

ADDITIONAL NOTES ON THE GENUS CITHAREXYLUM. II

Harold N. Moldenke

CITHAREXYLUM B. Juss.

Additional & emended synonymy: Citharexylum L. apud A. L. Juss., Gen. Pl., ed. 1, 108. 1789. Citharaexylum L. apud L. C. Rich., Act. Soc. Hist. Nat. Paris 1: 111. 1792. Citharexilum L. apud M. Kunz, Anatom. Untersuch. Verb. 70, sphalm. 1911. Citharexilon Harvey ex Moldenke, Alph. List Invalid Names Suppl. 1: 4, in syn. 1947; Soukup, Biota 4: 260. 1963. Hadongia Gagnep. in Humbert, Not. Syst. 14: 30. 1950. Catharexylum Greenm. ex Moldenke, Résumé Suppl. 3: 30, in syn. 1962. Cithaerexylon Barkley ex Moldenke, Résumé Suppl. 3: 30, in syn. 1962. Citharaxilium Moldenke, Résumé Suppl. 13: 6, in syn. 1966. Citharaxylum Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional & emended bibliography: A. L. Juss., Gen. Pl., ed. 1, 108 (1789) and ed. 2, 121--122. 1791; L. C. Rich., Act. Soc. Hist. Nat. Paris 1: 111. 1792; A. Gray, Syn. Fl. N. Am. 2 (1): 333 & 340. 1878; Solered., Bull. Herb. Boiss., sér. 1, 6: 628. 1898; K. Schum. in Just, Bot. Jahresber. 28 (1): 495. 1902; M. Kunz, Anatom. Untersuch. Verb. 69--70 & 78, fig. 8. 1911; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1235, 1237, & 1252. 1924; Britton & P. Wils., Scient. Surv. Porto Rico 6: 137 & 144--146. 1925; Patermann, Beitr. Zytol. Verbenac. 17 & 29. 1935; H. B. Davis, Life & Works Pringle 72, 76, 87, 153, 158, 214, 217, 668, & 669. 1936; M. Martínez, Cat. Nomb. Vulg. & Cientif. Pl. Mex., [ed. 2], 339. 1937; Troncoso, Darwiniana 3: 50, 51, & 56. 1937; Robledo, Lecc. Bot. 2: 497 & 498. 1940; Neal, In Gard. Hawaii 635, 639, & 640. 1948; Gagnep. in Humbert, Not. Syst. 14: 30. 1950; Reitz, Anais Bot. 2: 28 & 37. 1950; Moldenke, Biol. Abstr. 27: 2026 & 3121. 1953; E. J. Salisb., Ind. Kew. Suppl. 11: 55 & 106. 1953; E. L. Little, U. S. Dept. Agr. Forest Serv. Agric. Handb. 41: 110--111 & 450. 1953; Aristeguieta, Clava & Descrip. Fam. Arb. Venez. 192, 193, 256, 258, 270, & 284. 1954; Moldenke, Verb. 19--20. 1955; Angely, Fl. Paran. 7: 4, 6, & 11. 1957; Moldenke, Biol. Anstr. 32: 2353. 1958; Moldenke, Phytologia 6: 242--256, 262--320, 332--368, & 383--432 (1958), 6: 448--505 (1959), and 7: 7--77. 1959; Reitz, Sellowia 11: 77 & 97. 1959; Moldenke, Biol. Abstr. 33: 1862 (1959), 34: 481 (1959), and 35: 1464--1465 & 1689. 1960; Angely, Liv. Gen. Bot. Bras. 35 & 41. 1960; Angely, Fl. Paran. 15: 12 & 24. 1960; Soukup, Biota 3: 30. 1960; Muñoz Pizarro, Espec. Plant. Descr. Philippi 109. 1960; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Ind. 1959: 53. 1960; Troncoso, Darwiniana 12: 260. 1961; Moldenke, Biol. Abstr. 36: 4036 (1961) and 37: 1062. 1962; Angely, Fl. Bahia Paran. 22: 39. 1962; Soukup, Biota 4: 172, 189, & 192. 1962; Menninger, Flow. Trees World 325 & 327. 1962; Moldenke, Résumé Suppl. 3: 30. 1962; Hocking, Excerpt. Bot. A5: 43--45 (1962) and A6: 532. 1963; Shelford, Ecol. N. Am. 475, 490, & 557. 1963; T. Mey., Op. Lill. 10:

50. 1963; Soukup, Biota 4: 260 & 312 (1963) and 5: 35, 37, 117, 123, & 128. 1964; Moldenke in Shreve & Wiggins, Veg. & Fl. Son. Des. 2: 1259. 1964; Little & Wadsworth, U. S. Dept. Agr. Forest Serv. Agric. Handb. 249: 478--479, fig. 226. 1964; Menninger, Seaside Pl. 193 & 289. 1964; Langman, Select. Guide Lit. Flow. Pl. Mex. 160, 249, 335, 515--517, 633, 715, & 1010. 1964; Angely, Bibl. Veg. Paran. 128 & 195. 1964; Moldenke, Résumé Suppl. 10: 5 (1964), 11: 5 & 6 (1964), and 12: 3 & 9. 1965; Moldenke, Phytologia 12: 6, 21, & 27. 1965; Gooding, Loveless, & Proctor, Fl. Barbados 354, 356, & 468--469. 1965; Neal, In Gard. Hawaii, new rev. ed., 720, 721, & 726. 1965; Rambo, Pesquis. Bot. 21: 14--16 & [59]. 1965; Moldenke, Résumé Suppl. 13: 1, 2, & 6. 1966.

Little & Wadsworth (1964) note that "The generic name (Citharexylum) is Greek for fiddlewood. The English name fiddlewood and similar ones in French and Spanish for related species refer to the use for violins, guitars, and other musical instruments. The Spanish name péndula, meaning pendent, describes the long slender drooping or hanging clusters of flowers and fruits."

Aristeguieta (1954) records the common and vernacular names "ciudadito", "palo guitarro", "pendare", "péndula", "totumilla", "totumillo", and "totumillo blanco", while Soukup (1962, 1963, 1964) records "choloquillo cimarrón", "mullahuayo", "quiniellia blanco" [with a question], "tasta", "tosta", and "turucassa" -- of these, "tasta" and "tosta" are applied also to Escallonia, while "turucassa" is applied also to Porlieria and Rauwolfia.

It should be noted here that Hadongia Gagnep. was originally proposed by Gagnepain as a genus in the Bignoniaceae. The H. Pittier 9967, originally distributed to herbaria as a species of Citharexylum, is actually Guettarda discolor Rusby in the Rubiaceae.

Any abbreviations used on the following pages of this paper for the names of herbaria in which cited specimens are deposited, and not accounted for in Phytologia 5: 154--159 (1955) and 6: 242 (1958), will be found explained in the introduction to my paper entitled "Materials toward a monograph of the genus Callicarpa. I" which follows the present one in the present journal.

#### CITHAREXYLUM AFFINE D. Don

Additional & emended bibliography: Sessé & Moc., Pl. Nou. Hisp., ed. 2, 96, pl. 417. 1893; M. Kunz, Anatom. Untersuch. Verb. 69--70 & 78, fig. 8. 1911; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1238 & 1241. 1924; H. B. Davis, Life & Works Pringle 158. 1936; Moldenke, Phytologia 6: 278--282. 1958; Hocking, Excerpt. Bot. A5: 43. 1962.

Illustrations: Sessé & Moc., Pl. Nou. Hisp., ed. 2, pl. 417. 1893; M. Kunz, Anatom. Untersuch. Verb. fig. 8. 1911.

Concerning the plate 417 in Sessé & Mocino's work (1893) Dr. Rogers McVaugh, in a letter to me dated October 11, 1963, says "Inclosed are two photographs that I took in Madrid this summer, of original plates made in Mexico probably in 1791, by the artists of the Royal Botanical Expedition....plate 417 of the Plantae No-

vae Hispaniae (cited on p. 96, ed. 2), with type-locality Patzcuaro and/or Coahuayana. This is presumably the same species as C. sessei D. Don, of which I saw a specimen at Oxford this summer." As yet I have not been able to examine the Oxford specimen referred to here. My letter to Oxford offering to annotate the material of this group in the herbarium there has not been answered.

Recent collectors describe C. affine as a tree or as tree-like, 5-10 m. tall; trunk 20-25 cm. in diameter at breast height; corolla lavender or pale-lavender to deep-blue or purple, pale-hairy at the orifice; fruit orange-brown when immature, blue-black when mature. The species has been found growing on moist shaded slopes, oak-dominated slopes facing the Pacific, deciduous forests above the Orbignya palm zone, sandy loam in full exposure to the sun, wooded slopes and barrancas, oak woodland over dissected volcanic terrain, and variable woodland more or less marginal to tropical savannas. Gentry & Gilly comment "fruit turning pale-orange" or "turning orange-red and finally blue-black when mature". The corolla is described as "purple" on Alava & Cook 1484 and McVaugh 14898, "lavender" on McVaugh 15697, "pale-lavender" on Gentry & Gilly 10705, "violet" on Wilbur 2121, and "deep-blue" on Gentry & Gilly 10826. Alava & Cook describe the fruits as "berries", but they are actually drupes. The plant has been found in flower also in the month of March.

An isotype, Andrieux 135, in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva was photographed there by Macbride as his type photograph number 7877.

The Gentry, Barclay, & Arguelles 20252, distributed as C. affine, is actually C. gleasonianum Moldenke.

Additional citations: MEXICO: Colima: R. McVaugh 15697 (Mi). Jalisco: Wilbur 2121 (Mi). México: Andrieux 135 [Macbride photos 7877] (N—photo of isotype); Hinton 9011 (Rf). Nayarit: Feddema 718 (Mi); Gentry & Gilly 10705 (Rf), 10826 (Rf); R. McVaugh 14898 (Mi); Paray 2687 (Ip). Sinaloa: Alava & Cook 1484 (Mi); J. Gonzalez Ortega 5430 (Ip).

#### CITHAREXYLUM ALTAMIRANUM Greenm.

Additional bibliography: P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1237 & 1238. 1924; Moldenke, Phytologia 6: 284-286. 1958.

Recent collectors describe this plant as a slender shrub, to 12 feet tall, with white flowers, blooming in July, growing in thickets at altitudes of 1400 to 1600 meters, fruiting also in September.

Additional citations: MEXICO: Hidalgo: C. L. Lundell 12558 (Rf); Moore & Wood 3845 (Ba). Querétaro: Paray 2169 (Ip).

#### CITHAREXYLUM AMAZONICUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 286-287. 1958.

An isotype, Spruce 2114, deposited in the herbarium of the Naturhistorisches Museum in Vienna, was photographed there by Macbride as his type photograph number 34318.

Additional citations: BRAZIL: Amazonas: Spruce 2114 [Macbride photos 34318] (W--photo of isotype).

CITHAREXYLUM AMBIGUUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 287--288. 1958; Langman, *Select. Guide Lit. Flow. Pl. Mex.* 515. 1964.

CITHAREXYLUM ANDINUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 288--289 (1958) and 7: 73. 1959.

Steinbach describes this plant as a shrub, 1--2 m. tall, with white (no. 6019) flowers, growing at 2000 meters altitude, blooming in October and December.

Additional citations: BOLIVIA: Cochabamba: Steinbach 6019 (A). La Paz: Mandon 1493 [Macbride photos 28393] (W--1618705--isotype). Santa Cruz: Steinbach 8572 (G).

CITHAREXYLUM ARGUTEDENTATUM Moldenke

Additional synonymy: Citharexylum argutidentatum Moldenke, *Résumé Suppl.* 13: 6, in syn. 1966.

Additional bibliography: Moldenke, *Phytologia* 6: 289--290. 1958; Soukup, *Biota* 4: 172. 1962; Moldenke, *Résumé Suppl.* 13: 6. 1966.

Vargas Calderon found this species growing at 3000 to 3650 meters altitude, blooming in January and February. The Cárdenas 5464, distributed as C. argutedentatum, is actually C. punctatum Greenm.

Additional citations: PERU: Cuzco: Vargas Calderon 2407 (W--1995350), 7684 (W--1987877).

CITHAREXYLUM BERLANDIERI B. L. Robinson

Additional bibliography: M. Kunz, *Anatom. Untersuch. Verb.* 70. 1911; P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1238--1240. 1924; H. B. Davis, *Life & Works Pringle* 76 & 87. 1936; M. Martínez, *Cat. Nomb. Vulg. & Cientif. Pl. Mex.*, [ed. 2], 339. 1937; E. L. Little, *U. S. Dept. Agr. Forest Serv. Agric. Handb.* 41: 111. 1953; Moldenke, *Phytologia* 6: 290--294. 1958; Moldenke, *Résumé Suppl.* 13: 1. 1966.

Additional vernacular names recorded for this plant are "encorba gallina" and "orcajuela". The plant has been found by recent collectors in tropical forests, deciduous tropical woods, secondary matorral, dry areas, and heavy black clay soil, in patches of brush with much mesquite, on shrub-grass basaltic mesas, clay dunes, and brushy caliche mesa slopes, in the timber belt on the leeward side of clay dunes, in palm groves, on low ridges, among brush on soil derived from basic igneous (basalt) rock near arroyos, in badly disturbed brush on black clay soil

derived from basalt, and in soft shale at the mouths of canyons, flowering in September and October. Kenoyer & Crum call the species a "forest tree", but Correll refers to it as a "climbing shrub" and Gentry a "slender shrub". The corollas on C. L. Lundell 10715 are described as "white", and the fruit on Correll & Johnston 19774 as "orange-red". Rzedowski found the plant growing at 1350 meters altitude in San Luis Potosí. Crutchfield & Johnston call it "abundant" in Tamaulipas, but Graham & Johnston refer to it as "infrequent in the brush" there.

Additional citations: TEXAS: Cameron Co.: D. S. Correll 14866 (Rf); Cory 51396 (Ca--754839, Du--345341); G. L. Fisher s.n. [Brownsville, Aug. 9, 1941] (S); C. L. Lundell 10715 (Rf, Rf); Lundell & Lundell 8668 (Du--320525); Tharp, Gimbrede, & Johnson 52-524 (St). MEXICO: Nuevo León: Correll & Johnston 19774 (Rf); Kenoyer & Crum 3260 (Mi). San Luis Potosí: Kenoyer s.n. [Valles, 8-39] (Mi); J. Rzedowski 8318 (Ip), 8637 (Ip), 10370 (Ip, Mi), 14770 (Ip). Sinaloa: Nápoles 10 (Ip). Tamaulipas: Crutchfield & Johnston 5699 (Mi); H. S. Gentry 6701 (Ca--946182, Du--356150); Gonzalez Medrano 5 (Ip); Graham & Johnston 4081 (Mi), 4398 (Mi), 4404 (Mi); Kenoyer & Crum 3365 (Mi); Manning & Manning 53385 (Ip); J. Rozynski 601 (Mi).

CITHAREXYLUM BOURGEOUANUM Greenm.

Additional bibliography: P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1238 & 1240. 1924; Moldenke, *Phytologia* 6: 294--295. 1958.

CITHAREXYLUM BRACHYANTHUM (A. Gray) A. Gray

Additional & emended synonymy: Citharexylum brachyanthum Gray ex Moldenke, *Suppl. List Invalid Names* 2, in syn. 1941. Citharexylum brachyanthum Gray ex Moldenke, *Phytologia* 6: 295, in syn. *sphalm.* 1958.

Additional bibliography: M. Kunz, *Anatom. Untersuch. Verb.* 70. 1911; P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1237 & 1238. 1924; H. B. Davis, *Life & Works Pringle* 87. 1936; Moldenke, *Phytologia* 7: 73--74. 1959; Moldenke, *Résumé Suppl.* 13: 6. 1966.

Recent collectors describe this plant as a bush or shrub, 2--7 feet tall, mostly divaricately branched, with bright-red or scarlet fruit, 6 mm. in diameter, fruiting in October and November. The Lundells refer to the fruits as "berries", but they are actually drupes. The flowers are described as "white" on C. H. Muller 3006. The plant has been found growing on limestone slopes and on thin limestone soil, in matorral vegetation, in alluvial ground with Larrea, and in association with Agave lecheguilla and grasses. The leaves on M. T. Edwards 292 are extra large and spatulate. Muller refers to the species as "common" on Larrea-Flourensia flats and lower shrubby slopes, but "rare" in fine-soiled sinks on deserts and in open thickets of Rhus microphylla on Larrea-Flourensia deserts in Chihuahua. He calls it

"common in Larrea-Flourensia desert", but "infrequent in desert scrub on protruding basalt dikes" in Coahuila. Crutchfield & Johnston refer to it as "infrequent in desert scrub on limestone hillsides."

Additional citations: TEXAS: Zapata Co.: Lundell & Lundell 12664 (Rf). MEXICO: Chihuahua: C. H. Muller 3333 (Ca--721504, Mi, Rf). Coahuila: Crutchfield & Johnston 5871 (Rf); I. M. Johnston 7048 (Ca--741264); M. C. Johnston 5871 (Mi); C. H. Muller 3006 (Ca--719561, Mi, Rf), 3033 (Mi, Rf); Salgado s.n. [18.I. 1961] (Ip); Wynd & Mueller 9 (Mi, St). Durango: Correll & Johnston 20217 (Rf). Nuevo León: M. T. Edwards 292 (Ca--732106); Pringle 11818 (Gg--421298, Mi). San Luis Potosí: Crutchfield & Johnston 5656 (Mi); C. L. Lundell 5344 (Ca--602605); J. Rzedowski 5608 (Ip), 7636 (Ip). Zacatecas: Hernández Xolocotzi 592 (Rf); J. Rzedowski 9323 (Ip, Ip); Shreve 8590 (Ca--731757), 9203 (Ca--731694).

#### CITHAREXYLUM CAUDATUM L.

Additional synonymy: Citharaexylum caudatum L. apud L. C. Rich, Act. Soc. Hist. Nat. Paris 1: 111. 1792. Cytharexylon caudatum L. apud Macfadyen in Hook., Bot. Misc. 2: 115. 1831. Citharexilum caudatum L. apud M. Kunz, Anatom. Untersuch. Verb. 70, sphalm. 1911.

Additional & emended bibliography: L. C. Rich., Act. Soc. Hist. Nat. Paris 1: 111. 1792; Macfadyen in Hook., Bot. Misc. 2: 115. 1831; Hayek in Engl., Bot. Jahrb. 42: 170. 1908; M. Kunz, Anatom. Untersuch. Verb. 70. 1911; Britton & P. Wils., Scient. Surv. Porto Rico 6: 144--145. 1925; Robledo, Lecc. Bot. 2: 498. 1940; Neal, In Gard. Hawaii, [ed. 1], 640. 1948; Moldenke, Phytologia 7: 74. 1959; Shelford, Ecol. N. Am. 490. 1963; Little & Wadsworth, U. S. Dept. Agr. Forest Serv. Agric. Handb. 249: 478--479, fig. 226. 1964; Moldenke, Résumé Suppl. 11: 6. 1964; Neal, In Gard. Hawaii, new rev. ed., 726. 1965; Moldenke, Résumé Suppl. 13: 6. 1966.

Additional illustrations: Little & Wadsworth, U. S. Dept. Agr. Forest Serv. Agric. Handb. 249: fig. 226. 1964.

Recent collectors describe this plant as having a trunk to 25 cm. in diameter at breast height. The fruit is described by Bartlett & Lasser as "orange, turning purple". Allen refers to the species as a "common shrub" in Panama, while Erlanson found it "occasional along shores" on San José Island. H. H. Bartlett 17363, from Haiti, is not at all typical -- its leaf-blades are too pointed, small, and the venation is too much impressed above and prominent beneath; it may well be the hybrid xC. jamaicense Moldenke. Steyermark 38920, from Guatemala, does not appear to be typical either -- the collector describes its leaves as "rich-green above with orange-brown midrib, pale-green beneath with light-brown midrib, fruit spray pendent, fruit shiny". P. H. Allen 3597, from Panama, has very broad leaves. Bancroft & Miller 3 has wood section samples mounted on the herbarium sheet.

Material of C. caudatum has been misidentified and distributed in herbaria as C. ilicifolium H.B.K., C. schottii Greenm., C. spinosum L., Byrsonima crassifolia (L.) H.B.K., and Picramnia antidesma Sw. On the other hand, the Shank & Molina R. 4270, distributed as Citharexylum caudatum, is actually C. hexangulare Greenm.

Little & Wadsworth (1964) describe C. caudatum, as it grows in Puerto Rico, as follows: "Shrub or tree of upper montane forests characterized by: (1) opposite elliptic leaves blunt or rounded at apex and short-pointed at base, with few lateral veins; (2) narrow clusters of small white flowers  $5/16$  inch across the slightly unequal spreading corolla lobes and borne on short stalks  $1/16$  inch long; and (3) shiny pear-shaped or elliptic fruits nearly  $1/2$  inch long, turning from green to orange brown or black, with cup-like calyx at base.

"This species differs from its widely distributed close relative péndula (Citharexylum fruticosum L.) in the leaves coarsely veined without a prominent network of small veins when dry, in the flowers definitely stalked instead of almost stalkless, and in its distribution in mountain forests at higher elevations.

"A small slender evergreen tree 15--30 feet high and to 8 inches in trunk diameter, or a shrub. The bark is smoothish and brown, inner bark light brown and bitter. The long narrow twigs are light gray brown, with prominent raised leaf scars.

"Petioles are  $1/4$ -- $3/4$  inch long. Blades are 2--5 inches long and  $3/4$ -- $2\ 1/4$  inches wide, slightly thickened and with edges sometimes turned under a little, slightly shiny green above and dull and paler beneath. On the lower surface are many minute inconspicuous dots visible with a lens.

"Flower clusters (racemes) are  $1\ 1/2$ --3 inches long, terminal and lateral, bearing many slightly fragrant flowers. The bell-shaped calyx is about  $1/8$  inch long and broad, minutely 5-toothed; the white finely hairy corolla with tube nearly  $1/4$  inch long and 5 lobes  $1/8$  inch long; 4 stamens nearly  $1/8$  inch long inserted on corolla tube; and greenish pistil  $3/16$  inch long with 2-celled ovary, slender style, and slightly 2-lobed stigma.

"The fleshy fruits (drupes) slightly 2-lobed have cuplike calyx  $1/8$  inch long remaining at base. They contain 2 elliptic shiny brown nutlets  $3/8$  inch long, each 1-seeded. Flowering and fruiting throughout the year.

"The light brown, hard wood is used for posts and fuel. Also a honey plant.

"Upper mountain forests and dwarf forests of mountain peaks in Puerto Rico."

They record the additional common names "café cimarrón", "café marrón", "fiddlewood", "péndula de sierra", and "racemose fiddlewood".

Additional citations: MEXICO: Chiapas: Matuda 3771 (Mi, Rf), 3776 (Mi). Tabasco: Matuda 3066 (Mi). GUATEMALA: Izabal: Steyermark 38920 (W--1949548). BRITISH HONDURAS: Gentle 4793 (Ld, S),

8079 (Ld), 8488 (Ld, S). PANAMA: Canal Zone: P. H. Allen 1836 (Mi); Bartlett & Lasser 16308 (Mi), 16314 (Mi). Colón: P. H. Allen 3597 (Ca--790799, W--1976267). Panamá: Duke 4598 (Ca), 4599 (Ca). PEARL ISLANDS: San José: C. O. Erlanson 23 (Du--349976, Mi), 310 (Mi, N); Harlow 5 (W--2398301); I. M. Johnston 228 (W--2024005). CUBA: Las Villas: R. A. Howard 5204 (Ca--913758); León & Jack 13954 (W--2289443). Oriente: Linden 1789 (P); C. Wright 435 [1860] (Ca--936807). JAMAICA: Bancroft & Miller 3 (W--1555633); Harris & Lawrence C.15508A (Ca--984476); Proctor & Stearn 11449 (W--2351899); Wolle s.n. (T1). HISPANIOLA: Haiti: H. H. Bartlett 17363 (Mi). PUERTO RICO: Alain 10350 (G, Ij, N, Sj), 10733 (G, N, N); Webster & Miller 8713 (S). POLYNESIA: HAWAIIAN ISLANDS: Oahu: A. R. Cooke s.n. [Manoa trail, 9/26/54] (St); Pearsall s.n. [Pauoa Flats, Aug. 1, 1953] (Bi). CULTIVATED: Hawaiian Islands: Caum s.n. [June 5, 1938] (Bi); Degener & Mura-shige 20075 (W--1991209); F. E. Egler 37-90 (Bi); Potter & Miya-shiro s.n. [11/26/57] (Bi). Peru: Klug 355 (P); Martinet 693 (P), 852 (P), s.n. (P, P, P).

#### CITHAREXYLUM CHARTACEUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 310--312. 1958.

Ellenberg found this plant growing in a rainforest at 580 meters altitude, but misidentified it as C. quitense Spreng.

Additional citations: PERU: Province undetermined: Ellenberg 1489 [Huasimo nördl. Suyu] (Ut--163209b).

#### CITHAREXYLUM DAWEI Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 317--319. 1958.

Lasser & Foldats describe this plant as a tree 5 m. tall, with "frutas maduros, drupas, morado oscuro", fruiting in February. Material has been misidentified and distributed in herbaria as C. decorum Moldenke. On the other hand, the Aristeguieta 793, distributed as "Citharexylum cf. dawei Moldenke", is actually C. subthyrsoideum Pittier.

Additional citations: VENEZUELA: Falcón: Lasser & Foldats 3087 (Ve--36553).

#### CITHAREXYLUM DECORUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 7: 74. 1959.

Brito describes this plant as a tree, 12 m. tall, free of branches for 9 m., flowering in June, and called "pauji". The Bernardi 6739, cited by me in the reference given above, proves, on closer examination, to be C. poeppigii Walp. Similarly, the Lasser & Foldats 3087, distributed as C. decorum, is actually C. dawei Moldenke, while Steyermark 86556 is C. fruticosum var.



brittonii Moldenke.

Additional citations: VENEZUELA: Vargas: Brito 4 (Ve).

## CITHAREXYLUM DENTATUM D. Don

Additional bibliography: Moldenke, Phytologia 6: 332—333. 1958; Hocking, Excerpt. Bot. A5: 43. 1962.

An isotype, Ruiz s.n., deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17592, but is now most unfortunately destroyed.

Additional citations: PERU: Ancash: Ruiz s.n. [Maccos; Macbride photos 17592] (W—photo of isotype).

## CITHAREXYLUM DISCOLOR Turcz.

Additional synonymy: Citharexylum discolor Urb. & Ekm. ex Moldenke, Résumé Suppl. 10: 5, in syn. 1964.

Additional bibliography: Moldenke, Phytologia 6: 334—336. 1958; Moldenke, Résumé Suppl. 10: 5. 1964.

Recent collectors describe this plant as a shrub, 3—5 m. tall, or a small tree, to 6.5 m. tall, with white flowers and green fruit, growing from 630 to 1700 meters altitude, flowering in May, and fruiting in August.

Additional citations: HISPANIOLA: Dominican Republic: R. A. Howard 12285 (Mi, N, S), 12304 (Mi); Jiménez 4002 (W—2350401). Haiti: Leonard & Leonard 15066 (W—1453385, W—1453386).

## CITHAREXYLUM DONNELL-SMITHII Greenm.

Additional synonymy: Catharexylum donnell-smithii Greenm. ex Moldenke, Résumé Suppl. 3: 30, in syn. 1962.

Additional bibliography: Moldenke, Phytologia 7: 74. 1959; Moldenke, Résumé Suppl. 3: 30. 1962.

Recent collectors describe this plant as a tree, 20—60 feet tall; trunk erect, to 40 cm. wide at the base, 36.5 cm. wide at breast height; bark dark-gray or dark gray-brown, shaggy; leaves membranous, slightly thickened and stiffened, dark opaque-green, glabrous, with the slender venation light yellow-green, pale beneath; flowers trumpet-form, white, fragrant, 5—6 mm. in diameter, the lobes expanding; heavily fruited, the mature fruit orange, sub-globular, greatly favored by wild pigeons, growing in clay-loam soil along open roadsides in the upper limit of the tropical zone or in gray loam of pastures, at altitudes of 2400 to 6600 feet, flowering in January, fruiting in February and April, known as "chorrito". The Standley & Padilla V.2664, cited in Phytologia 7: 74 (1959) as from Sonsonate, is actually from Ahuachapán, El Salvador. The Stork 3283, distributed as C. donnell-smithii, is actually C. macradenium Greenm.

Additional citations: MEXICO: Chiapas: E. J. Alexander 1217 (N, N, N, Z). GUATEMALA: Sacatepéquez: P. C. Standley 64953 (Mi). EL SALVADOR: La Libertad: M. C. Carlson 228 (Ca—703661). Santa Ana: Allen & Armour 6798 (Mi). COSTA RICA: Alajuela: A. Smith P.2337

(Ca--12726); A. F. Smith 26 [Stork 4126] (Ld, Mi). San José: Tonduz 1419 (G).

CITHAREXYLUM DRYANDERAE Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 340--341. 1958.

Additional citations: COLOMBIA: Valle del Cauca: Dryander 2362 (Bm--isotype).

CITHAREXYLUM ELLIPTICUM Sessé & Moc.

Additional bibliography: M. Kunz, *Anatom. Untersuch. Verb.* 71. 1911; P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1238 & 1240. 1924; Moldenke, *Phytologia* 6: 342--345. 1958.

Recent collectors describe this plant as a shrub or low shrub, 1--3 m. tall, with white flowers and orange or orange-red fruit, growing in loam or sandy soil, with full exposure to the sun, in front of large active dunes at the back of storm-beaches, and on stabilized sand-dunes along beaches, flowering and fruiting in December. King refers to it as "common" or "locally abundant" in Vera Cruz, Mexico. León found it growing along roadsides in Cuba.

Additional citations: MEXICO: Vera Cruz: R. M. King 1093 (Mi), 1143 (Mi), 2706 (N, Z); Paray 1938 (Ip), 2869 (Ip); Paxson, Webster, & Barkley 17M620 (Au--123187, Au--169676); Sauer & Gade 3110 (Mi). CUBA: Matanzas: León 13905 (W--2289442).

CITHAREXYLUM FLABELLIFOLIUM S. Wats.

Additional bibliography: P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1237 & 1239. 1924; Moldenke, *Phytologia* 7: 74. 1959; Moldenke in Shreve & Wiggins, *Veg. & Fl. Son. Des.* 2: 1259. 1964.

Recent collectors describe this plant as a shrub or stiff shrub, 1.3--3 m. tall, as broad as tall, rather compact in the middle, but with widely ascending branches, growing at 950 feet altitude, fruiting in April. Thomas found it growing in association with the following dominants: Pachycereus pringlei (S. Wats.) Britton & Rose, Bursera spp., Jatropha spp., Fouquieria peninsularis Nash, Forchammeria watsoni Rose, and Machaericereus gummosus (Engelm.) Britton & Rose.

Additional citations: MEXICO: Baja California: J. H. Thomas 8421 (Du--419744). Sonora: H. S. Gentry 4721 (Mi); Shreve 6115 (Mi). MONSERRATE ISLAND: R. V. Moran 3886 (Ca--1444).

CITHAREXYLUM FLEXUOSUM (Ruiz & Pav.) D. Don

Additional synonymy: Citharexylon spinosum Humb. & Kunth ex Benth., *Bot. Voy. Sulphur* 154. 1846.

Additional bibliography: Benth., *Bot. Voy. Sulphur* 154. 1846; Moldenke, *Phytologia* 6: 349--353. 1958; Soukup, *Biota* 4: 172. 1962.

This species has been found growing at 400 meters altitude, fruiting in August. Soukup (1962) records the common name "choloquillo cimarron". An isotype of C. spinosum, Humboldt & Bon-

pland 3687, deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17601, but is now destroyed. The type of Rauwolfia emarginata, Ruiz & Pavon 88, deposited in the Madrid herbarium, was photographed there by Macbride as his type photograph number 29685. The Soukup 4498, distributed as C. flexuosum, is actually Duranta skottsbergiana Moldenke.

Additional citations: PERU: Arequipa: Ellenberg 2691 (Ut-163206b); Rose & Rose 18988 (W--761572). Cajamarca: Humboldt & Bonpland 3687 [Herb. U. S. Nat. Arb. 196719; Macbride photos 17601] (W--photo). Huánuco: Ruiz & Pavon 88 [7/78; Macbride photos 29685] (W--photo).

#### CITHAREXYLUM FRUTICOSUM L.

Additional synonymy: Citharoxylon fruticosum L. ex Moldenke, Résume Suppl. 3: 30. 1962.

Additional bibliography: Griseb., Cat. Pl. Cub. 216. 1866; M. Kunz, Anatom. Untersuch. Verb. 71. 1911; E. L. Little, U. S. Dept. Agr. Forest Serv. Agric. Handb. 41: 111. 1953; Moldenke, Verb. 20-21. 1955; Moldenke, Phytologia 7: 75. 1959; Jimenez, List Nom. Vernac. 9. 1961; Menninger, Flow. Trees World 292. 1962; Hocking, Excerpt. Bot. A5: 43. 1962; Shelford, Ecol. N. Am. 475 & 557. 1963; Menninger, Seaside Pl. 193. 1964; Little & Wadsworth, U. S. Dept. Agr. Forest Serv. Agric. Handb. 249: 480 & 481, fig. 227. 1964.

Additional illustrations: Little & Wadsworth, U. S. Dept. Agr. Forest Serv. Agric. Handb. 249: fig. 227. 1964.

Additional common names for this plant are "café cimarrón", "canilla de venado", "long-tom", "pasture fiddlewood", and "susanaleche". Material has often been misidentified and distributed in herbaria as C. spinosum L. Britton & Wilson (1925) reduce C. pentandrum Vent. to synonymy under C. fruticosum, calling it a juvenile form.

Recent collectors describe C. fruticosum as a spindly sparsely branched shrub, 1 m. tall, or a tree, 2.7--9 m. tall, the petioles orange-colored, the corollas white, and the fruit reddish-orange, inhabiting coastal limestone bluffs, and found at altitudes to 600 meters. On the sheet of Totten & Gifford s.n., cited below, there appears this statement: "Gifford says that this is the true fiddlewood. It does not agree with Small". There are a few hairs in the vein-axils of this specimen. Webster refers to the species as "uncommon" in Oriente, Cuba.

Little & Wadsworth (1964) describe the plant as follows: "This small tree is easily recognized by: (1) opposite, mostly elliptic, yellow-green leaves with conspicuous pink or orange petioles; (2) narrow clusters of small fragrant white flowers nearly 3/8 inch across the 5 slightly unequal spreading corolla lobes, borne almost stalkless on narrow drooping axes; (3) nearly round, shiny, reddish-brown or black fruits 3/8 inch or less in diameter; and (4) rough, light brown bark, becoming much fissured and shredding

in long narrow strips.

"Evergreen shrub or small slender tree 10--40 feet in height and to 1 foot in trunk diameter. The inner bark is whitish and tasteless. Young twigs are 4-angled and with faint rings at nodes, slender, light brown or green, becoming gray and finely fissured. Petioles are 1/2--1 inch long. Leaf blades are 3--7 inches long and 1--2 1/2 inches broad, short- or long-pointed at both ends or sometimes rounded or notched at apex, the edges rarely toothed on young shoots, thick and leathery, sometimes hairy on veins beneath, shiny yellow green on upper surface and dull beneath, turning red before falling. They vary greatly in shape from lance-shaped to elliptic or obovate and when dry show a raised network of small veins on both sides. The midrib often is pinkish toward base. Flower clusters (racemes) are 2--12 inches long, lateral and terminal, unbranched, bearing many white flowers about 3/8 inch long. The pale green calyx is narrowly tubular, 3/16 inch long, mostly 5-toothed, hairless or hairy; the white tubular 5-lobed corolla nearly 3/8 inch long, hairy at throat; 4 stamens inserted on corolla tube; and pistil with 4-celled green ovary, slender style, and slightly 2-lobed stigma. The drooping clusters of fleshy fruits (drupes), sometimes abundant, are reported to be sweet and edible. Each has a stone which separates into 2 2-seeded nutlets. Flowering and fruiting through the year.

"The sapwood is light brown and thin, and the heartwood is reddish. The wood is very hard, heavy (specific gravity 0.7), and strong. Considered a good fencepost in Puerto Rico. The wood of this and related species has been used elsewhere for furniture, construction, and violins, guitars, and other musical instruments.

"Sometimes planted along highways and fences and in gardens as an ornamental. Also a honey plant. This species is subject to attacks by caterpillars which fasten the leaves together in bundles and cause leaf fall, reducing the value for ornament.

"In thickets and forests of the coastal, limestone, and lower mountain regions of Puerto Rico. Also in Desecheo, Icacos, Culebra, Vieques, St. Croix, St. Thomas, St. John, Tortila, and Virgin Gorda."

The Britton & Shafer 249, Britton & Brace 233, and Fishlock 73 & 198, distributed as typical C. fruticosum, are actually all f. bahamense (Millsp.) Moldenke.

Additional citations: FLORIDA: Brevard Co.: Melvin s.n. [July 24, 1957] (Hi--184164). Dade Co.: Tidestrom 6956 (Ca--882450); Totten & Gifford s.n. [December 30, 1940] (Hi--22775). Big Pine Key: Killip 41149 (Tl). CUBA: Camagney: Shafer 955 (Bi). Las Villas: A. Gonzales 671 (Mi); J. G. Jack 5514 (Du--347288); Morton 4488 (W--1782704). Matanzas: Morton 10224 (W--2350807). Oriente: López Figueiras 2952 (W--2228995); Morton & Alain 9194 (W--2285278); G. L. Webster 4071 (Mi). Province undetermined: Sagra 583 (P). JAMAICA: West & Arnold 910 (N). HISPANIOLA: Dominican

Republic: B. Augusto 1061 (N); Howard & Howard 9757 (B). PUERTO RICO: R. G. Finch 70 (Mi); A. A. Heller 4421 (P); Sintenis 720b (P), 1915 (P), 2085 (P). WINDWARD ISLANDS: Martinique: Herb. Mus. Paris s.n. (P). Ronde: R. A. Howard 10733 (N). St. Lucia: Webster & Miller 9356 (Mi). TOBAGO: Purseglove P.6363 (N, W--2429296). VENEZUELA: Sucre: Aristeguieta & Agostini 4769 (N). BRITISH GUIANA: E. L. Little 16710 (Z).

CITHAREXYLUM FRUTICOSUM f. BAHAMENSE (Millsp.) Moldenke

Synonymy: Citharexylon bahamense Millsp. in Britton, Bull. N. Y. Bot. Gard. 3: 450--451. 1905. Citharexylum bahamense Millsp. apud Prain, Ind. Kew. Suppl. 3: 43. 1908.

Bibliography: Britton, Bull. N. Y. Bot. Gard. 3: 450--451. 1905; Prain, Ind. Kew. Suppl. 3: 43. 1908; Moldenke, Prelim. Alph. List Invalid Names 15. 1940; Moldenke, Alph. List Invalid Names 13. 1942; Moldenke, Résumé 253 & 255. 1959; Moldenke, Phytologia 13: 242. 1966.

This narrow-leaved pubescent form of the species was hitherto regarded by me as var. villosum (Jacq.) O. E. Schulz, but I feel now that it is worthy of nomenclatural recognition. It seems to bear the same relation to var. villosum as does var. smallii Moldenke to the typical C. fruticosum L. Material has been misidentified and distributed in herbaria as C. fruticosum L. and as C. fruticosum var. villosum (Jacq.) O. E. Schulz.

The type of the form was collected by Nathaniel Lord Britton and Lewis Jones Knight Brace (no. 233) in a coppice on Farrington Road, New Providence, Bahama Islands, on August 24, 1904, and is deposited in the Britton Herbarium at the New York Botanical Garden. The form has been found growing in coppices, copses, and hillside thickets, on hills, and along roadsides, flowering in February, August, October, and November, fruiting in August and October.

Citations: BAHAMA ISLANDS: New Providence: Britton & Brace 233 (B--isotype, B--photo of type, F--171690--isotype, G--isotype, K--isotype, K--photo of type, N--type, N--photo of type, S--photo of type, Z--photo of type). VIRGIN ISLANDS: St. John: Britton & Shafer 249 (N, W--756261). Tortola: Fishlock 198 (A, G, K, N, W--1476732). Virgin Gorda: Fishlock 73 (N).

CITHAREXYLUM FRUTICOSUM var. BRITTONII Moldenke

Additional bibliography: Moldenke, Verb. 21. 1955; Moldenke, Phytologia 6: 366--368 (1958) and 13: 284--285. 1966.

In Trinidad this plant is said to be "widely distributed in southern districts, but never common. Endemic". Actually it is not endemic to Trinidad, occurring also in various parts of Venezuela. Cowan & Forster describe it as an "infrequent tree with pendent branches", growing at 100 meters altitude, flowering in March. Delgado calls it a shrub, 5 m. tall, while Steyermark refers to it as a tree, 10 m. tall, with subcoriaceous leaves, deep-

green above, paler-green beneath, the calyx and rachis pale-green, known as "totomillo sabañero" in Venezuela. Material has been misidentified and distributed in herbaria as C. decorum Moldenke and as C. spinosum L.

Additional citations: TRINIDAD: Cowan & Forster 1278 (N). VENEZUELA: Bolívar: Steyermark 86556 (Ve), 88236 (N), 88829 (N); Delgado 421 (Ve).

CITHAREXYLUM FRUTICOSUM var. SMALLII Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 368 & 383. 1958; Hocking, *Excerpt. Bot.* A5: 43. 1962.

CITHAREXYLUM FRUTICOSUM var. SUBSERRATUM (Sw.) Moldenke

Additional bibliography: Griseb., *Cat. Pl. Cub.* 216. 1866; Moldenke, *Phytologia* 6: 383--386. 1958.

Additional citations: HISPANIOLA: Dominican Republic: Vélez 3738 (W--1957415).

CITHAREXYLUM FRUTICOSUM var. SUBVILLOSUM Moldenke

Additional bibliography: Moldenke, *Verb.* 21--22. 1955; Moldenke, *Phytologia* 6: 386--388. 1958.

Additional citations: FLORIDA: Big Pine Key: Killip 40702 (Ca--933770). VIRGIN ISLANDS: St. Thomas: Eggers 90 (W--1959207); D. Hummel s.n. [1.II.1958] (Go, S).

CITHAREXYLUM FRUTICOSUM var. VILLOSUM (Jacq.) O. E. Schulz

Additional bibliography: Griseb., *Cat. Pl. Cub.* 216. 1866; A. Gray, *Syn. Fl. N. Am.* 2 (1): 340. 1878; Moldenke, *Phytologia* 7: 75 (1959) and 13: 289. 1966.

Recent collectors describe this plant as a small tree, to 15 or 20 feet tall, with white fragrant or very fragrant flowers, and "leaves shining white-pubescent below", inhabiting rocky hillslopes, rocky or rocky limestone hillsides, to 3000 feet altitude, flowering in July and September.

The very narrow-leaved form of this variety, represented by Millspaugh's C. bahamense, seems to me now to be worthy of nomenclatural recognition. Therefore, the Britton & Brace 233, Britton & Shafer 249, and Fishlock 73 & 198, cited by me in my monograph as var. villosum, are now regarded as f. bahamense (Millsp.) Moldenke instead -- the first-mentioned being the type collection.

The flowers on R. A. Howard 12068 are described as "white" and the leaves "shining white-pubescent below".

Additional citations: CUBA: Las Villas: R. A. Howard 4952 (Ca--913804, Mi); Howard, Briggs, Kamb, Lane, & Ritland 374 (Ca--998497, Mi, Rf, Tl). HISPANIOLA: Dominican Republic: R. A. Howard 12068 (Mi, N). Haiti: Holdridge 1428 (Mi); G. R. Proctor 10636 (W--2225297). CULTIVATED: Senegal: Adam 16950 (Mm).

CITHAREXYLUM FULGIDUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 394--395. 1958;

Langman, Select. Guide Lit. Flow. Pl. Mex. 515. 1964.

Moore describes this plant as a shrub, to 10 feet tall, with red to black fruit, found along roadsides in pine woods, at 2000 meters altitude, fruiting in October.

Additional citations: MEXICO: Hidalgo: H. E. Moore 5308 (Ca--918892).

CITHAREXYLUM GLABRUM (S. Wats.) Greenm.

Additional synonymy: Citharexylum glabrum Greenm. ex Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional bibliography: M. Kunz, Anatom. Untersuch. Verb. 71-72. 1911; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1238 & 1240. 1924; H. B. Davis, Life & Works Pringle 72, 668, & 669. 1936; Moldenke, Phytologia 6: 396--398. 1958; Moldenke, Résumé Suppl. 13: 1 & 6. 1966.

Diquet [whose surname is misspelled "Diguët" on some herbarium labels] records the vernacular name "chilcahua" for this plant. Paray found the species growing at 2000 meters altitude.

Additional citations: MEXICO: Guerrero: Hinton 14825 (Rf). Jalisco: Diquet s.n. [Decembre 1912, Huejotitan] (Mi). Nayarit: Paray 3395 (Ip, Mi).

CITHAREXYLUM GLAZIOVII Moldenke

Additional bibliography: Moldenke, Phytologia 6: 398--400. 1958.

Ducke describes the fruit of this species as "frutos maduros vermelhos", and collected it in fruit in February.

Additional citations: BRAZIL: Ceará: Ducke 2532 (W--2343742).

CITHAREXYLUM GLEASONIANUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 400--401. 1958; Langman, Select. Guide Lit. Flow. Pl. Mex. 515. 1964; Moldenke, Phytologia 13: 279. 1966.

Recent collectors have found this plant growing at 6500--7000 feet altitude, flowering in August, and describe it as a small tree or montane shrub, with white flowers, growing on limestone.

Additional citations: MEXICO: Puebla: Gentry, Barclay, & Arguelles 20252 (W--2451070); J. Rzedowski 18848 (Ip).

CITHAREXYLUM HERRERAE Mansf.

Additional bibliography: Moldenke, Phytologia 6: 401--403. 1958; Soukup, Biota 4: 172. 1962.

Soukup (1962) records the vernacular name "huairuro". An isotype, Herrera 677, deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17595, but is now destroyed.

Additional citations: PERU: Cuzco: Herrera 677 [Macbride photos 17595] (W--photo of isotype).

CITHAREXYLUM HEXANGULARE Greenm.

Additional bibliography: M. Kunz, Anatom. Untersuch. Verb. 72.

1911; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1238 & 1241. 1924; Moldenke, Phytologia 6: 403--406 (1958) and 13: 283. 1966.

Recent collectors describe this species as a shrub, 4 m. tall, or a tree, 10 m. tall, with horizontal whorled branches, leaves firmly membranous, deep-green above, dull-green beneath, flowers white, very fragrant, and fruit red, growing on limestone rock along riversides, on steep mountainsides from the oak zone to that of the pines, and in Rhizophora forests, from 1 to 2250 meters altitude, flowering in July and November, fruiting in October and December. McVaugh describes it as "occasional along old roads" in Jalisco. Additional vernacular names are "frutillo" and "granadilla". Material has been misidentified and distributed in herbaria as C. caudatum L. and C. pterocladum Donn. Sm.

Additional citations: MEXICO: Campeche: Matuda 3861 (Mi). Chiapas: Gilly & Hernandez Xolocotzi 193 (Mi). Jalisco: R. McVaugh 20632 (Mi). Oaxaca: J. V. Santos 3818 (Mi). Quintana Roo: Lundell & Lundell 7679 (Rf). Tabasco: Matuda 3562 (Mi). Vera Cruz: Dodds 110 (Mi); J. Rzedowski 17175 (Ip). GUATEMALA: El Petén: Contreras 1831 (Ld, S); Steyermark 45851 (W--1949698). BRITISH HONDURAS: Gentle 4858 (Ld). COSTA RICA: Limón: Shank & Molina R. 4270 (W--2085192).

#### CITHAREXYLUM HIDALGENSE Moldenke

Additional synonymy: Citharaxilium hidalgense Moldenke, Résumé Suppl. 13: 6, in syn. 1966. Citharaxylum hidalgense Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional bibliography: Moldenke, Phytologia 7: 75. 1959; Moldenke, Résumé Suppl. 13: 6. 1966.

The stems on Hinton 15606 are pubescent and the plant was in flower when collected; on C. L. Lundell 12642, collected while in fruit, the stems are glabrous. Moore found the plant growing on limestone ledges and in streamside thickets, at 1800--2000 meters altitude, and describes it as a tree to 20 feet tall, with white or lavender flowers, and red fruit, flowering and fruiting in April. Paray found it flowering in November.

Additional citations: MEXICO: Hidalgo: M. Martínez s.n. [Zacualtipán, May--June 1940] (G); H. E. Moore 2631 (Ca--919331); Pringle 8969 (Ut--28421a--isotype); Vela G. 589 (Ip). México: Paray 2264 (Ip). Michoacán: Hinton 15606 (Rf). Puebla: C. L. Lundell 12642 (Rf).

#### CITHAREXYLUM HINTONI Moldenke

Additional bibliography: Moldenke, Phytologia 6: 408--409. 1958; Langman, Select. Guide Lit. Flow. Pl. Mex. 515. 1964.

Additional citations: MEXICO: México: Hinton 7514 (Rf).

#### xCITHAREXYLUM HYBRIDUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 411. 1958.

Additional citations: TOBAGO: W. E. Broadway 4064 (P--isotype,



P--isotype).

CITHAREXYLUM ILICIFOLIUM H.B.K.

Additional bibliography: Schwencke, Zytol. Untersuch. Verbenac. 17 & 29. 1931; Patermann, Beitr. Zytol. Verbenac. 6 & 46. 1935; K. V. O. Dahlgren, Svensk. Bot. Tidsk. 32: 231. 1938; Soukup, Biota 1: 180. 1956; Moldenke, Phytologia 7: 75 (1959) and 13: 283. 1966.

Recent collectors describe this plant as a shrub or small tree, to over 5 m. tall, with white flowers, and dark cherry red-black fruit, growing at 2500 to 2850 meters altitude, flowering in November, fruiting in February and November. Ewan encountered it in cultivation by a lake. A specimen of Herb. Humboldt s.n. [Chillo], deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17593, but is now destroyed. The Caum s.n. [June 5, 1938], distributed as C. ilicifolium, is actually C. caudatum L.

Additional citations: ECUADOR: Azuay: Gilar 6 (N). Pichincha: Barclay, Juajibioy, & Tinajero 7821 (M1); Herb. Humboldt s.n. [Chillo; Macbride photos 17593] (W--photo of cotype); I. Holmgren 951 (Gg--354864). CULTIVATED: Ecuador: Ewan 16413 (N).

x CITHAREXYLUM JAMAICENSE Moldenke

Additional bibliography: Moldenke, Phytologia 6: 416--417 (1958) and 13: 282. 1966.

The H. H. Bartlett 17363, cited under C. caudatum L., is not at all typical of that species. Its leaves are too pointed and small, and the venation is too much impressed above and prominent beneath. It may well represent the present hybrid and therefore represent its first record from Haiti.

CITHAREXYLUM JÖRGENSENII (Lillo) Moldenke

Additional synonymy: Citharexylon jorgensenii (Lillo) Moldenke apud T. Mey., Op. Lill. 10: 126. 1963.

Additional bibliography: Moldenke, Phytologia 6: 417--418. 1958; T. Mey., Op. Lill. 10: 50 & 126. 1963; Moldenke, Résumé Suppl. 11: 6. 1964.

Meyer (1963) describes this species as a tree, 8--10 m. tall, with a trunk about "0,40 cm." in diameter, growing on mountain-sides. He cites Venturi 3988 (M1) from Tucumán, Argentina. A specimen of Schuel 197, deposited in the herbarium of the Naturhistorisches Museum at Vienna, was photographed there by Macbride as his type photograph number 34315.

Additional citations: ARGENTINA: Jujuy: Schuel 197 (W--photo). Tucumán: Jørgensen 47 (W--921654--isotype); Venturi 2961 (W--1591274).

CITHAREXYLUM JURGENSENI Briq.

Additional bibliography: Moldenke, Phytologia 6: 418--420. 1958; Langman, Select. Guide Lit. Flow. Pl. Mex. 160 & 1010. 1964.

McVaugh describes this plant as a tree, 10 m. tall, the trunk 15 cm. in diameter at breast height, the inflorescences drooping, calyx-tube red-lavender distally, and corolla blue-lavender, the throat white, the upper lobes with a marginal purple stripe proximally, scarce on barrancas, precipitous mountainsides in the region of moist tropical forests, with oak forests on the ridges and with Croton, Inga, and Sideroxylon in the barrancas, at altitudes of 800 to 1200 meters, flowering in September.

The type specimen, Jurgensen 259, deposited in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva, was photographed there by Macbride as his type photograph number 24623.

Additional citations: MEXICO: Nayarit: R. McVaugh 18920 (Mi). Oaxaca: Jurgensen 259 [Macbride photos 24623] (N—photo of type).

CITHAREXYLUM KARSTENI Moldenke

Additional synonymy: Citharexylon karsteni Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional bibliography: Moldenke, Phytologia 6: 420—422. 1958; Moldenke, Résumé Suppl. 13: 6. 1966.

An isotype, Triana 2071, deposited in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva, was photographed there by Macbride as his type photograph number 28395.

Additional citations: COLOMBIA: Cundinamarca: Triana 2071 [Macbride photos 28395] (W—photo of isotype).

CITHAREXYLUM KARSTENI var. LANCEOLATUM Moldenke

Additional synonymy: Citharexylon karsteni var. lanceolatum Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional bibliography: Moldenke, Phytologia 6: 422—423. 1958; Moldenke, Résumé Suppl. 13: 6. 1966.

Mason reports "fruit in pendulous racemes, first orange, later dark purple, 2-seeded, resembling Rhamnus" and found the plant growing on a dissected plateau (badlands).

Additional citations: COLOMBIA: Huila: H. L. Mason 13799 (Mi).

CITHAREXYLUM KERBERI Greerm.

Additional bibliography: P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1237 & 1239. 1924; Moldenke, Phytologia 6: 423—424. 1958.

CITHAREXYLUM KOBUSKIANUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 424—425. 1958.

Lopez describes the corolla of this plant as white, and found the species along roadsides at 1750 meters altitude, flowering in June, and called "veneno de burro". Material has been misidentified and distributed in herbaria as Duranta mutisii L. f.

Additional citations: PERU: La Libertad: A. Lopez 1520 (Z); Vargas S. 39 (W—2253623).

## CITHAREXYLUM KUNTHIANUM Moldenke

Additional bibliography: Moldenke, *Phytologia* 7: 75. 1959.

An isotype, Humboldt & Bonpland 5898, deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17602, but is now destroyed. Material has been misidentified and distributed in herbaria as Cordia sp. and as Croton sp.

Additional citations: COLOMBIA: Cauca: Alston 8300 (S); Sneider 2816 (W--2103916). Valle del Cauca: Humboldt & Bonpland 5898 [Herb. Willdenow 11476; Macbride photos 17602; Herb. U. S. Nat. Arb. 197895] (W--photo of isotype); Killip 11264 (G).

## CITHAREXYLUM LAETUM Hiern

Additional bibliography: Angely, *Fl. Paran.* 7: 11. 1957; Moldenke, *Phytologia* 6: 429--432. 1958; Angely, *Fl. Paran.* 16: 45 (1960) and 17: 46. 1961; Angely, *Bibl. Veg. Paran.* 128. 1964.

## CITHAREXYLUM LANKESTERI Moldenke

Additional bibliography: Moldenke, *Phytologia* 6: 432 (1958) and 6: 448. 1959; Moldenke, *Biol. Abstr.* 33: 1862. 1959.

Recent collectors describe this plant as a tree, 7.5--20 m. tall, the trunk erect, 50 cm. wide at the base or to 60 cm. wide at breast height, the bark light-brown, forming long elevated strips, the crown spreading, compact, the foliage subcoriaceous, semi-rigid, bright shiny-green and glabrous above, light-green and with a short tomentum beneath, the fruit subglobose, fleshy, slightly flattened laterally, red-russet or red and yellow, to 2 cm. in diameter, mostly clustered near the base of the pale buff-yellow peduncle, growing in gray clay-loam in forests on southern volcano slopes or on banks above stream on north-facing canyon side, at altitudes of 2100 to 2700 meters, flowering in March, and fruiting in February. In November, 1953, Steyermark noted on a sheet of Tucker 1049 "probably new species but flowers necessary for determination".

Additional citations: EL SALVADOR: Chalatenango: Tucker 1049 (Ca--887, Ca--888, Mi, Rf). COSTA RICA: Alajuela: A. Smith P.2397 (Ca--12715). Heredia: Skutch 5487 (W--2351973).

## CITHAREXYLUM LAURIFOLIUM Hayek

Additional bibliography: Soukup, *Biota* 1: 180. 1956; Moldenke, *Phytologia* 6: 449--450. 1958.

The type, Weberbauer 873, deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17594, but is now destroyed.

Additional citations: PERU: Puno: Weberbauer 873 [Macbride photos 17594] (W--photo of type).

## CITHAREXYLUM LIGUSTRINUM Van Houtte

Additional bibliography: P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1238 & 1241. 1924; H. B. Davis, *Life & Works Pringle* 217.

1936; Moldenke, *Phytologia* 6: 450--453. 1959; Bullock, *Taxon* 9: 99. 1960; Langman, *Select. Guide Lit. Flow. Pl. Mex.* 715 & 1010. 1964; Moldenke, *Résumé Suppl.* 13: 1. 1966.

This plant has been collected in anthesis in June. Material has been misidentified and distributed in herbaria under the name *C. lucidum* Schlecht.

Additional citations: MEXICO: Federal District: Paray 549 (Ip). Hidalgo: Pringle 15608 (Ca--168240, Gg--421297, Mi, St).

CITHAREXYLUM LUCIDUM Schlecht. & Cham.

Additional synonymy: *Citharexylum lucidum* Schlecht. ex Moldenke, *Résumé Suppl.* 13: 6, in syn. 1966.

Additional bibliography: P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1238 & 1240. 1924; Moldenke, *Phytologia* 6: 454--456. 1959; Moldenke, *Résumé Suppl.* 13: 1 & 6. 1966.

Rzedowski encountered this species growing in Liquidambar forests, fruiting in May. The Paray 549, distributed as *C. lucidum*, is actually *C. ligustrinum* Van Houtte.

Additional citations: MEXICO: San Luis Potosí: J. Rzedowski 10502 (Ip). Vera Cruz: Liebmann 11365 (B1), 15486 (B1).

CITHAREXYLUM LYCIOIDES D. Don

Additional bibliography: P. C. Standl., *Contrib. U. S. Nat. Herb.* 23: 1241. 1924; Moldenke, *Phytologia* 6: 456--458. 1959.

The Lundells describe this species as a slender shrub, 5 feet tall, with orange-red "berries" [they are actually drupes], growing on limestone hills, fruiting in August. Material has been misidentified and distributed in herbaria as *C. tetramerum* T. S. Brandeg. See further notes of possible application to the present species under *C. rosei* var. durangense Moldenke.

Additional citations: MEXICO: Hidalgo: Lundell & Lundell 12332 (Mi, N, Rf).

CITHAREXYLUM MACRADENIUM Greenm.

Additional bibliography: Moldenke, *Phytologia* 6: 458--460 (1959) and 13: 285. 1966; Moldenke, *Résumé Suppl.* 13: 2. 1966.

Chrysler & Roever found this plant growing at 6800 feet altitude, flowering in July; Stork found it along roadsides at the edge of potreros.

Additional citations: COSTA RICA: Cartago: Stork 3283 (Mi, N). San José: Chrysler & Roever 5127 (Mi).

CITHAREXYLUM MACROPHYLLUM Poir.

Additional bibliography: Moldenke, *Phytologia* 6: 462--464. 1959; Moldenke, *Résumé Suppl.* 12: 3. 1965.

Berti describes this species as "Arbol, 24 m. altura total x 40 cm. Haz verde obscuro brillante. Envés verde claro mate. Nervio principal impreso por la haz; por el envés prominente y amarillento. Glándulas foliares: 2, ligeramente rosadas. Flores: blancas, fragrantas. Corola blanca; filamentos blancos.

Anteras marrón-cremosas. Cáliz verdoso. Estilo verdoso. Estigma amarillento". Steyermark says "tree 20 m. tall; leaves subcoriaceous, deep-green above, paler green below; fruiting sprays pendent, very showy; rachis pale buff-green; calyx pale green; fruit round-oblong, at first dull orange, then scarlet and shining, very showy, 15 mm. long, 12 mm. broad". Other collectors call it a tree or small tree, 8-15 m. tall, the trunk 30 cm. in diameter, the flowers white and very fragrant [Murça Pires says: "flôres alvas, como flôres de mamão"], growing at 65 to 800 m. altitude, flowering in February and May, fruiting in November. The vernacular names "cerezillo", "comida de pombo", "totumillo blanco", and "totumillo negro" are recorded for it. A wood voucher for Murça Pires 51847 is deposited in some museums.

Material has been widely misidentified and distributed in herbaria under the names C. poeppigii Walp., C. poeppigii Walp., and C. poeppigui Walp. In fact, the Aristeguieta 2787, G. A. Black 48-2491 & 50-9081, and Murça Pires 528, 3175, & 3209, cited by me in Phytologia 6: 500 (1959) as C. poeppigii, are all C. macrophyllum instead. On the other hand, the Bernardi 7190, distributed as C. macrophyllum, is actually C. poeppigii Walp. Murça Pires 528, cited below from Amazonas, Brazil, also has the word "Vaupés" and the phrase "galhos novos ðcos" on its label. The Mell & Mell 247, cited by me in Phytologia 6: 463 (1959) as C. macrophyllum, appears to be C. spinosum L.

Additional citations: COLOMBIA: Valle del Cauca: Lehmann B.T. 645 (A). VENEZUELA: Aragua: Aristeguieta 2787 (N). Bolívar: Bernardi 7190 (N). Delta Amacuro: L. M. Berti 166 (N, Z); J. A. Steyermark 87472 (N). BRAZIL: Amazonas: G. A. Black 48-2491 (N, N); Murça Pires 528 (N, N, N). Pará: G. A. Black 50-9081 (N); Murça Pires 3175 (N), 3209 (N, Z), 51847 (N); N. T. Silva 57802 (N).

#### CITHAREXYLUM MATUDAE Moldenke

Bibliography: Moldenke, Phytologia 9: 98-99. 1963; Moldenke, Biol. Abstr. 43: 643. 1963; Hocking, Excerpt. Bot. A7: 454. 1964.  
Matuda found this plant growing in advanced forests, at 2786 meters altitude, fruiting in May.

Citations: MEXICO: Chiapas: Matuda 5467 (Ld--type, Z--isotype), 5492 (Ld).

#### CITHAREXYLUM MEXICANUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 464-465. 1959; Langman, Select. Guide Lit. Flow. Pl. Mex. 515. 1964.

#### CITHAREXYLUM MIRIFOLIUM Moldenke

Additional bibliography: Moldenke, Phytologia 7: 76. 1959.  
Cuatrecasas & Castaneda describe this species as a tree, 8 m. tall, with erect branches, the leaves coriaceous, yellowish-green, very shiny above, the fruit blackish-brown, growing at al-

titudes of 2700--2800 meters, fruiting in November.

Additional citations: COLOMBIA: Magdalena: Cuatrecasas & Castaneda 24683 (W--2325408), 25221 (Z).

CITHAREXYLUM MOCINNI D. Don

Additional bibliography: P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1237 & 1239. 1924; Moldenke, Phytologia 7: 76. 1959.

Additional citations: MEXICO: Chiapas: Matuda 1884 (Du--361295), 4537 (Rf). México: Hinton 5393 (Rf), 8744 (Ca--939137, Rf, Ur). Vera Cruz: Liebmann 15489 (Bi).

CITHAREXYLUM MOCINNI var. LONGIBRACTEOLATUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 471--472. 1959.

One branch of Matuda 5014, in the Lundell Herbarium, has inconspicuous bractlets, while the other branch has the typical elongated bractlets. Matuda 408, in the same herbarium, is inscribed "type collection" in error -- the type is Matuda S.181.

Additional citations: MEXICO: Chiapas: Matuda 408 (Ld, Mi), 2663 (Ca--913669, Du--359921), 3923 (Rf), 5014 (Ld).

CITHAREXYLUM MONTANUM var. CHIMBORAZENSE Moldenke

Additional bibliography: Moldenke, Biol. Abstr. 27: 2026. 1953; Moldenke, Phytologia 6: 474. 1959.

CITHAREXYLUM MONTEVIDENSE (Spreng.) Moldenke

Additional synonymy: Citharexylum montevidensis (Spreng.) Moldenke, Phytologia 7: 30, sphalm. 1959. Citharexylum barbinerva Cham. ex Moldenke, Résumé Suppl. 3: 30, in syn. 1962. Citharexylum montevidense Spreng. ex Moldenke, Résumé Suppl. 9: 3, in syn. 1964.

Additional bibliography: Arechavaleta, Anal. Mus. Nac. Montev. 4: 149--152, pl. 1. 1902; Herter, Estud. Bot. Reg. Urug. 8b: 201. 1933; Angely, Fl. Paran. 7: 11. 1957; Moldenke, Phytologia 7: 76. 1959; Angely, Fl. Paran. 16: 45. 1960; A. R. Schultz, Inst. Tec. Rio Grande do Sul Publ. 30: 15. 1960; Rambo, Pesquis. Bot. 4: 18 (1960) and 12: 21. 1961; Troncoso, Bol. Soc. Argent. Bot. 9: 181 & 185. 1961; Lombardo, Arbust. & Arbustil. Pas. Publ. 313. 1961; Angely, Fl. Paran. 17: 46. 1961; Angely, Bibl. Veg. Paran. 195. 1964; Rambo, Pesquis. Bot. 21: 14 & [59]. 1965; Moldenke, Résumé Suppl. 13: 6. 1966.

Recent collectors describe this plant as a shrub, 3 m. tall, or a small tree, 4--5 m. tall, often shrubby, the buds carrot-red [612, Roy. Hort. Soc. Colour Chart 1938-42], the flowers fragrant, the corolla yellow [Pedersen 5161] or Chinese-yellow [606/2, Roy. Hort. Soc. Colour Chart 1938-42; Bracelin 1327], and the fruit succulent, red, flowering in May, June, and October, and fruiting in December and January. It has been found in thickets by small streams, on banks of arroyos, and in valleys with outcrops of coarse calcareous sandstone. Pedersen calls it "common in thick-

ets on moist ground" in Paraguay. Troncoso (1937) says "Lo he visto cultivado en algunas calles de Martínez (Bs. Aires); además, según el ingeniero L. R. Parodi existe en el parque 3 de Febrero, una avenida arbolada con esta especie." She cites her no. 189 from the garden of the Bot. Fac. Agr. in Buenos Aires.

Herter (1937) lists the additional common names "espina de los bañados", "naranjo de bañado", and "tarumán de espinas". Arechavaleta (1902) comments on a tendency toward dioecism in this species, while Troncoso (1961) calls it definitely dioecious. A cotype of C. barbinerve, Sellow s.n. [Brasilia], and a specimen of Sellow 1421, deposited in the herbarium of the Botanisches Museum at Berlin, were photographed there by Macbride as his type photograph number 17591, but are now destroyed. The Sehnem 5071, distributed as C. montevidense, is actually C. solanaceum Cham.

Rambo (1965) cites Herb. Anchieta 8313, 8368 [Emrich s.n.], 9348, 26234, 29666 [Henz s.n.], 34379 [Emrich s.n.], 44323, 58790 [Camargo 228], 60702 [Machado s.n.], and 63935 [Sacco 462] from Rio Grande do Sul, Brazil, all collected by himself except where otherwise indicated. He describes the species as a "Medium tree, up to 15 m high", growing in "Campos woodlets, gallery, secondary growth" of the "Southern Campos area" of that state, with a general distribution "From Minas Gerais and Paraguay through South Brazil to Uruguay, and through Argentine Mesopotamia to B. Aires." He cites Schauer's work in Mart., Fl. Bras. as "1951" instead of 1851.

Additional citations: BRAZIL: Santa Catarina: Sellow 1879 [Macbride photos 17591, in part] (W--photo), s.n. [Brasilia; Macbride photos 17591, in part] (W--photo). PARAGUAY: Pedersen 5161 (S, W--2432853). URUGUAY: Arechavaleta 42 (Mi); H. H. Bartlett 21264 (Au--194871, Mi, W--2320273), 21287 (Au--194883, Mi, W--2320280), 21330 (Au--194858, Mi). ARGENTINA: Buenos Aires: Briderolli 4032 (W--1987946). Corrientes: Pedersen 5379 (S, W--2432745). CULTIVATED: California: Bracelin 1327 (Gg--339915, Go); Chisholm s.n. [3 June 1952] (Gg--412680).

#### CITHAREXYLUM MYRIANTHUM Cham.

Additional synonymy: Cytharexylon myrianthum Cham. ex Moldenke, Résumé Suppl. 3: 31, in syn. 1962.

Additional bibliography: Morong, Britton, & Vail, Ann. N. Y. Acad. Sci. 7: 198. 1893; Reitz, Anais Bot. 2: 28 & 37. 1950; Angely, Fl. Paran. 7: 11. 1957; Reitz, Sellowia 11: 77 & 97. 1959; Veloso & Klein, Sellowia 11 (10): 99 & table opp. p. 76. 1959; Moldenke, Phytologia 7: 76. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 149. 1960; Angely, Fl. Paran. 16: 45 (1960) and 17: 46. 1961; Rambo, Pesquis. Bot. 12: 21 (1961) and 14: 33. 1961; Veloso & Klein, Sellowia 15: 102. 1963; Moldenke, Résumé Suppl. 12: 3. 1965; Rambo, Pesquis. Bot. 21: 14--15 & [59]. 1965.

Recent collectors describe this plant as a tree, 5--10 m. tall, or a very tall tree, with white flowers, blooming from October to

December, growing in capoeira, at altitudes of 95 to 500 meters. Additional vernacular names recorded for it are "café do mato", "pau de tucano", and "torumã".

A cotype, Sellow 650, deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17597, but is now destroyed. Similarly, the type of C. macranthum, Fiebrig 596, in the same herbarium, photographed by him as his type photograph number 17596, is also now destroyed. The United States National Herbarium specimen of Rojas 14536 looks almost exactly like material now passing as C. rigidum (Briq.) Moldenke. These two taxa need more intensive study to determine if they are really distinct.

Rambo (1965) cites Herb. Anchieta 1079, 2753, 11264 [Emrich s. n.], 11266 [Emrich s. n.], 26659, 26946, 30606, 32681 [Henz s. n.], 32737 [Henz s. n.], 33757 [Emrich s. n.], 45138, 59803 [Camargo 1138], 61717 [Camargo 2541], and 61792 [Camargo 2603] from Rio Grande do Sul, 50926 [Hatschbach 1653] from Paraná, and 48431 [Reitz 4640], 48432 [Reitz 4641], and 55296 [Reitz 4749] from Santa Catarina, Brazil, all collected by himself except where otherwise indicated. He refers to the species as a "Medium tree, up to 15 m high", growing in "Campos woodlets, gallery, edge of rain forest, preferably on moist soil" and "All collections from the northeastern quadrant except for the Highlands proper" in Rio Grande do Sul. He gives its general distribution as "Bahia to RGS [Rio Grande do Sul]; Paraguay to Misiones".

Additional citations: BRAZIL: Bahia: Sellow 650 [Macbride photos 17597] (W--photo of cotype). Guanabara: A. Castellanos 23440 [Herb. Cent. Pesq. Florest. 1700] (Ac); Lanna Sobrinho 527 [Herb. Cent. Pesq. Florest. 2202] (Ac); B. Lutz 1207 (Ja--114110, Ja, Ja, Ja, Ja, Ja), 1410 (Ja--114099, Ja); Palacios, Balegno, & Cuezco 4017 (Ja--54404, Ja). Rio de Janeiro: Sampaio 7817 (Ja--44883, Ja, Ja, Ja), s. n. [Dec. 1916] (Ja--31549). Santa Catarina: Eq. Ecologia 150 (W--2120126); Klein 150 (W--2120127), 866 (N), 2325 (Gg); Reitz 2237 (W--2104847), 8237 (Ca--47509); Reitz & Klein 7607 (Mm), 8043 (Mm), 9280 (Gg). PARAGUAY: Fiebrig 596 [Macbride photos 17596] (W--photo); Hassler 5457 (G); Pedersen 3163 (W--2169410), 4243 (W--2283735); Rojas 14536 (W--2198144).

#### CITHAREXYLUM OLEINUM (Benth.) Moldenke

Additional synonymy: Citharexylum oleinum Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional bibliography: P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1252. 1924; Moldenke, Phytologia 6: 487--489. 1959; Langman, Select. Guide Lit. Flow. Pl. Mex. 515 & 1010. 1964; Moldenke, Résumé Suppl. 13: 6. 1966.

McVaugh describes this plant as a shrub, 1--1.5 m. tall, with white scentless flowers, flowering in April, and abundant on north slopes of barrancas, at an altitude of 2700 meters. Rze-



dowski found it growing at 1850--1900 meters altitude, in chaparral. His no. 7287, distributed as this species, is probably not verbenaceous.

Additional citations: MEXICO: Hidalgo: Paray 3200 (Ip). Querétaro: R. McVaugh 10360 (Mi). San Luis Potosí: J. Rzedowski 6030 (Ip), 6655 (Ip, Mi).

CITHAREXYLUM OVATIFOLIUM Greenm.

Additional bibliography: P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1238 & 1240. 1924; H. B. Davis, Life & Works Pringle 153. 1936; Moldenke, Phytologia 6: 489--490. 1959.

The Paray 2264, distributed as C. ovatifolium, is actually C. hidalgense Moldenke.

CITHAREXYLUM PACHYPHYLLUM Moldenke

Additional bibliography: Moldenke, Phytologia 6: 491--492. 1959.

Additional citations: PERU: Lima: Asplund 11496 (W--2224430).

CITHAREXYLUM PENTANDRUM Vent.

Additional bibliography: M. Kunz, Anatom. Untersuch. Verb. 72. 1911; Moldenke, Phytologia 6: 492--496. 1959.

xCITHAREXYLUM PERKINSI Moldenke

Additional synonymy: Citharexylum perkinsii Moldenke, Résumé Suppl. 10: 5, in syn. 1964.

Additional bibliography: Moldenke, Phytologia 6: 496--497. 1959; Moldenke, Résumé Suppl. 10: 5. 1964.

Alain describes this plant as a shrub, 2 m. tall, growing at 1300 meters altitude.

Additional citations: PUERTO RICO: Alain 9465 (N, N, N).

CITHAREXYLUM POEPPIGII Walp.

Additional synonymy: Citharexylum poeppigii Walp. ex Moldenke, Résumé Suppl. 12: 9, in syn. 1965. Citharexylum poeppigii Walp. ex Moldenke, Résumé Suppl. 13: 6, in syn. 1966.

Additional bibliography: Soukup, Biota 4: 172. 1962; Moldenke, Phytologia 7: 76. 1959; Moldenke, Résumé Suppl. 12: 3 & 9 (1965) and 13: 2, 3, & 6. 1966; Moldenke, Phytologia 13: 284 & 297. 1966.

Recent collectors describe this plant as a tree, 15--26 m. tall, the trunk 90 cm. in diameter, the leaves subcoriaceous, deep-green above, paler-green beneath, the fruiting sprays pendent, very showy, the rachis pale buff-green, the calyx pale-green, and the fruit round or round-oblong, at first green, then dull-orange, finally vivid-red or scarlet and shiny, very showy, 15 mm. long and 12 mm. wide, growing in forests at altitudes of 65 to 850 meters, flowering in February and April, fruiting in March and November. Bernardi says "Tronco hueco; corteza marrón gris, oscura; madera marrón rosada; hojas discoloras; flores cuando abiertas amarillas; hojas verticiladas [but they are decussate-opposite on all the specimens cited below], glandulas escu-

teliformes sobre los pecíolos."

Additional vernacular names recorded for the species are "cerezillo", "mullahuayo", "quineillia blanco", and "totumillo negro". Material has been misidentified and distributed in herbaria as C. decorum Moldenke and Guettarda sp., while Cardona 1421 was first identified as something in the Bignoniaceae, then in the Combretaceae! The Cuatrecasas 15949 & 17606, cited by me in Phytologia 6: 500 (1959) as C. poeppigii, prove on closer examination to be C. poeppigii var. calvescens Moldenke, while Aristeguieta 2787, Black 48-2491 & 50-9081, and Murça Pires 528, 3175, & 3209 are C. macrophyllum Poir. The L. M. Berti 166 and Steyermark 87472, distributed as C. poeppigii, are actually C. macrophyllum, Ownbey 2715 is C. poeppigii var. margaritaceum Poepp. & Moldenke, and R. E. Schultes 3381 is C. ulei Moldenke.

Additional citations: VENEZUELA: Amazonas: Cardona 1421 (Ve). Bolívar: Bernardi 6739 (N), 7190 (Ve--47633). Delta Amacuro: Steyermark 87472 (N). PERU: Loreto: Schunke 365 (W--1459252). San Martín: Woytkowski 7095 (W--2452821), 7116 (W--2453515).

CITHAREXYLUM POEPPIGII f. ANOMALUM Moldenke

Bibliography: Moldenke, Phytologia 8: 459. 1963; Moldenke, Biol. Abstr. 43: 1278. 1963; Hocking, Excerpt. Bot. A7: 454. 1964.

Little describes this plant as a tree, 8 m. tall, with a trunk diameter of 15 cm. at breast height, growing in the woods in a llano, at 100 meters altitude.

Citations: VENEZUELA: Barinas: E. L. Little 15087 (Ve). Bolívar: Bernardi 2142 (Ve--type).

CITHAREXYLUM POEPPIGII var. CALVESCENS Moldenke

Bibliography: Moldenke, Phytologia 8: 459. 1963; Moldenke, Biol. Abstr. 43: 1278. 1963; Hocking, Excerpt. Bot. A7: 454. 1964.

Cuatrecasas describes this plant as a tree or "arbolito; tallo 8 cm. diám., blanquecino con estribos basilares; corteza ocráceo blanquecina mas o menos rugulosa y escamosa; madera blanco ocrácea; hoja membranosa verde claro; calix verde pálido; corola blanco verdosa, tubo de la corola blanco verdoso, limbo blanco" and found it growing in woods, at 5--80 meters altitude, blooming in February and May. Both his collections were regarded by me as typical C. poeppigii in Phytologia 6: 500 (1959).

Citations: COLOMBIA: Valle del Cauca: Cuatrecasas 15949 (N--type), 17606 (N).

CITHAREXYLUM POEPPIGII var. MARGARITACEUM Poepp. & Moldenke

Additional bibliography: Moldenke, Phytologia 6: 500--501. 1959; Moldenke, Résumé Suppl. 12: 3. 1965.

Harling describes this as a small tree, with white flowers, growing in potreros, and flowering in December.

Additional citations: ECUADOR: Napo-Pastaza: Harling 3650 (S); Ownbey 2715 [Herb. U. S. Nat. Arb. 217809] (W). PERU: Loreto: Klug 3943 (W--1458369).

CITHAREXYLUM PTEROCLADUM Donn. Sm.

Additional bibliography: Moldenke, *Phytologia* 7: 77 (1959) and 13: 292. 1966.

The flowers on Hinton 13738 are described as "blue", while those on Skutch 2021 were "pale lavender with deeper purple streaks on lower lobes". Steyermark 45851, distributed as C. pterocladum, is actually C. hexangulare Greenm.

Additional citations: MEXICO: Chiapas: Matuda 18484 (Ca--903787). Guerrero: Hinton 14082 (Mi, Rf). Michoacán: Hinton 12631 (Mi, Rf), 13738 (Rf, Ur, W--1843285), 13739 (Rf, Rf, Ur, W--1843286), 15852 (Mi). GUATEMALA: Quezaltenango: Skutch 2021 (W--1644388, W--1644389).

CITHAREXYLUM PUNCTATUM Greenm.

Additional synonymy: Aegiphila punctatum Greenm. ex Moldenke, *Résumé Suppl.* 12: 9, in syn. 1965.

Additional bibliography: Soukup, *Biota* 1: 180. 1956; Moldenke, *Phytologia* 6: 504--505. 1959; Moldenke, *Biol. Abstr.* 33: 1862. 1959; Moldenke, *Résumé Suppl.* 12: 9. 1965; Moldenke, *Phytologia* 13: 280. 1966.

Material has been misidentified and distributed in herbaria as C. argutedentatum Moldenke and as Terminalia sp.

Additional citations: BOLIVIA: Cochabamba: M. Cárdenas 5464 (W--2250912); Collector undesignated 5 (W--2320699); Diers 759 (Ko). La Paz: H. H. Rusby 2058 (W--32353). Department undetermined: Collector undesignated 186 [Liriuni] (W--2428140).

CITHAREXYLUM QUERCIFOLIUM Hayek

Additional bibliography: Moldenke, *Phytologia* 7: 7--8. 1959; Moldenke, *Biol. Abstr.* 34: 481. 1959; Hocking, *Excerpt. Bot.* A5: 43. 1962; Moldenke, *Résumé Suppl.* 12: 3. 1965.

The type specimen, Weberbauer 4248, deposited in the herbarium of the Botanisches Museum at Berlin, was photographed there by Macbride as his type photograph number 17598, but is now destroyed. The species was collected by Ellenberg at an altitude of 2800 meters. Material has been misidentified and distributed in herbaria as C. weberbaueri Hayek.

Additional citations: PERU: Cajamarca: Weberbauer 4248 [Macbride photos 17598] (W--photo of type). La Libertad: Ellenberg 1946 (Ut--163205b).

CITHAREXYLUM QUITENSE Spreng.

Additional bibliography: Hayek in *Engl., Bot. Jahrb.* 42: 170. 1908; Moldenke, *Phytologia* 7: 8--10 (1959) and 13: 284. 1966.

The type specimen of C. molle, Bonpland 3817, deposited in the

Bonpland Herbarium at the Muséum National d'Histoire Naturelle at Paris, was photographed there by Macbride as his type photograph number 39481. The Ellenberg 1489, distributed as C. quitense, is actually C. chartaceum Moldenke.

Additional citations: ECUADOR: Guayas: Asplund 5170 (Gg--405068, W--2223701); Bonpland 3817 [Macbride photos 39481] (W--photo).

CITHAREXYLUM RACEMOSUM Sessé & Moc.

Additional bibliography: Moldenke, Phytologia 7: 10--11. 1959.

Illustrations: Sessé & Moc., Fl. Nouv. Hisp., ed. 2, pl. 418. 1893.

Dr. Rogers McVaugh, in a letter to me dated October 11, 1963, sent me a photograph of the original Sessé & Mocino plate depicting this plant, with the comment: "Plate 418 of the Plantae Novae Hispaniae (cited on p. 96, ed. 2). The type-locality is Parangueo (not Paranques as published) near Salamanca, Guanajuato. I suppose this is a valid species unless it is a synonym of something else." Recent collectors describe the plant as a shrub, to 2.5 m. tall, with orange-red fruit, growing in gray or brown gravelly soils in thorn-scrub-cactus association, at 1000 meters altitude, and fruiting in July.

Additional citations: MEXICO: Puebla: Smith, Peterson, & Tejada 4121 (W--2398123, Z).

CITHAREXYLUM REITZII Moldenke

Additional bibliography: Angely, Fl. Paran. 7: 6. 1957; Moldenke, Phytologia 7: 12--13. 1959; Rambo, Pesquis. Bot. 21: 15 & [59]. 1965.

Reitz & Klein describe this species as a shrub, 3 m. tall, the immature fruit green, growing at an altitude of 350 meters, flowering and fruiting in December.

Rambo (1965) cites Herb. Anchieta 30452 [Reitz 1002] from Santa Catarina, Brazil. He describes the species as a "Small tree", growing in "Half-high woodlet" in "Southernmost SC [Santa Catarina], near northeasternmost coast of RGS [Rio Grande do Sul]" and gives its general distribution as "SC".

Additional citations: BRAZIL: Santa Catarina: Reitz & Klein 8022 (Z).

CITHAREXYLUM RETICULATUM H.B.K.

Additional bibliography: Moldenke, Phytologia 7: 13--14. 1959.

The type specimen, Bonpland 3419, deposited in the Bonpland Herbarium at the Muséum National d'Histoire Naturelle at Paris, was photographed there by Macbride as his type photograph number 39479.

Additional citations: ECUADOR: Loja: Bonpland 3419 [Macbride photos 39479] (W--photo of type).