ADDITIONAL NOTES ON THE GENUS *VITEX*. XXIII

Harold N. Moldenke

VITEX Tourn.

Additional bibliography: J. Burm., Thes. Zeyl. 209--210, 229, [238], [248], & [250], pl. 109. 1737; Blume, Cat. Gewass., imp. 1, 86. 1823; Desf., Cat. Pl. Hort. Paris., ed. 3, 391--392. 1829; Reichenb., Deutsch. Bot. [Repert. Herb. Nom.] 108. 1841; Walp., Repert. Bot. Syst. 4: 81--92. 1845; Lindl., Veget. Kingd., ed. 1, 664 (1846), ed. 2, 664 (1847), and ed. 3, 664. 1853; Bocq. in Baill., Rec. Obs. Bot. 3: 178, 180, 181, 184, 185, & 252--254. 1863; F. Muell., Fragm. 6: 152--153. 1868; Lindl. & Moore, Treas. Bot., imp. 1, 1: 30 (1870), imp. 1, 2: 1222 (1870), imp. 2, 1: 30 (1876), and imp. 2, 2: 1222. 1876; Bailey & Tenison-Woods, Proc. Linn. Soc. N. S. Wales 1880: 174. 1880; Lindl. & Moore, Treas. Bot., imp. 3, 1: 30 (1884) and imp. 3, 2: 1222. 1884; Durand, Gen. Phan. 32. 1888; Coll. & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 110--111. 1890; Warb., Engl. Bot. Jahrb. 10: 428 & 429. 1890; Hook. f., Curtis Bot. Mag. 117: pl. 7187. 1891; Lace & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 296 & 297. 1891; Ceron, Cat. Pl. Herb. Manila 133. 1892; Hemsl., Journ. Linn. Soc. Lond. Bot. 30: 187. 1894; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 132--144, 169--172, & 178, fig. 64 A--D. 1895; S. Moore, Trans. Linn. Soc. Lond. Bot., ser. 2, 4: 440. 1895; Reinecke, Engl. Bot. Jahrb. 25: 671. 1898; Lindl. & Moore, Treas. Bot., imp. 4, 1: 30 (1899) and imp. 4, 2: 1220. 1899; Burkill, Journ. Linn. Soc. Lond. Bot. 35: 50. 1901; Boorsma, Bull. Inst. Bot. Buitenz. 14: 35. 1902; E. D. Merr., Bull. Philip. Forest. Bur. 1: 51--52. 1903; Ridl., Journ. Roy. Asiat. Soc. Straits 57: 84 (1910) and 59: 156--157. 1911; Koord., Exkursionsfl. 3: 132, 136--137, & 495. 1912; E. D. Merr., Philip. Journ. Sci. Bot. 7: 165 & 343--344. 1912; C. B. Robinson. Philip. Journ. Sci. Bot. 7: 415. 1912; Heyne, Nutt. Plant. Ned. Ind., ed. 2, 1: 24 (1927). ed. 2, 2: 1313 & 1315--1320 (1927), and ed. 2, 3: 1646. 1927; Ekman, Arkiv Bot. Stockh. 22A: 51 & 110. 1929; White, Journ. Arnold Arb. 10: 264. 1929; Mold., Phytologia 1: 101--104. 1934; Bakh., Journ. Arnold Arb. 16: 74--75. 1935; Beer & Lam, Blumea 2: 228. 1936; Corner, Wayside Trees, ed. 1, pl. 216. 1940; Gentry, Carnegie Inst. Wash. Publ. 527. 1942; Lemée, Dict. Descrip. Syn. Gen. Pl. Phan. 8b: 656. 1943; Blume, Cat. Gewass., imp. 2, 86. 1946; Corner, Wayside Trees, ed. 2, 686, 695, & 706--711, text fig. 256. 1952; Basu & Singh, Indian Journ. Pharm. 6: 71. 1954; Lemmon & Sherman, Fls. World 104, pl. 232 & 234. 1958; Venkataraman, Prog. Chem. Org. Nar. Prod. 17: 1. 1959; Balakrish., Ramanath., Seshadri, & Venkataram., Proc. Roy. Soc. 268A: 1. 1962; Jurd, Chem. Flavon. Comp. 1962: 107. 1962; White & Angus, Forest Fl. N. Rhodes. 365, 370--372, & 455. 1962; Diaconescu, Act. Bot. Hort. Bucur. 1961: 1040. 1963; Egler, Bol. Mus. Para. Goeldi, ser. 2, Bot. 18: 80.

1963; Salmon, N. Zeal. Pl. Col. 77, pl. 216 & 217. 1963; Beard, Descrip. Cat. W. Austral. Pl., ed. 1, 93. 1965; Mabry, Kagan, & Rösler, Phytochem. 4: 177. 1965; Lourteig, Taxon 15: 28. 1966; Garms, Nat. Hist. Eur. 109. 1967; Harborne, Compar. Biochem. Flavon. 57 & 228. 1967; Meijer, Bot. Bull. Herb. Forest Dept. Sabah 10: 223. 1968; Beard, West Austral. Pl., ed. 2, 113. 1970; Chippendale, Proc. Linn. Soc. N. S. Wales 96: 256. 1971; Crockett, Landsc. Gard. 120. 1971; Crockett, Flow. Shrubs 27 & 145. 1972; T. B. Muir, Muelleria 2: 167. 1972; Bennett, Fl. Howrah 303 & 306. 1976; Bianchini & Corbetta, Health Pl. World 119. 1977; Kodanda Rao & E. & B. Venkata Rao, Biol. Abstr. 64: 6284. 1977; Allen, Pruning Graft. 152. 1978; Heywood, Flow. Pl. World 237 1978; Hsiao, Fl. Taiwan 4: 410 & 432--435, pl. 1060. 1978; A. C. Sm., Allertonia 1: 414. 1978; Vedel, Trees Shrubs Med. 88 & 89. 1978; Benson, Pl. Classif., ed. 2, 277. 1979; Horst in Westcott, Pl. Disease Handb., ed. 4, 717. 1979; Biswas & Maheshwari, Journ. Bomb. Nat. Hist. Soc. 77: 225. 1980; Hsiao, Fl. Taiwan 6: 122. 1980; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 468. 1980; Klein, Sellowia 32: 172. 1980; Lauener, Notes Roy. Bot. Gard. Edinb. 38: 453 & 485. 1980; Cronq., Integ. Syst. Classif. 923. 1981; Hickey & King, 100 Fam. Flow. Pl. 346--348. 1981; Mold., Phytologia 49: 161--182. 1981; Munz & Slausen, Ind. Illust. Living Things Outside N. Am. 69 & 429. 1981; Rogerson, Becker, Buck, & Long, Bull. Torrey Bot. Club 108: 503. 1981; Rooyen, Theron, & Grobbelaar, Journ. S. Afr. Bot. 47: 409, 421, & 441. 1981; Sharma, Shetty, Vivekan., & Rathakr., Journ. Bomb. Nat. Hist. Soc. 75: 33. 1981; Webb & Tracey in Groves, Austral. Veg. [81]. 1981; L. O. Williams, Ceiba 24: 333. 1981; Cronq. in S. P. Parker, Synop. Classif. Liv. Org. 1: 451. 1982; Janzen & Martin, Science 215: 23. 1982; Mold., Phytologia 50: 233, 238, 239, 242, 243, 245, 246, 248, 250--254, 261, 262, 266, 267, 269, 270, 425, 430, 508, & 512 (1982) and 51: 163. 1982.

The *Liesner & González 9451,* distributed as *Vitex* sp., is something in the *Bignoniaceae,* while *Steyermark & Berry 111972* is also probably non-verbenaceous.

VITEX ACUMINATA R. Br.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 86. 1845; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; F. M. Bailey, Queensl. Fl. 4: 1179 & 1180. 1901; Mold., Phytologia 49: 163. 1981; Webb & Tracey in Groves, Austral. Veg. [81]. 1981.

VITEX AGNUS-CASTUS L.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 90. 1845; Lindl., Veg. Kingd. 664. 1846; Bocq. in Baill., Rec. Obs. Bot. 3: 253. 1863; Lindl. & Moore, Treas. Bot., ed. 1, 1: 30 (1870), ed. 2, 1: 30 (1876), and ed. 3, 1: 30. 1884; Lace & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 296, 297, & 318. 1891; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 171, fig. 64 A--D, & 172. 1895; Lindl. & Moore, Treas. Bot., ed. 3, 1: 30. 1899; Koord., Excursions-

fl. 3: 136 & 495. 1912; Lemmon & Sherman, Fls. World 104, pl. 232 & 234. 1958; Diaconescu, Act. Bot. Hort. Bucur. 1961: 1040. 1963; Garms, Nat. Hist. Eur. 109. 1967; Crockett, Landsc. Gard. 120. 1971; Crockett, Flow. Shrubs 27 & 145. 1972; Bianchini & Corbetta, Health Pl. World 119. 1977; Vedel, Trees Shrubs Medit. 88 & 89. 1978; J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 468. 1980; Mold., Phytologia 49: 163. 1981; Munz & Slauson, Ind. Illust. Living Things Outside N. Am. 69 & 429. 1981; Mold., Phytologia 50: 233, 239, 250, & 266. 1982.

Additional & emended illustrations: Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 171, fig. 64 A--D. 1895; Lemmon & Sherman, Fls. World 104, pl. 232 (in color) & 234 (in color). 1958; Garms, Nat. Hist. Eur. 109 (in color). 1967; Crockett, Landsc. Gard. 120 (in color). 1971; Crockett, Flow. Shrubs 27 (in color) & 145 (in color). 1972; Bianchini & Corbetta, Health Pl. World 119 (in color). 1977; Vedel, Trees Shrubs Med. 88 (in color). 1978.

The corollas are said to have been "light-purple" on *Bayliss BS. 6236* and the leaves "smell of lavender".

Diaconescu (1963) records the fungus, *Phoma viticis* Celott, as attacking this host in Romania.

Material of typical *V. agnus-castus* has been misidentified and distributed in some herbaria as *V. agnus-castus* var. *pseudo-negundo* Hausskn. and as *V. rehmanni* Gürke. On the other hand, the *Perkins s.n.* [Aug. 1, 1937], distributed as typical *V. agnus-castus* actually is its f. *latifolia* (Mill.) Rehd., while *Dinsmore s.n.* [July 11, 1912] is var. *pseudo-negundo* Hausskn.

Additional citations: SARDINIA: *Vaccari 356* (It). UNION OF SOVIET SOCIALIST REPUBLICS: Turkmanskaya: *Nikitin & Ivanov s.n.* [18.06.1975] (Ba--385325). CULTIVATED: Alabama: *Whitehead 437* (It). California: *Burnham s.n.* [April 1896] (It). Ohio: *E. G. Hutchinson s.n.* [Sept. 22, 1934] (It). South Africa: *Bayliss BS. 6236* (Ba).

VITEX AGNUS-CASTUS f. *ALBA* (West.) Mold.

Additional bibliography: Mold., Phytologia 48: 416--417 (1981) and 50: 250 & 266. 1982.

VITEX AGNUS-CASTUS f. *CAERULEA* (Rehd.) Mold.

Additional bibliography: J. T. & R. Kartesz, Syn. Checklist Vasc. Fl. 2: 468. 1980; Mold., Phytologia 48: 416 & 417. 1981.

VITEX AGNUS-CASTUS f. *LATIFOLIA* (Mill.) Rehd.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 90. 1845; Mold., Phytologia 48: 417 (1981) and 49: 177. 1981.

Peterson describes this plant as a branching shrub to 10 feet tall, the corollas "R[oyal] H[orticultural] S[ociety] Fan 2 Violet-Blue 93/B" and found it in flower in July.

Additional citations: CULTIVATED: Massachusetts: *Perkins s.n.* [Aug. 14, 1937] (It). Pennsylvania: *Peterson J.2370* (Ba--371549). MOUNTED ILLUSTRATIONS: Unnumbered color plate labeled "Vitex Macrophylla" (It).

VITEX AGNUS-CASTUS var. *PSEUDO-NEGUNDO* Hausskn.

Additional bibliography: Mold., Phytologia 48: 417, 485, & 487--489. 1981.

Recent collectors describe this plant as 1--3 m. tall, growing by water and in gravel in wadi beds, at 25 m. altitude, in flower in May and September, and in fruit in September.

Additional citations: ISRAEL: *Dinsmore s.n.* [Sarona, July 11, 1912] (It). IRAQ: *Agnew & Barkley s.n.* [27.5.1962] (W--2897908). IRAN: *N. Miller 176* (Mi).

VITEX AGNUS-CASTUS f. *ROSEA* Rehd.

Additional bibliography: Mold., Phytologia 49: 164. 1981.

Jativa describes this plant as a "tree 14 ft. tall, 16 ft. wide, branches ascending-spreading, flowers pinkish-white", and found it in flower in August.

Additional citations: CULTIVATED: California: *Jativa 3136* [LASCA Acc. 58-8-1189] (Ba--376830).

VITEX AJUGAEFLORA Dop, Bull. Soc. Hist. Nat. Toulouse 57: 202--203, pl. 4. 1928.

Additional & emended bibliography: Dop, Bull. Soc. Hist. Nat. Toulouse 57: 202--203 & 209--211, pl. 4. 1928; Mold., Phytologia 49: 164. 1981.

Additional illustrations: Dop, Bull. Soc. Hist. Nat. Toulouse 57: opp. 202, pl. 4. 1928.

Dop (1928) states that this plant "C'est un arbre de 20 á 30 mètres; répandu en Cochinchine et dans le Sud de l'Annam". He lists the vernacular names, "binh ling ngs" and "feunang", and comments that "Pierre signale ce bois comme un bois dur, à coeur brun rougâtre quand il est fraichement coupé. Poilane l'indique comme bon bois de construction."

VITEX ALTISSIMA L. f.

Additional synonymy: *Vitex altissima* β *macrophylla* Walp., Repert. Bot. Syst. 4: 84. 1845.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 83--84. 1845; Bocq. in Baill., Rec. Obs. Bot. 3: 253. 1863; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; Sharma, Shetty, Vivekan., & Rathakr., Journ. Bomb. Nat. Hist. Soc. 75: 33. 1981; Mold., Phytologia 49: 164--165, 371, 372, 382, 383, & 440--442 (1981) and 50: 266. 1982.

Additional citations: INDIA: Karnataka: *Saldanha 13162* (Mi), *13425* (Mi), *13974* (Mi), *14365* (Mi).

VITEX ALTISSIMA f. juv. *ALATA* (Willd.) Mold.

Additional bibliography: Walp., Repert. Bot. Syst. 4: 83. 1845; Mold., Phytologia 48: 418 (1981) and 49: 382, 383, & 442. 1981.

VITEX AMBONIENSIS Gürke

Additional bibliography: White & Angus, Forest Fl. N. Rhodes. 371. 1962; Mold., Phytologia 48: 418--419, 463, & 465 (1981) and 49: 376. 1981; Rooyen, Theron, & Grobbelaar, Journ. S. Afr. Bot.

47: 409, 421, & 441. 1981.

VITEX AMBONIENSIS var. *AMANIENSIS* Pieper
Additional bibliography: Mold., Phytologia 44: 386. 1979; Mold., Phytol. Mem. 2: 228 & 588. 1980.

VITEX AMBONIENSIS var. *SCHLECHTERI* Pieper
Additional bibliography: Mold., Phytologia 45: 480. 1980; Mold., Phytol. Mem. 2: 241 & 588. 1980.

VITEX ANDONGENSIS J. G. Baker
Additional bibliography: Mold., Phytologia 44: 386. 1979; Mold., Phytol. Mem. 2: 234 & 588. 1980.

VITEX ANGOLENSIS Gürke
Additional bibliography: Mold., Phytologia 44: 386. 1979; Mold., Phytol. Mem. 2: 234 & 588. 1980.

VITEX APPUNI Mold.
Additional bibliography: Mold., Phytologia 45: 480. 1980; Mold., Phytol. Mem. 2: 121, 123, 171, 457, & 588. 1980; Mold., Phytologia 49: 362 & 365. 1981.
Additional citations: VENEZUELA: Guárico: *Aristeguieta 6083* (N, W--2926022).

VITEX AUREA Mold.
Additional bibliography: Mold., Phytologia 44: 387. 1979; Mold., Phytol. Mem. 2: 251, 366, & 588. 1980.

VITEX AXILLARIS Wall.
Additional bibliography: Walp., Repert. Bot. Syst. 4: 91. 1845; Mold., Phytologia 44: 387. 1979; Mold., Phytol. Mem. 2: 275, 457, & 588. 1980.

VITEX BAKERI B. L. Robinson
Additional bibliography: Mold., Phytologia 44: 387--388 & 415. 1979; Mold., Phytol. Mem. 2: 202, 213, 457, & 588. 1980.

VITEX BALBI Chiov.
Additional bibliography: Mold., Phytologia 44: 388-390. 1979; Mold., Phytol. Mem. 2: 231 & 588. 1980.

VITEX BARBATA Planch.
Additional bibliography: Mold., Phytologia 44: 390 & 479. 1979; Mold., Phytol. Mem. 2: 200, 205--207, 209, 211, 216, & 588. 1980; Mold., Phytologia 49: 367. 1981.

VITEX BEFOTAKENSIS Mold.
Additional bibliography: Mold., Phytologia 44: 390. 1979; Mold., Phytol. Mem. 2: 251 & 588. 1980

VITEX BENTHAMIANA Domin

Additional bibliography: F. Muell., Fragm. 6: 15. 1868; Mold., Phytologia 45: 481. 1980; Mold., Phytol. Mem. 2: 339 & 588. 1980.

The Landsborough collection, cited below, was previously incorrectly cited by me as *V. trifolia* var. *subtrisecta* (Kuntze) Mold., a very closely related taxon.

Additional citations: AUSTRALIA: Northern Territory: *Landsborough s.n.* [Gulf of Carpenteria] (Pa).

VITEX BOJERI Schau.

Additional bibliography: Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; Mold., Phytologia 44: 392. 1979; Mold., Phytol. Mem. 2: 251 & 588. 1980.

VITEX BREVILABIATA Ducke

Additional bibliography: Egler, Bol. Mus. Para. Goeldi, ser. 2, Bot. 18: 80. 1963; Mold., Phytologia 49: 165. 1981.

Egler (1963) regards *Herb. Rio de Janeiro 311* as a "syntype" collection of this species, but actually the species is based only on *no. 18954*.

Additional citations: BRAZIL: Amazônas: *Prance, Berg, Bisby, Steward, Monteiro, & Ramos 18027* (W--2898198).

VITEX BUCHANANII J. G. Baker

Additional bibliography: White & Angus, Forest Fl. N. Rhodes. 371. 1962; Mold., Phytologia 49: 165 & 466. 1981.

The *Phillips 2159*, misidentified and distributed as *V. buchananii*, actually is *V. radula* Mildbr.

VITEX CALOTHYRSA Sandw.

Additional bibliography: Mold., Phytologia 49: 166 (1981) and 50: 245. 1982.

Bossio has found this species in fruit in March.

Additional citations: VENEZUELA: Amazonas: *Bossio 16* (E--2892148, N).

VITEX CANESCENS Kurz

Additional bibliography: Walp., Repert. Bot. Syst. 4: 91. 1845; Collett & Hemsl., Journ. Linn. Soc. Lond. Bot. 28: 110. 1890; Dop, Bull. Soc. Hist. Nat. Toulouse 57: 206, 210, & 211. 1928; Mold., Phytologia 48: 419 & 443. 1981.

Collett & Hemsley (1890) give the natural distribution of this species as "Assam to Ava and Pegu". Dop (1928) cites *Harmand 1862, Hayata 679,* and *Poilane 102, 155, 6054, & 6275* from Annam, *Thorel s.n.* from Cambodia, and *Baudouin s.n., Pierre 648, Talmy s.n.,* and *Thorel 1591* from Cochinchina. Craib (1912) cites *Kerr 1705 & 1766* and *Vanpruk 143* from Thailand, giving the overall distribution of the species as Assam, Burma, and Yünnan.

Recent collectors describe the plant as a shrub, 6 feet tall, the leaves dull-green above, lighter green beneath, slightly hairy, the flowers fragrant, and the corollas "white", and have encounter-

ed it at 600 feet altitude.

The *Majumder & Islam 87*, distributed as *V. canescens*, actually is *V. glabrata* var. *bombacifolia* (Wall.) Mold.

Additional citations: NEW GUINEA: Papua: *Streimann NGF.26189* (W--2899990).

VITEX CAPITATA Vahl

Additional citations: Walp., Repert. Bot. Syst. 4: 86 & 88. 1845; Bocq. in Baill., Rec. Obs. Bot. 3: 253. 1863; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; Mold., Phytologia 47: 452 (1981) and 49: 466. 1981.

Recent collectors describe this species as a tree or treelet, 3--5 m. tall, with light-green leaves, and have found it growing on small sand dunes in marshes, on rocky windswept slopes, and in rock cracks on rocky hills with *Byrsonima* and *Trachypogon* dominant, at 160 m. altitude. They have found it in flower in February and April and in fruit in May, the flowers "visited by numerous and various bees". The corollas are said to have been "blue with white nectar-guides" on *Davidse & González 15482* & *16081*, "violet-blue with white nectar-guides" on their *no. 14611*, and "white and violet with yellow nectar-guides" on their *no. 14576*.

Bunting and his associates describe the plant as having "troncos varios; hojas nuevas de color verde suave, lustrosas especialmente en la haz; corola violeta, lóbulos superiores pálidos, lóbulo inferio más intenso con mancha central bien intensa, uña cremosa; estambres semejantes en color".

Additional citations: VENEZUELA: Apure: *Davidse & Gonzalez 14576* (Ld), *14611* (Ld), *15482* (Ld), *16081* (Ld). Bolívar: *Aristeguita 5283* (W--2925970). Guárico: *Aristeguieta 4187* (N). Zulia: *Bunting, Sanchez, & Alfonzo G. 7319*(Ld), *7530* (Ld).

VITEX CHRYSOMALLUM Steud.

Additional bibliography: Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 172. 1895; Mold., Phytologia 48: 453. 1981.

VITEX CILIATA Pierre

Additional bibliography: Walp., Repert. Bot. Syst. 4: 30. 1845; Mold., Phytologia 48: 453. 1981.

VITEX COCHINCHINENSIS Dop, Bull. Soc. Hist. Nat. Toulouse 57: 199--200, pl. 3. 1928.

Additional & emended bibliography: Dop, Bull. Soc. Hist. Nat. Toulouse 57: 199 & 210--211, pl. 3. 1928; Mold., Phytologia 48: 454. 1981.

Additional illustrations: Dop, Bull. Soc. Hist. Nat. Toulouse 57: opp. 200, pl. 3. 1928.

A shrub, 1--2 m. tall; branchlets rounded or subtetragonal, fulvous-pubescent; leaves 3-foliolate; petioles 3.5--4.5 cm. long, round in cross-section, not alate, pubescent; leaflet-blades charteceous, ovate or ovate-elliptic, apically acute or acuminate, basally rounded or obtuse, asperous and sparsely pilose above.

[to be continued]

Moldenke, Harold N. 1982. "Additional notes on the genus Vitex. XXIII." *Phytologia* 51(3), 212–218.

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