

NEOCAPPARIS: GENERIC STATUS AND NEW NAME FOR CAPPARIDASTRUM SUBGENUS PACHYCARPUM (CAPPARACEAE)

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Abstract. Based on morphological characters and recent molecular evidence, *Capparidastrum* subgenus *Pachycarpum* (Capparaceae) is raised to generic status. As *Pachycarpus* is a previous and valid generic name of Apocynaceae (Asclepiadoideae), *Neocapparis* is here proposed as a new generic name for *Capparidastrum* subgenus *Pachycarpum*. Two new combinations for species previously placed in *Capparidastrum* are presented here: *Neocapparis pachaca* and *Neocapparis quina*. The new genus is restricted to Neotropical dry forests, ranging from Mexico to northern Colombia and Venezuela and disjunct to western Ecuador and Peru. Illustrations of species and full citation of collections are provided.

Resumen. *Capparidastrum* subgenus *Pachycarpum* (Capparaceae) se eleva a rango de género basado en caracteres morfológicos y evidencia molecular reciente. Como *Pachycarpus* es un género válido de Apocynaceae (Asclepiadoideae), se propone *Neocapparis* como un nombre genérico nuevo para *Capparidastrum* subgénero *Pachycarpum*. Se proponen dos nuevas combinaciones para especies previamente en *Capparidastrum*: *Neocapparis pachaca* y *Neocapparis quina*. El género nuevo está restringido a los bosques secos del Neotrópico, desde Méjico hasta el norte de Colombia y Venezuela, y en la costa de Ecuador y Perú. Se proveen ilustraciones de las especies y se citan las colecciones estudiadas.

Keywords: Capparaceae, *Capparidastrum* subgenus *Pachycarpum*, dry forests, *Neocapparis*, Neotropics

The New World species formerly placed in *Capparis* L. s.l. (Capparaceae) were split into 16 distinct genera based on morphological characters; keys for identification also were presented for the nine reinstated and seven newly proposed genera (Cornejo and Iltis, 2006, 2008a,b,c,d, 2009a,b; Iltis and Cornejo, 2007, 2010, 2011). Subsequently, phylogenetic studies support most of the generic realignment, with the exception of *Capparidastrum* (DC.) Hutch., which is polyphyletic (Briceño et al., 2015; Cardinal-McTeague et al., 2016). When *Capparidastrum* was reinstated, the morphological diversity fit into three subgenera: *Capparidastrum* subgenus *Capparidastrum* (two species), *C.* subgenus *Pulviniglans* Cornejo & H. H. Iltis (15 species) and *C.* subgenus *Pachycarpum* Cornejo & H. H. Iltis (two species) (Cornejo and Iltis, 2008a). Among the comprised species, *C. pachaca* (Kunth) Hutch., the type of *C.* subgenus *Pachycarpum*, is placed in a small clade among two morphologically different genera as the South American *Preslianthus* H. H. Iltis & Cornejo and *Anisocapparis* Cornejo & H. H. Iltis (Cardinal-McTeague et al., 2016). As that clade is located in a rather distant position from *C. frondosum*, that is, the type of *Capparidastrum*, the phylogenetic results suggest that *C.* subgenus *Pachycarpum* deserves a generic status. However, *Pachycarpus* E. Mey (1837), derived from the Greek prefix *pachy* (stout), and the Greek *karpos* (fruit), is already occupied (*Pachycarpus* E. Mey., Apocynaceae, Asclepiadoideae), and a new name is required, which is proposed as follows.

Neocapparis Cornejo, *nom. et stat. nov.* Fig. 1.

Basionym: *Capparidastrum* subgen. *Pachycarpum* Cornejo & H. H. Iltis, Harvard Pap. Bot. 13(2):235, non *Pachycarpus* E. Mey. 2008. TYPE: *Capparis pachaca* Kunth.

Many branched *trees*. Terminal branches, buds and young petioles with very short unbranched trichomes, otherwise glabrous. Leaves spirally arranged, simple, tertiary nerves densely reticulate arranged on both sides; petioles of similar sizes, relatively short. Calyx 1-seriate, distinctively shorter than corolla; petals imbricate in bud, erect or suberect at anthesis, hypanthium often present, floral nectaries flattened or/to scales; stamens 30–63, spirally arranged before anthesis; ovary spherical, ovoid or broadly elliptic; stigma capitate, sessile; fruits spherical amphisarca, seeds surrounded by a sarcotesta of infiltrated hairs, embryo white or cream, the cotyledons convoluted one into the other and around the radicle. It comprises two species.

Etymology: The epithet is derived from the Greek prefix *neo-*, “new,” and *Capparis*, the former generic name of this taxon. It also refers to the Neotropical pattern of distribution of this interesting genus of Capparaceae.

Distribution: dry forests, southern Mexico (Oaxaca, Guerrero) to coastal northern Colombia and Venezuela, and disjunct to coastal Ecuador and Peru.

Among Neotropical Capparaceae, *Neocapparis* is characterized by the simple hairs on terminal branches and inflorescences, which are otherwise glabrous; leaves spirally arranged, blades with densely reticulate nerves, petioles of similar sizes; calyx 1-seriate, valvate, distinctively shorter than corolla, floral nectaries flattened or/to scales; amphisarcous fruits and seeds with cotyledons convoluted. The new genus shares with *Preslianthus* Iltis & Cornejo the phyllotaxy, petioles of even length, number and shape of floral nectaries, those flattened, fruits amphisarcous, seeds covered by a sarcotesta of infiltrated hairs, embryo white and cotyledons convoluted, but *Neocapparis* sharply differs from the later by the simple trichomes or absence of indumentum (versus delicate stellate-tufted), and flowers

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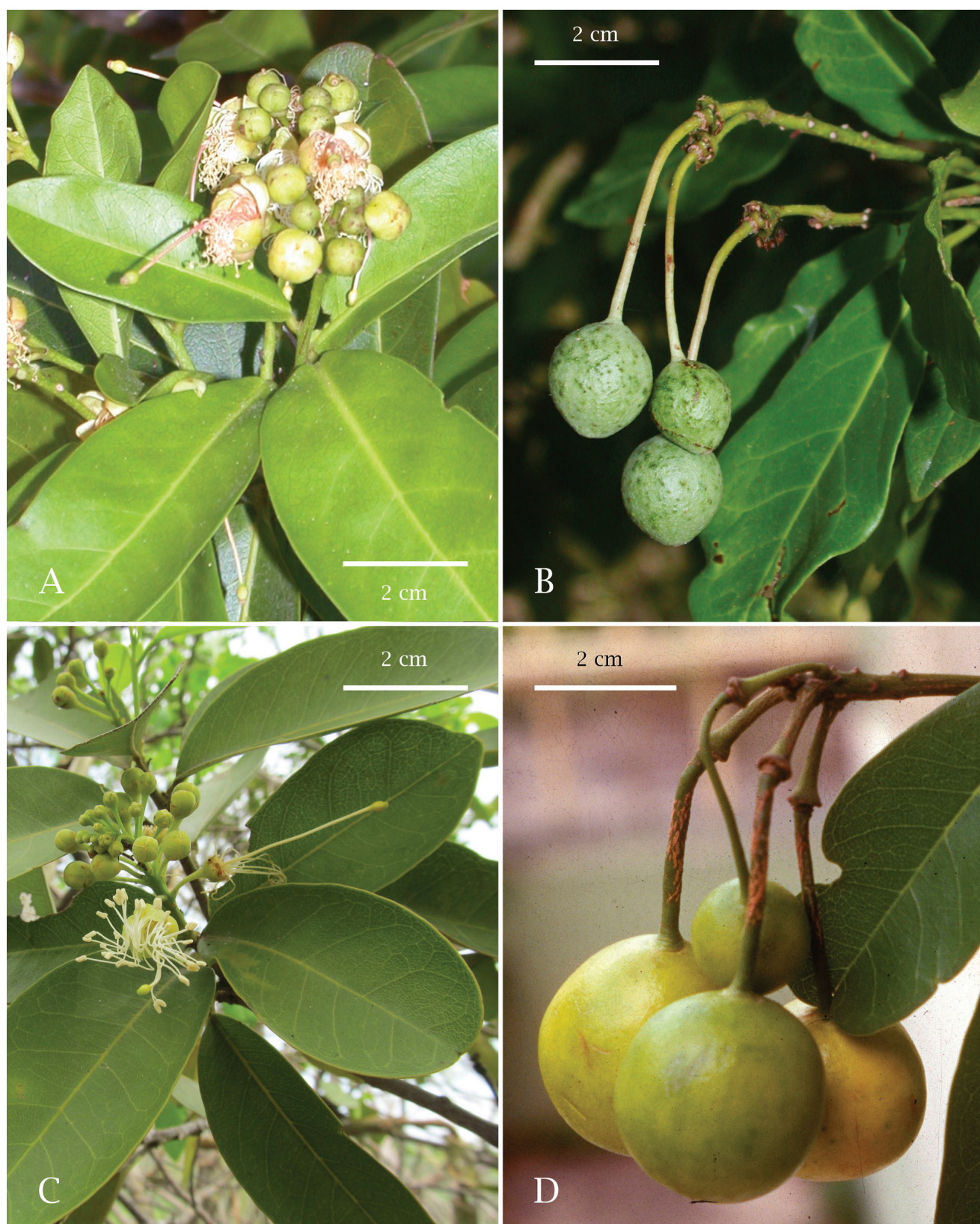


FIGURE 1. A–B, *Neocapparis pachaca* (J. F. Macbr.) Cornejo, C–D, *N. quina* (J. F. Macbr.) Cornejo. A, Terminal leafy branches and inflorescences; B, Infructescence with immature fruits; C, Terminal leafy branches and inflorescences; D, Infructescence with mature fruits. A–B courtesy of Francisco Morales, from Punta Descartes, on the Pacific coast of Costa Rica near the Nicaraguan border; C courtesy of Deirdre Platt, from Manabí, coastal Ecuador.

with stamens never accrescent just before anthesis (versus flowers with stamens conspicuously accrescent just before anthesis; Iltis & Cornejo, 2011). *Neocapparis* shares with *Anisocapparis* the type of indument, phyllotaxy, petioles of even length and number of floral nectaries. However, *Neocapparis* sharply differs from the later by the calyx isosepalous (versus anisosepalous), floral nectaries of similar shape and size (versus strongly dimorphic), fruit

amphisarcous (versus pepo), and seeds cochleate (versus globose) with cotyledons flattened, flexible and convolute (versus cotyledons separate, strongly anisocotylar, those of conspicuously different shape and size, the larger one massive, compact and adapted for storage and the distinctive smaller one sometimes even absent; Franceschini & Tressens, 2004; Cornejo & Iltis, 2008c).

KEY TO THE SPECIES

- 1a. Flower buds just before anthesis 8–10 mm diam., petals 9–12 mm, stamens 40–63; fruits at maturity white-porcelain, fruit wall 4–8 mm thick, leaf blade margins frequently undulate; southern Mexico to northern Colombia and Venezuela *Neocapparis pachaca*
 1b. Flower buds just before anthesis 6–7 mm diam., petals (7–9)–(10), stamens ca. 30–38; fruits at maturity yellow, fruit wall 2–4 mm thick; leaf blade margins smooth; coastal Ecuador and Peru *Neocapparis quina*

1. *Neocapparis pachaca* (Kunth) Cornejo, *comb. nov.* Fig. 1A–B.

Basionym: *Capparis pachaca* Kunth, Nov. Gen. et Sp. Pl. 5: 93. 1821. TYPE: VENEZUELA. Sucre: «*Crescit in sylvis prope Cumaná. Floret Septembri.*» A. von Humboldt & A. Bonpland 357 (Lectotype: P, designated in Cornejo and Iltis, 2008a).

Homotypic synonyms: *Capparidastrum pachaca* (Kunth) Hutch., Gen. Fl. Pl. 2: 310. 1967.

Capparidastrum pachaca subsp. *oxysepalum* (Wright ex Radlk.) H. H. Iltis, Harvard Pap. Bot. 13(2):235. 2008, *syn. nov.*

Capparis pachaca subsp. *oxysepala* (Wright ex Radlk.) H. H. Iltis, S. W. Naturalist 10(1): 61. 1965.

Heterotypic synonyms: *Capparis oxysepala* Wright ex Radlk., in Sitzb. Math. Phys. Acad. Wiss. München 14: 172. 1884. TYPE: NICARAGUA. Omotepec [Omotepe?], 1853–1856, C. H. Wright 2 (Lectotype; M [two leaves and a fragment of inflorescence, ex GOET] designated in Cornejo and Iltis, 2008a; Isolectotypes: GH, GOET, US).

Local names: México: chochcitam, (*Gaumer* 661); colocmax de montaña (*R. Flores* 1); x-chooch kitam (*Ucan* 805); Honduras: palo de rosa (*Holst* 1711); Nicaragua: lima de monte (*Iltis* 30934, 30937, 30938); lima del monte (*Laguna* 214); limoncillo (A. *Danin* 77-22-1); naranjilla (*Grijalva* et al. 2150); naranjillo (*Aranda* 124); Colombia: cotorrito (*Elias* 808); calabacito de monte, calabacito de montaña (*Paul*), calabacillo, totumito (*Dugand* 130); Venezuela: ajicito (*Fernández* 267), bachaco (*Agostini* 533), chirica (*Ruíz & Rohón* 3740), mamón chuco (*Nucette* 109), pachaco (*Guzmán & Cumaná* 22), tocorito (*Aristeguieta & Zabala* 7021), zorrocloco (*Vivas* 62).

Distribution: dry forests, southern Mexico (Oaxaca, Guerrero) to coastal northern Colombia and Venezuela.

Additional specimens examined: MEXICO. Guerrero: Mun. Zihuatango, Isla Ixtapa, 22 Mar 1976 (fl), *M. Pérez s.n.* (MEXU, photocopy WIS). From San Marcos to Copala, 200–500 feet, 8 Feb 1895 (fl), *E. W. Nelson* 2288 (NY, US, fragm. WIS). 9 km SE San Luis–San Pedro, 2 km S to Los Tarros, selva baja espinosa, 2 Feb 1980 (y fl), *B. Leuenberger & C. Schiers* 2724 (B). Guerrero to Pinotepa Nacional 8.5 mi, E of Acapulco, 10 Feb 1971 (fl), *Freeland & Spetzman*

208 (MEXU). Guerrero, Atoyac–Cacalutla 18 Nov 1965 (st), *L. Vela* 1501 (MEXU). **Oaxaca:** Tehuantepec, San Geronimo, local names: “Biahni,” “Zapote prieto,” *E. Seler* 1884 (B, CAL, GH, US, photo WIS); grazed areas 3 km W of Ixtepec, ca 50 m or less, 9 Jul 1959 (fr), *R. M. King* 1479 (TEX, US, photo & fragm. WIS). Plains N of Tehuantepec, 20 Dec 1944 (fl), *J. Alexander* 104 (MEXU, MICH, NY). Ruta 190, Tehuantepec a Juchitán de Zaragoza, ca 12 km al NE de Tehuantepec, selva baja caducifolia, “flor perfumada,” 9 Dec 1980 (fl), *D. H. Lorence & R. Cedillo* 3026 (WIS). 12 km NE of the city of Tehuantepec, along the Panamerican highway (routes 185 & 190), elevation less than 50 m, vegetation mainly of thorny leguminous shrubs and cacti, 7 Jul 1958 (fr), *R. M. King* 388 (ENCB, MICH, TEX, US, WIS). 4 km al E de Tehuantepec, km 802, 20 m, 1964 (fr), *E. Hernández* G114 (CHAPA, WIS). Flat grazed areas 4–5 km E of Juchitán, along Panamerican highway (routes 185 & 190), 50 m, 12 Jul 1959 (fr), *R. M. King* 1603 (TEX, US, fragm. WIS). Flat grazed areas 16 km N, NE of Tehuantepec along Panamerican highway (routes 185 & 190), 50 m, 7 Jul 1959 (fr), *R. M. King* 1386 (MICH, NY, TEX, US, fragm. WIS). **Campeche:** Alrededores de la Zona Arqueológica de Edzna, a 20 km al S del km 44 de la carretera Campeche–Hopelchén, veg. acahual de selva mediana, 4 Aug 1984 (fr), *E. Cabrera & H. de Cabrera* 7126 (F, MEXU, TEX, photocopy WIS). 19 km al S de Cayal, km 44 de la carretera 180, cerca de la Zona Arqueológica de Edzna, veg. acahual de selva mediana, 21 May 1985 (fr), *E. Cabrera, H. de Cabrera, O. Canul* 8511 (MEXU, MO, TEX, photocopy WIS). **Yucatán:** Progreso, local name: “colocmax de montaña,” 1932 (fl, y fr), *R. Flores* 1 (F, photocopy WIS); 11km al N, Sierra Papacal, 894830 W 211015 N, 22 Abr 1993 (st), *M. Mendez, P. Simá & R. Durán* 832 (MEXU, photocopy WIS). Port Silam, Izimal, local name: “chochcitam,” (fl), *G. F. Gaumer* 661 (BM, C, CM, F, GH, MO, US). Between Uitzina and Catmis, 4 Apr 1985 (fl), *D. A. White* 390 (WIS). Mun. Río Lagartos, km 5 y 6 del cruceo rumbo a San Felipe, selva baja caducifolia, suelo moreno lujoso, local name: “x-chooch kitam,” uses: medicinal y melifera, ca 0 m, 1 Apr 1981 (fl), *E. Ucan* 805 (WIS). 4–6 km al O de Las Coloradas, sobre camino al cruceo San Felipe–Río Lagartos, 22 Mar 1988 (fl), *E. Cabrera & H. de Cabrera* 15740 (MEXU, photocopy WIS). San Felipe, 1 km NO del rancho “Xpanha-toro,”

Reserva Ecológica de Dzilam, 10 Abr 1991 (fl), *J. Tun* 563 (MEXU, photocopy WIS). 6 km S de Telchak Puerto, sobre el camino a Telchak Puerto y Motul, 24 Jul 1986 (fr), *E. Cabrera & H. de Cabrera* 11685 (MEXU, photocopy WIS). Between Uitzina and Catmis, 4 Apr 1985 (fl), *D. White* 390 (WIS). HONDURAS. **Comayagua:** Ajuterique, matorral seco, 600 m, 14 Apr 1984 (fl, fr), *B. Holst* 1711 (MO, photo WIS), 1714 (MO, photo WIS). NICARAGUA. **Carazo:** Banco N del Río Escalante, 6 km corriente arriba de la desembocadura, 24 Aug 1977 (fl), *D. Neill* 2433 (MO). Sobre la quebrada de la finca Las Nilas, ca 6 km NW de la desembocadura de Río Escalante, bosque de galería, 86°11'W, 11°38'N, 100 m, local name: "naranjilla," 11 Jan 1983 (fl), *A. Grijalva, N. Lopez & R. Gilder* 2150 (WIS). Municipio Diriamba, "San Antonio," 6 km al S de La Trinidad, 86°19'W, 11°41'N, ca 50 m, 5 Jun 1984 (fr), *P. Moreno* 24205 (WIS). Río Grande, Casares, 86°20'W, 11°38'N, 20 m, 30 May 1983 (fr), *P. Moreno* 21390 (WIS). 3 km al S de Río Grande, 86°14'–15'W, 11°43'–44'N, 130–150 m, Jan 1984 (y fl), *M. Araquistain* 3773 (WIS). La Palma, Chacocente, local name: "naranjillo," 12 Dec 1984 (fl), *A. Aranda* 124 (MO, WIS). Refugio de vida Silvestre Chococente, bosque seco tropical, 86°07'–12'W, 11°30'–35'N, 20–80 m, local name: "naranjillo," 14 Apr 1984 (fr), *J. Sandino* 4967 (WIS). Área de la Estación Biológica de Chacocentro, en el límite departamental de Carazo-Rivas, bosque seco tropical, 1–100 m, 22–23 Jun 1984 (fr), *D. Soza, A. Grijalva & M. Aranda* 96 (WIS); ibidem, común, 4 Feb 1984 (fl), *A. Grijalva & N. Almanza* 3548 (WIS). **Rivas:** Bosque de Chococente junto al Río Escalante, 86°10'–12'W, 11°31'–32'N, ca 10–30 m, 15 Feb 1984 (fl), *M. Araquistain* 3796B (WIS). Puente de Ochamogo, km 80 carretera Sur, sobre el camino a San Rafael, 85°57'W, 11°39'N, ca 50 m, 25 Jan 1984 (fl), *P. Moreno & W.D. Stevens* 22870 (WIS). **Chontales:** 4 km al NW de Santo Domingo, bosque tropical húmedo, suelos arcillosos, 85°06'W, 12°17'N, 390–400 m, 5 Apr 1984 (fr), *D. Soza & A. Grijalva* 22 (WIS). **Matagalpa:** Puertas viejas, 86°03'W, 12°36'N, bosque seco tropical, 8 Jul 1982 (fr), *M. Araquistain* 2959 (MO); ibidem, ca 500–600 m, 8 Feb 1983 (fr), *M. Araquistain* 3447 (MO, photocopy & fragm. WIS); camino a San José de los Remates, 86°01'W, 12°35'N, ca 430–470, 10 May 1982 (fr), *P. Moreno* 16248 (WIS). La Mojada, 10 km SO de Esquipulas, 85°51'W, 12°37'N, ca 400 m, 24 Jan 1985 (y fl), *P. Moreno* 25350 (MO). Sébaco valley, 2.5 km W of Sébaco slightly alkaline soil, local name: "limoncillo," 7 Sep 1977 (fl), *A. Danin* 77-22-1 (MO, photocopy WIS). SW slopes of Cerro El Pilón and adjacent Laguna Tecomapa, 86°02'W, 12°37'N, ca 420–540 m, roadside, low thorn scrub and pastures on rocky slopes and dry lakebed with heavy black soil and water just below surface, 20 Jul 1978 (fr), *W. D. Stevens* 9461 (WIS). Km 77 carretera Norte, between Laguna Tecomapa and las Calabazas, ca. 86°04'W, 12°38'N, ca. 400 m, 13 Jul 1983 (fr), *W. D. Stevens* 22239 (WIS). La Aurora, Río Viejo, 15 May 1984 (fr), *M. Castro* 131 (WIS). Dario, Las Joyas, en la quebrada a 7 km de la carretera Panamericana, sobre el camino a Terrabona, 86°01'W, 12°45'N, 480–500 m, 18 Jun 1981 (fr), *P. Moreno* 9283

(MO, photocopy and fragm. WIS). km 71 entrada a Esquipulas, tierra blanca, pedregoso con grandes pendientes, sonsocuitoso, local name: "lima del monte," 8 Feb 1983 (fr), *A. Laguna* 214 (MO, photocopy WIS). **Boaco:** Hacienda San Antonio, carretera a Boquito, 85°44'W, 12°26'N, ca 200 m, 17 Jan 1984 (y fr), *P. Moreno & W. Robleto* 22812 (WIS). San Antonio, 2 km al SE de Boquito, 85°44'W, 12°26'N, ca 200 m, 19 Jun 1982 (fr), *P. Moreno* 16589 (WIS); u km al S de Boquito, 85°44'W, 12°26'N, ca 200 m, 21 Oct 1982 (y fl), *P. Moreno* 18014 (WIS). Flat valley bottoms of Río Boaco, 4 km NW of junction (emplame) of Boaco (hwy # 9) and Juigalpa (hwy # 7) hwy, ca 66 km NE of Managua (ca 9 km SW of Boaco), 85°43'W, 12°26'N, 260 m, local name: "lima de monte," 21 Dec 1991 (fr), *H. H. Iltis, M. Castillo & C. Medina* 30937, 30938 (WIS); 2 km NW of junction (emplame) of Boaco (hwy # 9) and Juigalpa (hwy # 7) hwy, ca 60 km NE of Managua (ca 15 km SW of Boaco), 85°46'W, 12°25'N, 180 m, 21 Dec 1991 (y fl, fr), *H. H. Iltis, M. Castillo & C. Medina* 30933 (WIS 2 sheets); ca 64 km NE of Managua (ca 11 km SW of Boaco), 85°43'W, 12°25'30"N, 200 m, 21 Dec 1991 (fr), *H. H. Iltis, M. Castillo & C. Medina* 30934 (WIS 5 sheets); ca 65 km NE of Managua (9–10 km SW of Boaco), 85°43'30"W, 12°26'30"N, 240 m, 21 Dec 1991 (y fl, fr), *H. H. Iltis, M. Castillo & C. Medina* 30935 (WIS 3 sheets). Camino Boaco-Camoapa, ca 10 km SW de Camoapa, region arida, pedregosa, en potreros bien degradados, 85°35'W, 12°20'N, 350 m, 8 Feb 1983 (fr), *A. Grijalva & W. Robleto* 2302 (WIS). 1.6 km N of Tecolostote, 85°39'W, 12°15'N, ca 110 m, 4 Feb 1984 (fl, fr), *W. D. Stevens* 22850 (MO, WIS). La Concha, between Las Banderas and Teustepe, grazed thorn forest, ca 85°53'W, 12°22'N, ca 120 m, 4 Feb 1984 (fl), *D. W. Stevens* 22847 (WIS). **Managua:** Along road from hwy 1 (N of San Jacinto entrance) to San Francisco del Carnicero, ca 4.8 km W of hwy 1, less than 100 m, low thorny forest and black soil, *W. D. Stevens, P. Moreno & M. Araquistain* 17120 (WIS). Plains NE of lago de Managua, on road towards San Francisco del Carnicero, 60 m, 3 Mar 1982 (fl), *C. Hughes & B. Styles* 67 (OXF). Camino a San Francisco, 2 km de la carretera Panamericana Norte, 86°04'W, 12°22'N, ca 50–60 m, 28 May 1981 (fr), *P. Moreno & J. Henrich* 8768 (WIS). A 3 km de la carretera Managua-Sebaco, camino a San Francisco Libre, ca 100–120 m, 26 Jan 1981 (y fl), *J. Sandino* 369 (WIS). Camino a San Francisco Libre, a 1 km de la carretera Managua-Sébaco, 90–100 m, 28 May 1981 (fr), *J. Sandino* 648 (WIS). Los Brasiles, 10 km SO de Las Banderas, 85°05'30"W, 12°15'30"N, 80–100 m, 24 Feb 1979 (fr), *A. Grijalva & M. Araquistain* 124 (WIS). **Granada:** Isla Zapatera, falda NW de cerro El Llano, 85°50'W, 11°45'N, 250 m, 21 Jan 1982 (fl), *J. Sandino* 1982 (WIS). Inter Granada et Nicaragua (Managua?), Feb 1848 (fl), *Oersted* 3166 (C, US, fragm. WIS). COSTA RICA. **Guanacaste:** Santa Rosa National Park, dry hills beyond Manilkara forest, 85°40'W, 10°48'N, 0–50 m, 12 Feb 1978 (fl), *R. Liesner* 5275 (MO, WIS); dry river between Manilkara forest and fork in road to Naranjo Beach, Río Poza Salada, 85°39'W, 10°48'N, 5–20 m, 27 Jan 1978 (y fl), *R. Liesner* 4588 (MO, PMA, WIS); W of Panamerican hwy

1, ca 37 km N of Liberia, ca 2 km inland from Playa Naranjo, in dry deciduous forest, 23 Feb 1973 (fl), *L. Loveless* 1977 (DUKE, photocopy & fragm. WIS); canton de Liberia, P. N. Santa Rosa, de Bahía Salinas a Santa Cecilia, Santa Rosa, sendero a Carbonal, 85°37'02"W, 10°51'09"N, 200–250 m, 10 May 1994 (fr), *R. Espinoza* 1108 (K, WIS); camino a Playa Naranjo, bosque siempre verde, 21 Feb 1986 (fr), *N. Zamora*, *L. Poveda*, *Q. Jimenez* & *K. Eymert* 1190 (CAS, MO, photocopy WIS); 8 m, 28 Sep 1972 (st), *L. Poveda* 315 (F, photocopy WIS). PANAMA. **Darién:** Near Refugio, 15–21 miles N of Santa Fé, ca 30 m, 16 Feb 1967 (fl), *J. A. Duke* 10273 (DAV, MO, OU, photo WIS). COLOMBIA. **Atlántico:** Barranquilla and vicinity, Mar 1934 (fl, fr), *B. Elias* 1199 (F, MA 2 sheets, P, US, photocopy WIS); ibidem, *B. Elias* 445 (F, GH, K, NY, US); “cotorrito,” 9 Jan 1930 (fl), *Elias* 808 (US); “calabacito de monte,” “calabacito de montaña,” 1925, *B. Paul* 41 (US). Near Barranquilla, local name: “calabacillo, totumito,” 12 Oct 1932 (fr), *A. Dugand* 130 (COL, F, MADw, US, photocopy WIS). Ponedera-Giraldá-Suán district, *A. Dugand* 482 (F, MADw, photocopy WIS). In forest near Juan Mina, 60 m, local name: “calabacillo,” Feb 1936 (fl), *A. Dugand* 932 (F, MADw, photocopy WIS). On road from Barranquilla to Galapa, 150' above sea level, Abril 1932 (fl), *A. Dugand* 9 (F, MADw, photocopy WIS). Entre Galapa y Juan Mina, muy comun, 30–50 m, 19 Apr 1937 (fl), local names: “totumito,” “calabacito de monte,” *A. Dugand* 130-B (US, photocopy WIS); ibidem, 8 May 1938 (y fr), *A. Dugand* 1185, 1186 (US). Puerto Colombia, less than 200 m, 7 Jan 1948 (fl), *F. Barkley* & *G. Gutiérrez* 1843 (BM, F), 1849 (F); ibidem, Jan 1932 (fl), *Elias* 935 (US); same date (fl), *B. Paul* 935 (F); muy comun en los alrededores, (fl), local name: “cotorrito,” *Elias* 1056 (US). Puerto Colombia, Miramar, en fruticetum costanero árido, 0–25 m, 19 Dec 1945 (fl), *A. Dugand* 4016 (COL, US). Entre Puerto Colombia y Salgar, fruticetum árido litoral y playas arenosas, local name: “calabacito,” 23 Jul 1943 (fl), *A. Dugand* & *Jaramillo* 3236 (COL, US). Piojó, Los Mameyales, 350–400 m, en bosques sombreados, “flores rosadas,” 11 Jan 1980 (fl), *A. Dugand* & *H. Garcia-Barriga* 2412 (COL, US). **La Guajira:** Serranía de la Macuira, Nazareth, cerro Itojoro, bosque muy seco, suelo pedregoso fuertemente inclinado, 250–432 m, 15 Jul 197? (fr), *H. Bernal* & *A. Sudgen* 8 (COL, PMA, photocopy WIS); ibidem, 400 feet, *C. Saravia* & *M. de Saravia* 3653 (NY, US). Mun. Riohacha, vía Riohacha-Manaure-Uribia, 72°25'W, 11°36'N, 0–500 m, 14–20 Feb 1989 (fl), *L. Atehortúa* & *Grupo Fitogeografía* 31 (HUA, MO, WIS). 5–8 km E of Riohacha, ca 20 m, 28 Nov 1959 (y fr), *Cuatrecasas* & *Castañeda* 25461 (US). Mun. Barrancas, corregimiento Manantial, carretera Manantial-Roche, Arroyo Aguas-Blancas, 72°41'W, 11°02'N, 120 m, 1 May 1988 (fr), *F. J. Roldán*, *L. García* & *G. Sylva* 963, 976 (HUA, MO, photocopy WIS). Entre Uribia y Maicao, local name: “toco,” 15 Jul 1956 (fr), *M. del Llano* 1 (US). Entre Uribia, Maicao y cerro de La Teta, 26–28 Feb 1962 (fl), *C. Saravia* & *Johnson* 87 (US). 9 km de Uribia rumbo a Maicao, suelos inundables, 29 Mr 1962 (y fr), *C. Saravia* & *D. Johnson* 302 (US). Forest near Carraipía, local name:

“colocolo,” Nov 1916 (st), *M. T. Dawe* 584, 589 (K, US); ibidem, *Elias* 445 (K). **Magdalena:** Santa Marta, Mar 1842 (fl), *N. Funck* 540 (BM, G, K, LE, photocopy WIS); ibidem, near sea level, Sept 1898–1901 (fl), *H. H. Smith* 449 (BM, BR, CM, GH, K, MICH, MO, NY, UC, US, VT, WIS); 2000 ft, Jan 1898–1901 (fl), *H. H. Smith* 902 (BM, CM, COL, GH, K, MICH, NY, P, US, VT, photocopy WIS); *Goudot* 2 (K). N slope of Sierra Nevada de Sta. Marta, Jul 1932 (fr), *W. Seifriz* 610 (US). Near Fonseca, 175 m, 13 Feb 1944 (fl), *O. Haught* 3995 (F, INA, NY, US, fragm. WIS); ibidem, 130 m, 1 Oct 1944 (fl), *O. Haught* 4383 (U, US). Cerrejón, ca 200 m, 2 Aug 1949 (fl, fr), *O. Haught* 6567 (US, fragm. WIS). Mamatoco, 29 Abr 1944 (fl, fr), *R. Romero-Castañeda* 105 (MADw, MO, photocopy WIS). Mun. Santa Marta, Parque Nacional Natural Tayrona, Ensenada de Neguanje, 21 Sep 1976 (y fr), *G. Lozano* & *Schmetter* 2921-A (NY). Valle de Rio Cesare, al O de Los Venados, ca 60 m, 11–13 Feb 1961 (fl), *A. Dugand* 5576 (US). **Norte de Santander:** Vertiente oriental, entre el Rio Zulia y Cucuta, ca 450 m, 24 Jul 1940 (y fr), *Cuatrecasas* & *H. Garcia-Barriga* 10163 (US). **Bolívar:** Volcán de Lodo, Santa Catalina-Galerazamba road, N tip of Bolivar, dry scrubby forest, 75°15'W, 10°45'N, near sea level, 30 Jun 1984 (fl, fr), *A. Gentry* & *H. Cuadros* 47394 (MO, WIS). Mun. San Martin de Loba, alrededores de Pueblo Nuevo, al borde de la cienaga del Totumo, 75°15.8'W, 10°17.5'N, local name: “naranjito,” 17 Feb 1989 (fl), *O. Marulanda* 839 (HUA, MO, WIS); entre Hacienda Las Marias y La Cienaga del Totumo, 75°15.8'W, 10°17.5'N, 17 Feb 1989 (fr), *O. Marulanda* 820 (HUA, MO, photocopy WIS). Mun. Carmen de Bolívar, vía Carmen-Zambrano, 31 Jan 1987 (fl), *H. Cuadros* 3219 (MO, photocopy WIS). Mun. Cartagena, corregimiento Punta Canoa, Loma Mogollon, 3 Feb 1987 (y fl), *H. Cuadros* 3251 (WIS). **Antioquia:** Municipio de Arboletes, vereda La Toyosa, 100 m, 30 Mar 1983 (y fr), *R. Bernal* & *G. Galeano* 519 (NY 2 sheets, photocopy WIS). VENEZUELA. **Zulia:** Dtto. Urdaneta, carretera entre km 20 de la carretera Perijá y el Autódromo-La Cañada, unos 15–20 km al S del km 20 de la carretera a Perijá, en zona de bosque seco-muy seco, 10 Mar 1978 (fl), *G. Bunting* 6227 (WIS). Vicinity of Perijá, *Tejera* 93, 108, 262, 266 (US). Dtto. Maracaibo, carretera Perijá, entre Maracaibo y La Villa del Rosario, en km 27 de la vía, 5 Mar 1978 (fl, fr), *L. Aristeguieta* & *A. Ferrer* 12544 (NY, WIS). Dtto. Miranda, via Palmarito-Cataneja, por la tubería que conduce hasta el km 42, local name: “mamón chuco,” 9 Nov 1982 (fr), *E. Nucette* 109 (NY, photocopy WIS). Carretera Maracaibo-Altagracia, en el km 4 al N del desvío de la carretera Maracaibo-Coro, en bosque seco al O de la carretera, 8 Sep 1977 (fl), *G. Bunting* 5393 (WIS). Cerca de San Francisco, local name: “mamón de venado,” 20 Jun 1968 (y fr), *R. Smith* 3874 (VEN). Dtto. Bolívar, carretera Lara-Zulia, a unos 8 km del puente sobre el lago, 19 Apr 1977 (fr), *L. Aristeguieta*, *G. Bunting* & *L. Chacón* 12339 (WIS). Carretera Maracaibo-Cabimas, entre la carretera Lara-Zulia y Cabimas, en la reserva al lado del río Mene, en bosque deciduo, 22 Mar 1979 (fr), *G. Bunting* & *A. Alfonzo* 7119 (WIS). Carretera Maracaibo-Altagracia, en km 4 al noroeste del desvío de la carretera Maracaibo-Coro, en

bosque seco, 7 Feb 1978 (fl), *G. Bunting* 6185 (WIS). Tia Juana, selva tropofita, 4 Jan 1954 (fl), *E. Little* 16127 (MER, VEN, photocopy WIS). Alrededores de Mene Grande, 1939 (fr), *Woolger* 39 (VEN, photocopy WIS). **Falcón:** Between La Vela and Cumarebo, 4 Abr 1917 (fl), *H. M. Curran & M. Haman* 486 (GH, NY, US, fragm. WIS). Mene de Mauroa, 13 May 1972 (fr), local name: "mamón de chuco," *B. Trujillo* 11083 (MY, photocopy WIS). Tigre sentado, 4 km W de Agua Clara, 21 Oct 1961 (fr), *T. Lasser* 4379 (VEN, photocopy WIS). Between Paso de Piedra and El Caballo, 69°16'–17°W, 11°04'N, 80 m, 13 Feb 1977 (st), *J. Steyermark & A. González* 113796 (WIS). Dtto. Buchivacoa, carretera Dabajuro-La Danta, 2 km después del Fundo Agropecuario La Rosita, 160 m, 22 Dec 1981 (fl), *T. Ruiz & F. Rohón* 3651 (MY, NY, WIS). Tiguaje, area culturizada, 100 m, 29 Sep 1977 (fl), *T. Ruiz & Equipo de Ecología*, 2056 (WIS). Dtto. Colina, carretera Guaibacoa Semeruco-Dos Bocas, ca 6 km de Guaibacoa, suelo arcilloso rojizo, 200 m, local name: "chirica," 19 Jun 1982 (fr), *T. Ruiz & F. Rohón* 3740 (MY, NY, photocopy WIS). Along old highway from La Vela de Coro to the dam ("presa") Hueque de Río Sicoa near Macoruca, ca 10 km SE of Guabaicoa at base of south-facing slope of NE end of Sierra de San Luis, ca 24 km ESE de Coro, ca 69°28'W, 11°27'N, ca 350 m, 7 Jan 1991 (st), *H. H. Iltis, T. Ruiz & C. Benítez* 30522 (WIS); ibidem, *H. H. Iltis, T. Ruiz & C. Benítez* 30523 (WIS). Cerro Puerto Escondido, cerros escarpados con algunos afloramientos rocosos, 200 m, 14 Apr 1977 (y fr), *T. Ruiz & equipo de Ecología* 1334 (MY, WIS). Dtto. Zamora, in front of a house in main highway (# 3), halfway between Valencia and Coro at Marsillal de la Costa, dry semi-evergreen to deciduous woodlands in region rich in *Capparaceae* associates, 68°50'W, 11°12'N, 180 m, *H. H. Iltis, T. Ruiz & C. Benítez* 30510 (WIS 2 sheets). Marcillal de la Costa, cerca de Mirimire, 27 Jun 1967 (fr), *B. Trujillo* 8462 (MY 2 sheets, photocopy WIS). **Anzoátegui:** Km 227 on Caracas-Barcelona highway, 16 km E of Boca de Uchire, *A. Gentry & P. Berry* 14797? (MO, photocopy WIS), ca 5 km SE de Anaco, 64°26'W, 9°27'N, 3 Mar 1979 (fl), *G. Agostini* 2655 (MO, NY, photocopy WIS). Alrededores de Píritu, zona de vegetación seca, "frutos comidos por los acures," local name: "bachaco," 18 Aug 1965 (fl), *G. Agostini* 533 (NY, photocopy WIS). Alrededores de Puerto Píritu, local name: "bachaco," 21 Aug 1965 (fl), *G. Agostini* 552 (NY, photocopy WIS). Bosque tropofito de Santa Cruz, ca 13 km al O de Clarines, 120 m, 12 Dec 1960 (st), *L. Ruiz* 329 (MER, photocopy WIS). Alrededores de Barcelona, local name: "tocorito," 28 Mar 1969 (fl), *L. Aristeguieta & H. Zabala* 7021 (NY, VEN, WIS). Cantaura, 19 Apr 1950 (fl, fr), *F. D. Smith* 139 (US). Isla Cachicamo, al N de Pertigalete, 64°33'W, 10°18'N, 0–3 m, 1 Sep 1973 (st), *J. Steyermark & B. Manara* 107888 (WIS). **Lara:** San Francisco, Carora basin, 19 Sep 1969 (fr), *R. Smith* V5705 (WIS). Carretera Carora-Maracaibo, ca 7 km desde Carora, 23 Jun 1995 (fl, y fr), *T. Ruiz & R. Villafañe* 4728 (MY). 10 km antes de Copeyal, vía a Santa Inés, 30 Mar 1980 (fl), *N. Ramírez* 307 (MO 2 sheets, NY, photocopy WIS). La Quebrada Las Raíces, La Guadalupe, zona xerófila, local name:

"zorrocloco," 12 Sep 1954 (fl), *J. Vivas* 62 (VEN, photocopy WIS). Bobare, 20 Mar 1969 (fl), *R. Smith* V5293 (VEN). **Sucre:** Cumaná, Jun 1842 (fl), *Funck* 17 (G, P, photocopy WIS); calle San Bruno, crece en suelos secos, arenosos, arcillosos, local name: "pachaco," 12 Dec 1977 (fr), *M. Guzmán & L. Cumaná* 22 (WIS); detrás del Hotel Los Bordones, 25 Jan 1978 (fl), *M. Guzmán & L. Cumaná* 60 (WIS). Base of rocky chaparral bordering salt flats at Bordones, SW of Cumana, 10–15 m, 23 May 1945 (fr), *J. Steyermark* 62918 (F, MO, VEN, photocopy WIS). Isla de Arapo (del Este), "Arepito," N of Arapito, NW of Playa Colorado, 64°28'W, 10°16'N, 0–20 m, 1 Sep 1973 (st), *J. Steyermark & B. Manara* 107897 (VEN, WIS). Península de Araya, 4 km E and W of Caimancito, 5 to 14 km W of start of new road, 63°54'W, 10°38'N, 0–50 m, 19 May 1981 (fl, fr), *R. Liesner & A. González* 12107 (WIS). Vicinity of El Tacal, ca 6–8 km SW of Cumana on old highway to Santa Fe in bottom of valley behind coastal hills and ca 2 km from the Atlantic Ocean, 64°13'W, 10°25'N, ca 50–75 m, 12 Jan 1991 (st), *H. H. Iltis, L. Cumaná, R. Delgado, C. Benítez & T. Ruiz* 30555 (WIS). Isla Margarita, 0–850 m, local name: "pachaco," Aug 1955 (fl), *Bernardi* 2463 (MER, NY 2 sheets, photocopy WIS); Valle, *Johnston* 9 (GH). **Guárico:** Dtto. Rivas, Río Tamanaco (puente), local name: "pachaco," 19 Mar 1978 (y fr), *G. Correa* 16 (F, photocopy WIS). **Miranda:** 7 km E of Cúpira, new road 1 km S of main road, starting at Río Chupaquire S of El Guacuco, 65°38'W, 10°09'N, 0–150m, 16 May 1981 (y fr), *R. Liesner & A. González* 11904 (WIS). **Táchira:** thickets and scrubby xerophytic vegetation, between Tienditas and Ureña, near Venezuelan-Colombian border, 72°26'30"W, 7°54'N, 330 m, 13 Nov 1979 (y fl, fr), *J. Steyermark, R. Liesner & A. González* 120214 (WIS). Dependencia Federal: Isla de los Testigos, Isla Testigo Grande, local names: "ajicito," "pachaco," 26 Dec 1982 (y fr), *Fernández* 267 (CAR, PORT); ibidem, 28 Dec 1982 (fl), *Flores* 284 (PORT); 5 Jan 1984 (fl), *Fernández* 645 (PORT).

2. *Neocapparis quina* (J. F. Macbr.) Cornejo, *comb. nov.*, Fig. 1C–D.

Basionym: *Capparis quina* J. F. Macbr., *Candollea* 5: 357. 1934. *Capparidastrium quina* (J. F. Macbr.) Cornejo & H. H. Iltis, *Harvard Pap. Bot.* 13(2):235. TYPE: PERU. Dept. San Martín, Río Mayo, Tarapotó, 360–900 m, 14 December 1929 (fr), *Williams* 6282 (Holotype: F [photo negative 51624 at WIS]; Isotype: US).

Local names: Ecuador: jagua (*Valverde* 406), mango de caballo (*Bonifaz & Cornejo* 2756), naranjillo (*Bonifaz* 1058), pomarosa (*Cerón et al.* 13924, 13941). Perú: chuchuhuasi (*Ríos* 5), pirocaspi (*Zegarra* 12), quina-quina (fide Macbride, op. cit.), quirio-quirio (*Albán* 2411).

Distribution: dry forests of Western Ecuador and Peru.

Additional specimens examined: ECUADOR. **Manabí:** Río Chico, bosque muy seco Tropical, 80°49'W, 1°36'S, 80 m, 10 Nov 1990 (fl), *C. Bonifaz & X. Cornejo* 4069 (GUAY, WIS). Machalilla National Park, road from San Vicente to Guale, 80°45'W, 1°40'S, 60 m, 18 Jan 1991

(fl), A. Gentry & C. Josse 72375 (F, MO, QCNE, WIS); sector Guala-Llorona, 80°44.49'W, 1°40.07'S, 70–200 m, 3 Jun 2010 (fr), C. Cerón *et al.* 67952 (QAP); sector Los Piqueros, 80°50'W, 1°34'S, 200 m, 5 Sep 1991 (fr), C. Josse 618 (QCA, WIS), 619 (QCA); Punta Los Piqueros, 80°35'W, 1°31'S, 30 m, 12 Dec 1992 (fl), Hernández *et al.* 272 (QCA [2], QCNE); sendero desde la parte alta de Los Piqueros hasta Punta Piqueros, c. 25 m, 31 Jul 1992 (fl), Gavilánez *et al.* 979 (QCA [2], QCNE); Agua Blanca hasta cerro San Francisco por estero San Francisco, 80°44'W, 1°33'S, 150 m, 10 Sep 1991 (fr), Josse 660 (AAU, QCA); Playa Los Frailes, 80°47'W, 1°29'S, 0 m, 1 May 1995 (fr), C. Bonifaz & X. Cornejo 2756 (GB, GUAY, WIS); Sector Playita, 80°49'W, 1°34'S, c. 60 m, 5 Apr 1991 (fr), C. Cerón

et al. 13924, 13941 (QAP, QCNE). Vic. Salango, savanna and semideciduous forest close to the beach, 80°51'W, 1°36'S, c. 25 m, 26 Jun 1987 (fl), J. Madsen 63681 (AAU, QCA, QCNE). **Santa Elena:** Guala-La Entrada, 80°45'W, 1°42'S, 120 m, 22 Jun 1985 (fl, fr), C. Bonifaz 1058 (GUAY, WIS). Al sur del pueblo de Carrizal, al pie de la cordillera de Colonche, May 1978 (fl), F. Valverde 406 (SEL). PERU. **San Martín:** Km. 25. Carretera Tarapoto-Juanji, 23 nov 1982 (fl), J. Ríos 5 (MO). San Martín, 345 m, 28 Dec 1974 (fl), H. Zegarra 12 (MO). Huallaga, Ganadero Amazonas, San Rafael, 350 m, 27 Nov 1985 (fr), J. Albán 2411 (F). **Cuzco:** Calca, Dist. Yanatile, camino hacia Lacco Yavero, bosque intervenido, 12°19'S, 72°18'W, 1815 m, 26 Feb 2005 (fr), L. Valenzuela 5271 (CUZ, MO, MOL, USM).

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