1.2--1.5 cm. wide, the central one 8--11 cm. long and 2.5--3.5 cm. wide, all olivaceous above and gray-green beneath in drying; secondaries 9--12 per side; cymes axillary, abbreviated, pedunculate, about 2 cm. long and 1.5 cm. wide, few-flowered, fulvous-sericeous; peduncles about 1 cm. long; bractlets linear, surpassing the pedicels, about 4 mm. long; pedicels about 1.2 mm. long; calyx campanulate, fulvous-sericeous, its tube about 3 mm. long, the lobes hardly 1 mm. long, triangular; corolla-tube about 8 mm. long, surpassing the calyx, about 2 mm. wide at the base and 5 mm. wide at the apex, decidedly curvate at the middle, puberulent on the outside, the lobes fulvous-pubescent on the outer surface, the posterior one ovate, about 3 mm. long, very obtuse, the lateral ones ovate, about 5 mm. long, very obtuse, and the anterior one about twice as long, 7 mm. in length, subquadrate, and very spreading; stamens exserted, the longer ones surpassing the corolla-tube by 4 mm.; anthers 0.5 mm. long, the thecae subparallel; style glabrous, about 1 cm. long, slightly thickened beneath the stigma; ovary ovoid, setose, scarcely 2 mm. long.

The species is said to inhabit open woods, blooming in December. The type is Swynnerton 1062 from Beira, Companhia de Mozambique, Portuguese East Africa.

VITEX DUBOISII Moldenke, Phytologia 4: 60--61. 1952.

Shrub; branches very slender, medullose, very minutely pilosulous or glabrescent, nigrescent in drying, compressed at the nodes on the young parts; nodes not annulate; principal internodes 4--7.5 cm. long; leaves decussate-opposite, palmately compound; petioles very slender, 4.5--11 cm. long, glabrous; petiolules subfiliform, 1--6 mm. long, glabrous; leaflets 5, membran-

ous, often very thinly so, rather uniformly green on both surfaces or somewhat lighter beneath, glabrous or subglabrous on both surfaces, the 2 basal ones much smaller than the rest, the central one oblanceolate, 7.5--13 cm. long, 2.5--4 cm. wide, long-acuminate at the apex, attenuate-cuneate at the base, entire; midrib very slender, flat above, prominulous beneath; secondaries filiform, 6 or 7 per side, arcuate-ascending, plainly anastomosing 1--1.5 mm. from the margins, flat above, prominulous beneath; veinlet reticulation very irregular and fine, obscure or indiscernible above, flat beneath; inflorescence supra-axillary, very much shorter than the subtending petiole, cymose; peduncles filiform, 10--17 mm. long, very sparsely pilosulous or glabrescent, compressed, nigrescent in drying; cymes rather dense, small, many-flowered, their filiform branches compressed and minutely pilosulous or glabrescent; bractlets filiform, 4--5 mm. long; pedicels very short, to 1 mm. long, strigillose; calyx campanulate, about 2 mm. long and wide, strigillose, its rim subtruncate in bud, during anthesis deeply 5-toothed, the teeth lanceolate, about 1 mm. long; corolla densely pubescent on the outside, less than 1 cm. long.

The type of this species was collected by L. Dubois (no. 608) at Bo. Kutu, Ekota territory, Tshuapa district, Belgian Congo, in September of 1934, and is deposited in the herbarium of the Jardin Botanique de l'Etat at Brussels. A common name of the plant is "liseta".

Citations: BELGIAN CONGO: Briey 55 (Br), 262 (Br); Dubois 608 (Br--isotype, Br--type, N--photo of type, Z--photo of type); Gilbert 618 (Br, Br, Br, Br, N).

VITEK DUCKEI Huber, Bol. Mus. Goeldi 5: 217. 1908.

Literature: Huber, Bol. Mus. Goeldi 5: 217. 1908; Le Cointe, A Amaz. Bras. III Arv. e Pl. Uteis 429. 1934; Moldenke, Alph. List Common Names 29. 1939; Moldenke, Geogr. Distrib. Avicenn. 27. 1939; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 39 & 103. 1942; Moldenke, Phytologia 2: 119. 1944; Le Cointe, O Estado do Pará 213. 1945; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 95 & 201. 1949.

Shrub or small tree, about 2 m. tall; branchlets slender, obtusely tetragonal or subterete, gray or brownish, often slightly ampliate at the nodes, very lightly and minutely puberulent, becoming glabrate; twigs very slender, brown, short, puberulent with very short appressed brownish hairs, mostly somewhat compressed; nodes not annulate; principal internodes 0.7--6.5 cm. long; leaf-scars not very prominent nor corky; leaves decussate-opposite, 3-foliolate; petioles slender, 6--19 mm. long, convex beneath, conspicuously flattened above, densely puberulent with brownish hairs; leaflets subequal or the two lateral ones somewhat smaller, all very shortly petiolulate or subsessile; petioles 1--5 mm. long, flattened above, conspicuously margined, and puberulent, or obsolete; leaflet-blades chartaceous, rather firmly so when mature, dark-green above, somewhat lighter beneath, the central one varying from oblong or elliptic to oblanceolate,

3--8 cm. long, 1.5--4.3 cm. wide, abruptly acute or acuminate at the apex, often obtuse or emarginate, entire (or rarely coarsely serrate above the middle, the teeth few and obtuse), acute or acuminate at the base, minutely pulverulent-puberulent along the midrib and larger venation above and sparsely so on the lamina above when young, glabrescent in age, more or less puberulent or short-pubescent along the midrib and secondaries beneath, less so or even glabrous in age, the lateral ones similar in all respects; midrib slender, rather deeply impressed above, prominent beneath; secondaries slender, 5--11 per side, ascending, rather straight and often not much arcuate except at the margins where they are conspicuously arcuately joined, subimpressed above, prominent beneath; vein and veinlet reticulation sparse, indiscernible above, usually only the largest portions discernible beneath; inflorescence axillary, cymose, sparse, 1.5--4.5 cm. long, 1.5--4 cm. wide, 1--3 times dichotomous, the branches wide-spreading and lax, few-flowered, minutely puberulent throughout; peduncles slender, 7--13 mm. long, flattened, ampliate at the apex, minutely puberulent; cyme-branches flattened; bractlets linear, 2--3 mm. long, puberulent; prophylla linear or setaceous, about 1 mm. long, puberulent; calyx cupuliform, 2--3 mm. long, 2--2.2 mm. wide, minutely puberulent outside, its rim subtruncate, very shallowly 5-dentate; corolla hypocrateriform, bluish, violet-blue, or rose, its tube cyathiform, 10--11 mm. long, ampliate above the middle, sericeous-puberulent above the calyx, the limb bilabiate, densely puberulent on the outer surface, the 4 smaller lobes ovate-oblong, about 3.5 mm. long, obtuse, the central lower lobe enlarged, about 5 mm. long, rounded or emarginate, minutely puberulent or short-barbellate toward the base within; stamens and style slightly exserted; fruiting-calyx campanulate, about 3 mm. long and 5 mm. wide, brunnescent, minutely puberulent on the outer surface, its rim irregularly lobed; fruit drupaceous, subglobose, nigrescent (only immature fruit known).

The species was based by Huber on a collection made by Adolfo Ducke (no. 8441) on the campos east of Lake Faro on the Rio Yamunda on August 21, 1907, and another (no. 3605) from a small campo between Serra do Dedal and Serra da Igaçaba (Lake Faro), Pará, Brazil, on September 4, 1907. It inhabits wet sandy open campos and has been collected in anthesis from August to October and in December, in immature fruit in December. Le Cointe records the common names "tarumã do campo" and "taruman do campo". Huber uses the second of these forms of the name in his original description. Other recorded variants are "tarumá", "tarumã", and "taruman". The Herb. Rio de Janeiro 35667 specimen cited below has especially large leaves.

Citations: BRAZIL: Amazonas: Ducke 106 (F--901914, N, S), 557 (B, K, N, S, Ut, W--1692636), s.n. [São Gabriel, Feb. 16, 1936; Herb. Rio de Janeiro 35667] (N). Pará: Black 47-1755 (Be--29968, It, N), s.n. [Faro, Nov. 1950] (Be--62245); Black & Ledoux 50-10572 (Cb); Ducke 560 [Macbride photos 17560] (F--663089--photo, Kr--photo, N--photo), 934 (F--976365), 8441 (Em--cotype, F--601627--fragment & photo of cotype, N--photo of cotype, Z--photo

of cotype), 8605 (Bm--cotype, Cb--cotype, F--601677--fragment & photo of cotype, N--photo of cotype, N--photo of cotype, W--1040420--cotype, Z--photo of cotype, Z--photo of cotype), 9107 (Bm, Cb), 10934 (Bm, Cb, P, W--1040510), 10959 (Bm, Cb, P, W--1040512), 14888 (Bm, Cb), 15834 (Bm, W--1040733), s.n. [Herb. Rio de Janeiro 560; Herb. Amaz. Mus. Para. 15834] (B); Murça Pires & Silva 4400 (Z).

VITEX DUCLOUXII Dop, Bull. Soc. Hist. Nat. Toulouse 57: 208. 1928.

Literature: Dop, Bull. Soc. Hist. Nat. Toulouse 57: 208. 1928; Hill, Ind. Kew. Suppl. 9: 297. 1938; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 57 & 103 (1942) and [ed. 2], 132 & 201. 1949.

Shrub or tree; branchlets quadrangular, fulvous-puberulent when young, soon becoming glabrous, covered by a brown bark; leaves 5-foliolate; petioles 2--4.5 cm. long, canaliculate; petiolules pubescent, the central ones 1--2 cm. long, the lateral ones smaller or even absent; leaflet-blades papyraceous, green in drying, elliptic-lanceolate, acute or acuminate at the apex, attenuate to the acute or rounded (on the central leaflet) base, unequal, entire, sparsely pubescent and glandulose above, sparsely tomentose beneath, the central ones 5--7 cm. long and about 2 cm. wide, the lateral ones smaller; secondaries 20--24, very slender, straight; vein and veinlet reticulation inconspicuous; cymes axillary, equaling the leaves, pedunculate, dichotomous, divaricate, puberulent; bractlets very minute; pedicels absent or to 1 mm. long and 2-bracteolate at the apex; calyx campanulate, about 4 mm. long, sparsely pilose and densely yellow-glandulose on the outside, its lobes 5, very small, deltoid; corolla about 13 mm. long, pubescent and glandulose (except toward the base) on the outside, its tube about 6 mm. long, broad, villous in the throat and at the insertion of the stamens, the upper lip 2-lobed with acute lobes about 4 mm. long, the lower lip with its central lobe rounded, about 7 mm. long and 5 mm. wide, puberulent on the inner surface, and the lateral lobes rounded, about 3 mm. long, glabrous on the inner surface; stamens not exerted; filaments villous; anther-sacs divaricate, incurved; style equaling the stamens; stigma bifid; ovary glabrous.

The type of this species is Ducloux 6315 from Yunnan, China. It is said to be related to V. glabrata R. Br., which differs in the size and texture of its leaves, its smaller cymes, and the calyx not having yellow glands. It differs from V. yunnanensis W. W. Sm. in its 5-foliolate and elliptic-lanceolate leaflets, which are acuminate at the apex, the central one petiolulate, the small flowers, and other characters.

VITEX EBERHARDTII Dop, Bull. Soc. Hist. Nat. Toulouse 57: 204. 1928.

Literature: Dop, Bull. Soc. Hist. Nat. Toulouse 57: 204. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 59 & 103 (1942) and [ed. 2], 137 & 201. 1949.

Tree, 5--6 m. tall; branchlets subquadrangular, soon becoming rounded, glabrous; bark gray, thinly striate; leaves 3-foliolate; petioles slender, 4--6 cm. long, canaliculate, glabrous; petiolules about 2 cm. long on the central leaflets, absent or to 1 cm. long on the lateral ones; leaflet-blades membranous, red-brown in drying, varying from ovate or elliptic-oblong to lanceolate, acuminate or caudate at the apex, acute at the base, entire, glabrous but glandulose on both surfaces, the central ones about 12 cm. long and 3--4 cm. wide, the lateral ones smaller; secondaries 16--20, slender, recurved; vein and veinlet reticulation conspicuous; panicle terminal, lax, pyramidal, leafy at the base, glabrous; peduncles about 1 cm. long; cymules trichotomous, divaricate, 3-flowered; bracts and bractlets linear, firm, 1--2 mm. long; pedicels 5--12 mm. long, 2-bracteolate at the mid-point; calyx conic, about 3 mm. long, 5-costate, subtruncate, glabrous, its rim very shortly 5-lobed, the lobes acute, slightly ciliate; corolla white or yellowish-white, about 12 mm. long, pubescent and glandulose on the outer surface, its tube about 6 mm. long, villous at the insertion of the stamens within, the upper lip 2-lobed with lobes that are linear, about 4 mm. long, rounded at the apex, and glabrous on the inner surface, the lower lip with its central lobe rounded, 5--6 mm. long, glabrous except at the base on the inner surface, and the lateral lobes ovate, about 3 mm. long, and glabrous on the inner face; stamens scarcely exerted, incurved; filaments villous at the base; style equaling the stamens; stigma 2-lobed; ovary glabrous.

The species is based on Spire 1206 and Thorel 3422 from Laos and on Balansa 3815, Bon 2921 and 2965, and Eberhardt 4055, 4132, and 4286 from Tonkin, Indochina.

VITEX ELAKELAKENSIS Moldenke, Phytologia 3: 434--435. 1951.

Tree; branchlets rather slender, very obtusely tetragonal, densely flavescent-villous on the younger parts, merely yellow-puberulent in age; nodes not annulate; principal internodes 1.5--4 cm. long; leaves decussate-opposite, 5--7-foliolate [or 1--2-foliolate on abnormal immature ones]; petioles rather slender, 3--6.5 cm. long, densely hirsute with long flavescent hairs, less densely so in age; petiolules varying in length, those on the lowest leaflets subobsolete, on central ones 3--7 mm. long and densely flavescent-hirsutulous; leaflet-blades chartaceous, gray-green on both surfaces, brunnescent in drying when immature, oblanceolate, obtuse or acute at the apex, cuneate-attenuate at the base, conspicuously and coarsely dentate from the apex to below the middle with broadly ovate rather blunt or subacute teeth, more or less densely hirsutulous on both surfaces when young, less densely so when mature or merely hirsutulous-pilose on the larger venation above and more densely so beneath, the hairs coarse, spreading, and flavescent-brownish, the central leaflets 8--12 [--19.5?] cm. long and 2--3.3 [--10?] cm. wide, the lower ones much smaller; midrib slender, flat and usually quite densely yellow-hirsutulous above, prominent beneath and conspicuously villous-hirsute; secondaries filiform, 10--15 per side, short,

ascending, hardly arcuate, terminating at the apices of the teeth, flat or often very obscure above, prominent beneath; veinlet reticulation rather abundant, usually indiscernible above and promiscuous beneath; inflorescence not seen.

The species is endemic to Madagascar. It is possible that the characters given above are those of watersprouts and therefore not typical of the species. More botanizing in the type locality is needed to decide definitely the status of this plant. The type was collected on the western slopes of the mountains between Andohahela and Elakelaka, in the basin of the Mananara, an affluent of the Mandrare, at an altitude of 800--900 meters, in January or February, 1934. It is not at all certain that Perrier de la Bâthie 16412, cited below, belongs here. It consists of immature leaves only. These are 1- or 2-foliolate, 8.5--19.5 cm. long and 3.5--10 cm. wide. The collector states that they are anomalous immature leaves and that the mature leaves are 5-foliolate.

Citations: MADAGASCAR: Humbert 13836 bis (N--isotype, N--photo of type, P--type, Z--photo of type); Perrier de la Bâthie 16412 (P).

VITEX EPIDICTYODES Mildbr. ex Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 48, 61, & 81. 1928.

Literature: Pieper in Engl., Bot. Jahrb. 62, Beibl. 141 ["142"]: 48, 61, & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 49, 50, & 103 (1942) and [ed. 2], 115, 117, & 201. 1949.

Leaves 5--7-foliolate; petioles to 3 cm. long; leaflet-blades elliptic to subobovate, 7.5--14 cm. long and about half as wide, mostly blunt or rounded at the apex, sometimes slightly apiculate, mostly entire, sparsely pilose above, the venation very prominent above, the secondaries usually more than 10 per side, rather straight and parallel, ascending; peduncles 6--10 cm. long, rather stout, about 2 mm. thick; floral symmetry constant; calyx zygomorphic, often subbilabiate through the unequal development of the teeth, which are small and 1/4 to 1/10 the length of the calyx, its hairs usually more or less firm-walled, the cells cylindrical; ovary usually only glanduliferous.

The species is based on Stolz 556, collected at Langenburg, at the north end of Nyasaland, and is deposited in the herbarium of the Botanisches Museum at Berlin. Pieper cites also Trotha 95 from Tabora, Tanganyika, and Burt-Davy 18028 from near Elizabethville, Belgian Congo.

Citations: BRITISH NYASALAND PROTECTORATE: Stolz 556 [Transvaal Mus. 24537] (N--isotype, N--photo of isotype, S--isotype, Z--isotype, Z--photo of isotype), 1478 (S).

VITEX ERIOCLONA H. J. Lam, Bull. Jard. Bot. Buitenz., ser. 3, 3: 51. 1921.

Literature: H. J. Lam, Bull. Jard. Bot. Buitenz., ser. 3, 3: 51. 1921; Heyne, Nutt. Plant. Nederl. Ind. 1316. 1925; Hill, Ind. Kew. Suppl. 7: 252. 1929; Moldenke, Suppl. List Common Names 12.

1940; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 66 & 103. 1942; Moldenke, *Phytologia* 2: 119. 1944; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 147 & 201. 1949.

A common name recorded for this species is "lako".

Citations: CELEBES: Heyne 2563 (Bz--24043--type, N--isotype, N--photo of type, Z--photo of type).

VITEX EXCELSA Moldenke, *Alph. List Common Names* 29, hyponym.

1939; *Trop. Woods* 64: 34--35. 1940.

Literature: Moldenke, *Alph. List Common Names* 29. 1939; Moldenke, *Geogr. Distrib. Avicenn.* 27. 1939; Moldenke, *Trop. Woods* 64: 34--35. 1940; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 1], 39 & 103. 1942; Moldenke, *Phytologia* 2: 119. 1944; H. N. & A. L. Moldenke, *Plant Life* 2: 43. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 95 & 201. 1949.

Giant tree, to 65 m. tall; branchlets stout, obtusely tetragonal, densely but very shortly tomentose, dark; twigs stout, very densely tomentose with long flavescent hairs 1--2 mm. long; buds densely long-villous; leaves decussate-opposite, petiolate, 5-foliolate; petioles stout, 9--14 cm. long, densely flavescent-tomentose, expanded and club-shaped at the apex, the tomentum becoming very short in age; leaflets very firmly chartaceous, thick-textured, mostly symmetrical, subequal or the 2 lowest conspicuously smaller and on shorter petiolules, the young leaves with the leaflets all subsessile; petiolules 1--6 mm. long, very stout and very densely tomentose like the twigs and petioles; central leaflet-blades obovate, 11.5--18.5 cm. long, 4.8--8 cm. wide, rounded and obtuse at the apex, entire, acute or subcuneate at the base, densely pubescent above, densely velutinous-tomentose beneath with very glistening flavescent hairs, the basal leaflets similar but smaller, 5.5--10 cm. long, 2.7--4.7 cm. wide; midrib marked above by a conspicuously raised and erect line of tomentum, very prominent beneath; secondaries close together, 7--21 per side, rather straight, subimpressed above, rather obscurely arcuately joined at the margins, prominent beneath; vein and veinlet reticulation fine, subimpressed above, hidden by the tomentum beneath; inflorescence axillary, solitary, opposite, cymose; cymes few-flowered, 5--6.8 cm. long (when in fruit), much shorter than the subtending petioles; peduncles somewhat flattened, erect, divergent, 3.2--4.5 cm. long, densely flavescent-tomentose; branches of the inflorescence short and few; fruiting-pedicels 1--5 mm. long, stout, very densely flavescent-tomentose; flowers not seen; fruiting-calyx campanulate, incrassate, about 8 mm. long and 18 mm. in diameter, densely short-pubescent with appressed hairs, its rim deeply but irregularly 5-lobed almost to the base; fruit subglobose, about 13 mm. long and wide, very densely villous throughout with regular flavescent hairs about 1 mm. long.

The type of this amazing species was collected by Boris Alexander Krukoff (no. 6873) on terra firma near Livramento, on the Rio Livramento, municipality of Humayta, Amazonas, Brazil, on October 27, 1934. The tree is a tremendously large one, reaching 200 feet in height, according to the notes of the collector, with

wood resembling that of commercial teak (*Tectona grandis* L. f.) and used extensively by the natives for boat-building. It is called "taruma".

Citations: BRAZIL: Amazonas: Krukoff 6373 (Br--isotype, F--874084--isotype, F--874100--isotype, N--type, N--isotype, S--isotype, S--isotype). Pará: Ducke 1959 (Cb).

VITEX FARAFANGANENSIS Moldenke, *Phytologia* 3: 435--436. 1951.

Shrub, to about 6 m. tall; stems about 10 cm. in diameter; branchlets stoutish, apparently obtusely tetragonal, longitudinally wrinkled in drying, more or less pilose-puberulent at the nodes, glabrescent elsewhere; nodes apparently annulate; principal internodes much abbreviated, about 0.5 mm. long; leaves decussate-opposite, 1-foliolate; petioles stout, jointed at the apex, longitudinally wrinkled in drying, 1--5 cm. long, more or less pilose-pubescent or glabrescent; blades chartaceous, firm, narrow-elliptic or oblanceolate, 15--42 cm. long, 3--5.3 cm. wide, acuminate at the apex, entire, acute at the base, scattered-pilose above or glabrescent, more or less hirsute along the midrib and secondaries beneath or glabrescent; midrib slender, flat or sub-impressed above, coarsely prominent beneath; secondaries very slender, 2--20 per side, arcuate-ascending, obscure or indiscernible above, prominulous beneath, anastomosing in many loops near the margins beneath; veinlet reticulation sparse, indiscernible above, slightly subprominulous beneath; inflorescence axillary, sessile or subsessile, fasciculate-glomerate, rather many-flowered; peduncles obsolete; pedicels filiform, 5--8 mm. long, densely hirsute with ferruginous hairs; calyx campanulate, membranous, bright-rose, nigrescent in drying, deeply lobed to the middle or beyond, the tube about 5 mm. long, hirsute with ferruginous hairs, the 5 lobes elongate-ovate, about 5 mm. long, long-attenuate to the apex, sparsely scattered-hirsute on the outside; corolla yellowish, cylindric, arched, about 1.5 cm. long, rather densely hirsute with ferruginous hairs, the lobes about 3 mm. long; stamens and pistil exerted 4--5 mm. from the corolla-tube; fruiting-calyx not enlarged, about 1 cm. long, hirsutulous, the rim deeply 5-lobed, including the drupaceous subglobose fruit.

The type of this distinctive species was collected by Raymond Decary (no. 5376) at Vondrozo, in the province of Farafangana, Madagascar, on September 16, 1926, and is deposited in the herbarium of the Muséum National d'Histoire Naturelle at Paris.

Citations: MADAGASCAR: Decary 4870 (P), 5376 (N--isotype, N--photo of type, P--type, Z--photo of type); Perrier de la Bâthie 10266 (N, P).

VITEX FERRUGINEA Schum. & Thonn., *Beskr. Guin. Pl.* 62. 1827.

Synonymy: *Vitex ferruginea* Baker, in part, apud Pieper in *Engl., Bot. Jahrb.* 62, *Beibl.* 141 ["142"]: 58 & 70, in syn. 1928. *Vitex ferruginea* Schum., in herb.

Literature: Schum. & Thonn., *Beskr. Guin. Pl.* 62. 1827; Schau. in A. DC., *Prodr.* 11: 695. 1847; J. G. Baker in *Thiselt.-Dyer, Fl. Trop. Afr.* 5: 324--325. 1900; Pieper in *Engl., Bot. Jahrb.*

62, Beibl. 141 ["142"]: 50, 70, & 81. 1928; Moldenke, Alph. List Invalid Names 53. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 46, 47, 51, & 103. 1942; Moldenke, Phytologia 2: 119. 1944; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 111, 112, 119, & 201. 1949.

Tree, 7--8 m. tall; branchlets softly ferruginous-pubescent; petioles 10--12.5 cm. long, densely pubescent; leaves 5--7-foliate; leaflets moderately firm, obovate-cuneate, sessile or subsessile, obtuse or usually more or less long-cuspidate at the apex, entire, softly ferruginous-pubescent beneath when young, glabrous on both surfaces when mature, the central one 7.5--10 cm. long, 3.7--5 cm. wide; cymes axillary, long-pedunculate, very much compounded, their branches softly brown-pubescent with short hairs; calyx densely pubescent, its teeth small, 1--2 mm. long; corolla small, pubescent on the outer surface; ovary broadly oblong; fruit globose, 6--8 mm. long, edible.

The type of this species was collected by Thonning in the Aquapim Mountains, Upper Guinea. Pieper says "Es handelt sich bei diesem im Herbar Petersburg befindlichen Exemplar offenbar um zum Typus gehörige Bruchstücke, mit denen die Beschreibung auch viel besser übereinstimmt als mit V. Guerkeana Hiern, die von Baker mit V. ferruginea zu Unrecht vereinigt wird. Die Unvollkommenheit des Materials macht indes eine Ergänzung der Beschreibung unmöglich, und es läßt sich nur angeben, dass die Art zu den Elongatae gehört und in der Nähe von V. Welwitschii und V. amboniensis steht."

The V. rufescens Gürke reduced to this species by Baker is actually a separate species, V. guerkeana Hiern, as indicated by Pieper, and the V. congolensis DeWild. & Th. Dur. also reduced by him to V. ferruginea is a separate valid species. The V. ferruginea Boj. and V. ferruginea H. & B. are synonyms of V. bojeri Schau., while V. ferruginea Vahl is a synonym of V. triflora Vahl. Dubois 667 has fruits that are galled.

Baker cites in addition Welwitsch 5632 and 5665. Common names for the species are "bokonkwankinda", "bomposo", "bomposso", "ngungu", and "tiogbi". It has been collected in flower in October.

Citations: GUINEA: Thonning s.n. (N--photo of type, S--type, Z--photo of type). BELGIAN CONGO: Callens 4452 (Z); Corbiser-Baland 709 (Br, Br, N), 1293 (Br, Br, Br), 1375 (Br, Br); Cod-teaux G.392 (Br, Br, Br, N); Donis 1591 (Br, Br, N); Dubois 667 (Br, Br); Laurent & Laurent 150 (Br); Lebrun 1478 (Br, Br, N, N), 2143 (Br, Br), 6238 (Br, Br, Br, N), 6806 (Br, Br, N); Leemans 40 (Br, Br, Br, Br, N), 163 (Br, Br, Br, N), 341 (Br, Br, N); Leontovitch 188 (Br, Br, Br, Br, N); Staner 1584 (Br, Br, Br, Br, Br, N); Vanderyst 5747 (Br).

VITEX FISCHERI Gürke in Engl., Bot. Jahrb. 18: 171. 1894.

Literature: Gürke in Engl., Bot. Jahrb. 18: 171. 1894; Gürke in Engl., Pflanzenw. Ost-Afr. C: 339. 1895; J. G. Baker in Thistelt.-Dyer, Fl. Trop. Afr. 5: 330--331. 1900; Pieper in Engl., Bot.

Jahrb. 62, Beibl. 141 ["142"]: 46, 60, & 81. 1928; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 50 & 103 (1942) and [ed. 2], 117, 118, & 201. 1949.

Shrub, the young parts pubescent with grayish-brown hairs; branchlets yellow-tomentose; petioles long; leaves 5-foliolate; leaflets distinctly stalked, the petiolules short, about 1/10 to 1/8 the length of the blades; leaflet-blades oblong, short-acuminate at the apex, entire, narrowed to the base, scabrous above, densely tomentose beneath when young with whip-like hairs 0.8 mm. long, later glabrescent, the central one about 10 cm. long and 5 cm. wide or longer than twice its width; secondaries 15--25, with parallel tertiaries connecting them; peduncles to 6.5 cm. long, usually short-pubescent; cymes axillary, dense; pedicels short, pubescent; bractlets linear-subulate; calyx campanulate, slightly zygomorphic, 3--5 mm. long, pubescent with grayish-brown hairs that are thin-walled, their cells usually elliptic or ovate, the rim toothed with very short and broad teeth; corolla 8--13 mm. long, its tube a little longer than the calyx, pubescent on the outer surface with gray-brown hairs; stamens scarcely exerted; ovary strongly glandulose and often scattered-pilose.

Pieper cites the following specimens from Tanganyika Territory: Conrads 199 and 333, Fischer 476, Holtz 1534 and 1657, Stuhlmann 3394, 3576, 4184, and 4137, and Uhlig V.71 and V.98; from Uganda: Scott-Elliott 7252 and 7411; from Sesse Island: Carpenter 25; and from the Nyanza Basin: Battiscombe 434 and Moon 581.

VITEX FLAVA Ridl., Kew Bull. 1929: 261. 1929.

Literature: Ridl., Kew Bull. 1929: 261. 1929; Hill, Ind. Kew. Suppl. 8: 249. 1933; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 65 & 103. 1942; Moldenke, Phytologia 2: 119. 1944; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 146 & 201. 1949.

A common name recorded for this species is "jampang laki".

Citations: SARAWAK: Herb. Sarawak Museum 160 (Ph); Native collector 374 (N--photo, Ph, Z--photo).

VITEX FLAVENS H.B.K., Nov. Gen. & Sp. Pl. 2: 246. 1818.

Synonymy: Vitex flavens Kunth ex Schau. in A. DC., Prodr. 11: 689. 1847. Vitex rusbyi Moldenke, Phytologia 1: 103--104. 1934.

Literature: H.B.K., Nov. Gen. & Sp. Pl. 2: 246 [ed. pict. 199--200]. 1818; Schau. in A. DC., Prodr. 11: 689. 1847; Barnhart, Bull. Torrey Bot. Club 29: 597. 1902; Huber, Bol. Mus. Goeldi [Mus. Para.] 5: 220, pl. 4. 1908; Ducke, Notizbl. Bot. Gart. Berlin 11: 590--591. 1932; Moldenke, Phytologia 1: 103--104. 1934; Le Cointe, A Amaz. Brasil. III Arv. e Pl. Uteis 429. 1934; Ducke, Anais Prim. Reun. Sul-Amer. Bot. 1: 287. 1938; Moldenke, Geogr. Distrib. Avicenn. 19, 22, 24, & 27. 1939; Moldenke, Alph. List Common Names 1, 24, & 29. 1939; Moldenke, Prelim. Alph. List Invalid Names 52. 1940; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 31, 34, 35, 39, & 103. 1942; Moldenke, Alph. List Invalid Names 55. 1942; Moldenke, Phytologia 2: 119. 1944; Le Cointe, O Estado do Pará 212, 217, & 231. 1945.