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New taxa in Mexican *Psychotria* (Rubiaceae, Psychotrieae)

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ABSTRACT. Six new taxa in *Psychotria* subgenus *Heteropsychotria* are described from Mexico: *P. faxlucens* Lorence & Dwyer, *P. izabalensis* L. Wms. subsp. *oaxacana* Lorence, *P. luteotuba* Lorence, *P. megalantha* Lorence, *P. sousae* Lorence, and *P. veracruzensis* Lorence & Dwyer.

RESUMEN. Se describen seis nuevos taxa de *Psychotria* subgénero *Heteropsychotria* para México: *P. faxlucens* Lorence y Dwyer, *P. izabalensis* L. Wms. subsp. *oaxacana* Lorence, *P. luteotuba* Lorence, *P. megalantha* Lorence, *P. sousae* Lorence, y *P. veracruzensis* Lorence y Dwyer.

Psychotria L. is the largest and probably also the most taxonomically complex genus of Rubiaceae, with more than 1000 species distributed in the tropics and subtropics of the world (Standley & Williams, 1975; Dwyer, 1980). It is also one of the largest genera of Rubiaceae in Mexico, where some 44 species occur, all shrubs or trees (Lorence & Dwyer, unpublished data).

Most species are centered in or restricted to the moist evergreen rain and cloud forests of Chiapas, Oaxaca and Veracruz, although a number occur in the Yucatán Peninsula and still fewer extend up into the drier semideciduous or deciduous forests as far north as Jalisco and Sinaloa in the west, and San Luis Potosí and Tamaulipas in the east. Of the 44 species found in Mexico six are endemic, whereas the other 38 are variously shared with Central America, South America, and the West Indies.

This genus is generally considered to comprise two subgenera: *Psychotria* (including *Mapouria*), and *Heteropsychotria* (including *Cephaelis* and *Urogoga*) (Steyermark, 1972). Species belonging to the former subgenus are characterized by their caducous stipules and dark brownish or blackish color when dry, whereas those belonging to the latter have persistent bilobed stipules and dry a brighter greenish color.

Recent intensive collecting in botanically unknown or poorly explored regions of

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Mexico by workers at the Herbario Nacional of the Instituto de Biología, UNAM and other Mexican institutions has yielded a significant number of taxa new to science. Six new taxa in *Psychotria* subgenus *Heteropsychotria* are described below as part of our studies on the Rubiaceae of Mexico and Mesoamerica.

1. *Psychotria faxlucens* Lorence & Dwyer, sp. n. (fig. 1.)

Arbores glabrae, 3-10 m altae, ramulis teretibus, viridibus, 2-3 mm diametro, nodis bene disitis; stipulis persistentibus, in cylindrum 1-2 mm longum intus villosum connatis, margine truncate vel obtusa, saepe dentes 2 minutos, 0.3-0.5 mm longos ferente. Folia petiolata; 8-25 mm longis; lamina chartacea, discoloria, in sicco supra subnitida ravidoviridia, ovata usque elliptica, 65-170 × 20-75 mm, basi cuneata, apice acuminata, venis secundariis 5-10 paribus. Inflorescentia terminalis, capitata, raro breviter 3-ramosa, 40-60 mm longa, 4-9-flora; pedunculo 10-20 mm longo, crasso apice. Flores sessiles, hypanthio 1.5-2.0 mm longo, cupula calycis cylindrica, 3.5-4.5 mm longa, plerumque in latere uno fidente, margine dentibus 4-6 minutis; corolla alba, glabra, tubo 25-40 mm longo, lobis 5, anguste ovatis vel lanceolatis, 8-17 mm longis; staminibus 5, filamentis 0.5-1.0 mm longis, antheris linearibus, 4.5-5.5 mm longis; stylo 30-40 mm longo, stigmatibus 3.5-4.0 mm longis. Fructus sessilis, ellipsoideus, laevis, 12-14 × 8-10 mm, umbonatus; pyrenis 2, ellipsoideis, usque 13 mm longis, laevibus vel porca humili dorsali instructis.

TYPE: MEXICO. Veracruz; Municipio de Catemaco, Ejido de Coscoapan, 8 km SE de Coyame, 16 Abril 1974 (f), **F. Ponce & R. Cedillo T. 2** (HOLOTYPE, MEXU: ISO-TYPES, F, MO).

Glabrous trees 3-10 m tall, the twigs terete to slightly compressed, greenish, 2-3 mm diam., the nodes well spaced; stipules persistent, greenish, connate into a cylinder 1-2 mm long, wider than long, broadly deltoid to truncate or obtuse, the margin often bearing 2 minute teeth 0.3-0.5 mm long, internally densely villous. Leaves petiolate, those of a pair subequal; petioles 8-25 × 1-2 mm; lamina chartaceous, discolorous, drying ± lustrous grayish-green adaxially and dull green abaxially, ovate, ovate-elliptic, elliptic or broadly elliptic, 60-170 × 20-75 mm, the base narrowly to broadly cuneate, the sides often unequal, the apex acuminate, the acumen to 20 mm long, the 2° veins 5-10 pairs, festooned brochidodromous, yellowish abaxially, the 3° veins oblique, the margin scarcely revolute. Inflorescence terminal, glabrous, 40-60 mm long, capitate or rarely slightly 3-branched, with 4-9 flowers, the peduncle 10-20 mm long, thickened distally; flowers sessile, minutely bracteolate basally, the hypanthium 1.5-2 mm long, the calyx cup 3.5-4.5 mm long, usually splitting down one side, the margin with 4-6 minute teeth; corolla white, salverform, glabrous, the tube cylindrical, 25-35 (-40) mm long, dilated to 2-3 mm wide distally, internally glabrous, the lobes 5, narrowly ovate or lanceolate, 8-13 mm long, recurved at anthesis, the stamens 5, the anthers linear, usually included, the filaments 0.5-1 mm long, affixed 4-7 mm below the faux; style glabrous, 30-40 mm long including the 2 papillose, usually exerted, ovate stigmas 3-4 mm long, the disc 5-lobed, 0.4-0.5 mm long. Fruits sessile, solitary or paired, ellipsoid, 12-14 × 8-10 mm, smooth, greenish, umbonate, the 2 pyrenes ellipsoid, to 13 mm long, like coffee beans, smooth or occasionally with a low dorsal ridge.

Distribution: Veracruz, Mexico, where the species is known from the Los Tuxtlas region around Catemaco, San Andrés Tuxtla and Santiago Tuxtla, with outlying collec-

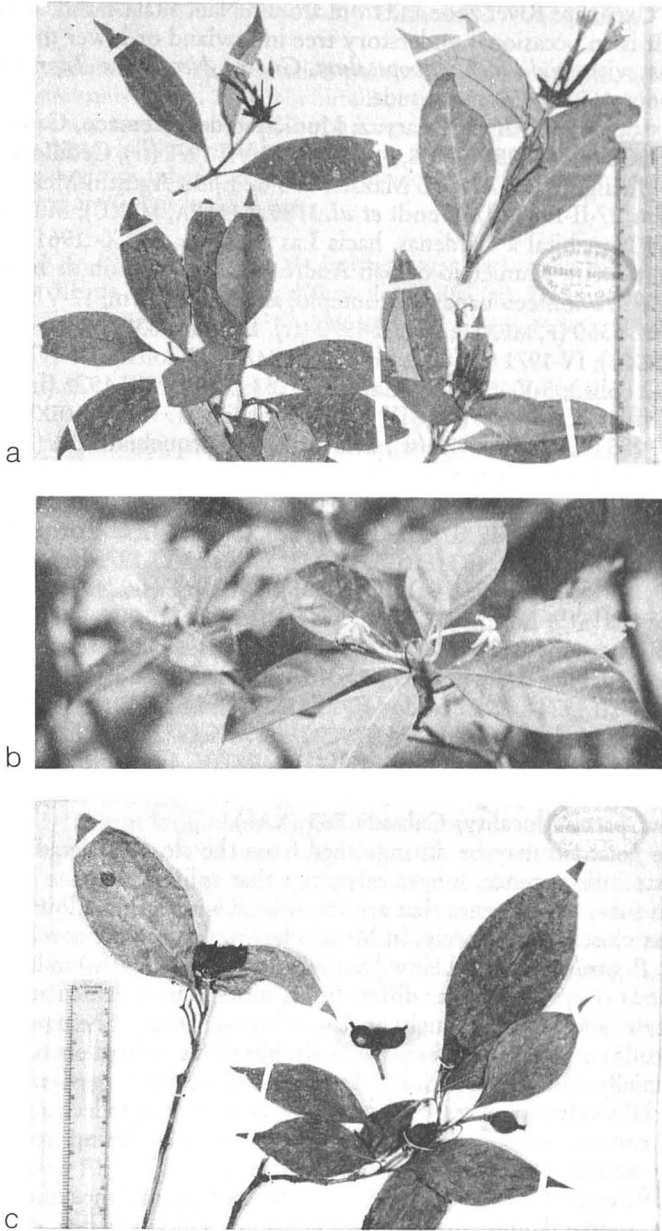


Figure 1. *Psychotria faxlucens* Lorence & Dwyer. a. Flowering branches (Ponce & Cedillo T. 2, MEXU); b. Habit, flowering branch (Ibarra M. 1464, MEXU); c. Fruiting branches (Villegas H. 34, MEXU).

tions from the Uxpanapa River zone and from around Nanchital near the Tabasco border.

Habitat: It is an occasional understory tree in lowland or lower montane tropical evergreen forest with *Dialium*, *Cymbopetalum*, *Guarea*, *Nectandra*, *Tapirira*, and *Terminalia* from about 150 to 950 m altitude.

Material studied: MEXICO. Veracruz; Municipio de Catemaco, Catemaco, 400 m, 12-VII-1972 (fr), **Cedillo T. 257** (ENCB, F, MEXU); 12-VII-1972 (fr), **Cedillo T. 285** (ENCB); Municipio de Hidalgotitlán, Arroyo Mazate, al S de Ejido Agustín Melgar, SE de Paso de Moral, 150 m, 27-II-1982 (fl), **Wendt et al. 3789** (CHAPA, MEXU); Municipio de Nanchital, km 36.4 Nanchital a Cárdenas, hacia Las Choapas, 26 -X- 1961 (st), **González L. et al. 8980** (MEXU); Municipio de San Andrés Tuxtla, estación de biología tropical "Los Tuxtlas" entre Sontecomapan y Montepío, alt. c. 150-450 m, 12-VII-1972 (fr), **Beaman & Alvarez 6360** (F, MEXU); 22-VII-1972 (fr), **Beaman 6397** (F); II-1971 (fr), **Calzada 181** (F, MEXU); IV-1971 (fl), **Calzada 236** (F, MEXU-2 colls.); VI-1971 (fr), **Calzada 391** (F, MEXU-2 colls.); 5-V-1977 (fr), **Calzada 3153** (XAL); VIII-1971 (fr), **Calzada 499** (F); 18-IV-1972 (fl), **Calzada 767** (F); 4-IV-1972 (fl), **Cedillo T. 152** (F, MEXU); 28-VIII-1972 (fr), **Cedillo T. 285** (F, MEXU); 1978 (st), **Chávez L. & Torquebiau 13A** (MEXU); III-1978 (fl), **Chávez L. & Torquebiau 37** (MEXU); 19-III-1978 (st), **Chávez L. & Torquebiau 37A** (MEXU); 19-III-1978 (st), **Chávez L. & Torquebiau 37B** (MEXU); III-1978 (st), **Chávez L. & Torquebiau 104** (MEXU); 31-III-1978 (st), **Chávez L. & Torquebiau 610** (MEXU); V-1975 (fr), **Chazaro B. 403** (ENCB, MEXU, XAL); 23-VI-1975 (fr), **Chazaro B. 437** (ENCB, MEXU, XAL); 18-III-1971 (st), **Flores 37** (MEXU); IV-1984 (fl), **Ibarra M. 1464** (MEXU); 16-IV-1981 (fl), **Lorence & Ramamoorthy 3279** (MEXU, MO); 16-IV-1981 (fl), **Lorence & Ramamoorthy 3280** (MEXU); 12-VI-1981 (fr), **Lorence 3474** (MEXU); 13-VI-1981 (fr), **Lorence 3484** (MEXU); 25-X-1968 (fr), **Rosas & Villalpando 1046** (F, MEXU, XAL); 18-III-1971 (st), **Salvador F. 37** (MEXU); IX-1978 (fr), **Torquebiau 1030** (MEXU); 2-VIII-1972 (fr), **Villegas H. 34** (ENCB, F); 29-IX-1972 (fr), **Villegas H. 50** (ENCB, F, MEXU); 4-IV-1973 (fl), **Villegas H. 76** (ENCB, MEXU); Municipio of Santiago Tuxtla, summit Cerro Vigía of Santiago Tuxtla, 950 m, 22-VII-1972 (fr), **Beaman 6397** (MEXU-3 colls.); without precise locality, **Calzada 765** (XAL).

Psychotria faxlucens may be distinguished from the closely related *P. sousae* by its simple, capitate inflorescence, longer calyx cup that splits along one side at anthesis, longer corolla tube, and pyrenes that are smooth or with a single low ridge. It differs from the other closely allied species in Mexico having long white corollas (i.e., *P. chiapensis* Standl., *P. gardenioides* (Scheidw.) Standl., and *P. megalantha*) in being totally glabrous. *Psychotria chiapensis* further differs by its more robust paniculate inflorescence, puberulent style, and larger, strongly angled or costate fruits. The paniculate inflorescence and corollas of *P. megalantha* are densely hirtellous puberulent and its leaves are hirtellous abaxially and on the petioles. The inflorescence of *P. gardenioides* is cymose-paniculate and the calyx lobes are 1.5-2 mm long. Some of the collections of *P. faxlucens* have been incorrectly identified as *Coussarea* sp., a genus differing from *Psychotria* in having a thin ovarian septum and one-seeded fruits.

The specific epithet *faxlucens* alludes to the fancied resemblance of the simple, capitate inflorescence to a flaming torch, a unique feature which sets it apart from all other Mexican *Psychotrias*.

2. *Psychotria izabalensis* L. O. Williams subsp. *oaxacana* Lorence, subsp. n. (fig. 2, a y b).

Haec subsp. *izabalensi* partibus vegetativis glabris, stipulis brevioribus, aristis 2.5-3.5 mm longis; inflorescentia ramis tantum 2°, axibus hirtellis, bracteis bracteolisque glabris margine ciliato; hypanthio florum maiore glabro, 0.6-0.8 mm longo, calyce glabro, cupula eius bene definita usque ad. 1.5 mm longa, lobis maioribus inaequalibus, 0.5-1.2 mm longis, margine ciliato-eroso; corolla maiore, extus glabra, tubo longiore 5.0-5.5 mm longo, antheris maioribus 1.7-2.0 mm longis, stylo longiore 5.5-6.0 mm longo differt.

TYPE: MEXICO. Oaxaca; Distrito de Ixtlán, Sierra de Juárez, Ruta 175 Tuxtepec a Oaxaca, 2.5 km NE de Puerto Eligio, 800 m, 1-VI-1983 (fl), **D. Lorence & R. Cedillo T. 4250** (HOLOTYPE, MEXU; ISOTYPES, BM, BR, CAS, ENCB, F, MO, NY, UC, US, XAL).

Shrubs or small trees 2.5-3 m tall, the branches weak, the twigs hollow, glabrous, 2-4 mm diam., drying blackish; stipules connate, persistent, the sheath truncate, 1.5-2 mm long, the 2 awns lateral, subulate, 2.5-3.5 mm long. Leaves glabrous, petiolate, those of a pair subequal or unequal; petioles 6-40 × 1-2 mm; lamina chartaceous, green, discolorous, elliptic, narrowly elliptic or ovate-elliptic, 75-230 × 30-85 mm, the base broadly to narrowly cuneate, often attenuate, the apex shortly acuminate, the acumen 10-25 mm, ± falcate, the 2° veins 12-22 pairs, adaxially yellowish, weakly festooned brochidodromous, the costa occasionally sparsely hirtellous or papillose-puberulent basally, the margin thin. Inflorescence terminal, cymose-paniculate, 30-95 × 15-40 mm, the peduncle 15-35 mm, branching to the 2°, the axes sparsely hirtellous, the 1° branches 4-5 pairs, the basal ones opposite, the upper ones alternate, these subtended by ovate or elliptic ciliate bracts as long as the branches, 5-10 mm long, the basal ones rarely foliaceous, the flowers in glomerules concealed by yellowish-green, ovate-naviculate bracteoles 2.5-5 mm long; flowers sessile or subsessile, the hypanthium glabrous, 0.6-0.8 mm long, the calyx glabrous, the cup to 0.5 mm long, the lobes 5, unequal, deltoid or subulate, acute to acuminate, 0.5-1.2 mm long, the margins ciliate-erose; corolla cream, externally glabrous, the tube cylindrical, 5-5.5 mm long, internally sparsely barbate with short flat hairs in the faux, the 5 lobes 1.5-1.6 mm long, reflexed at anthesis, the stamens included, the anthers 1.7-2 mm long, the filaments 0.5 mm long, affixed 1 mm below the faux, the style glabrous, 5.5-6 mm long including the 2 stigmas 0.5 mm long, the disc 0.5 mm long, slightly 4-5-lobed. Fruit globose, 4-5 mm long, the 2 pyrenes dorsally costate, ripening blue-black.

Distribution: It is known only from Oaxaca and Chiapas, Mexico.

Habitat: It occurs in lowland or lower montane tropical evergreen forest from about 560 to 1100 m altitude. Characteristic component species include *Dussia*, *Swartzia* and *Terminalia* in Oaxaca, and *Pinus*, *Quercus* and *Liquidambar* in Chiapas. In Oaxaca it grows in sheltered, humid arroyos on the lower NE slopes of the Sierra de Juárez around Metates and Puerto Eligio in the transition zone between lowland rain forest and montane cloud forest.

Material studied: MEXICO. Chiapas; Municipio of Cintalapa, between Colonia Francisco I. Madero and Col. A. López Mateos, 560 m, 29-III-1981 (fr), **Breedlove 50600** (MEXU). Oaxaca; Distrito de Ixtlán, Sierra de Juárez, Ruta 175 Tuxtepec a Oaxaca, entre Puerto Eligio y Comaltepec, 800 m, 6-X-1965 (fr), **Martínez C. 380** (ENCB, MEXU).

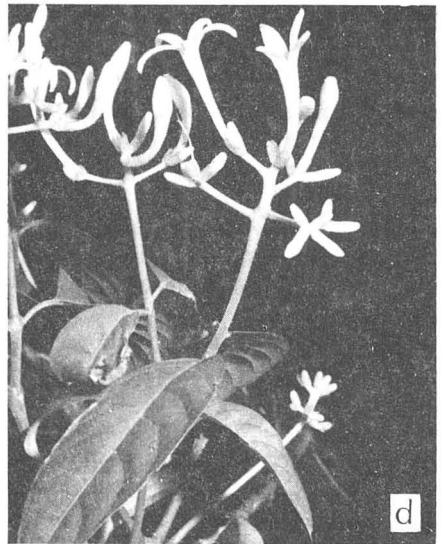
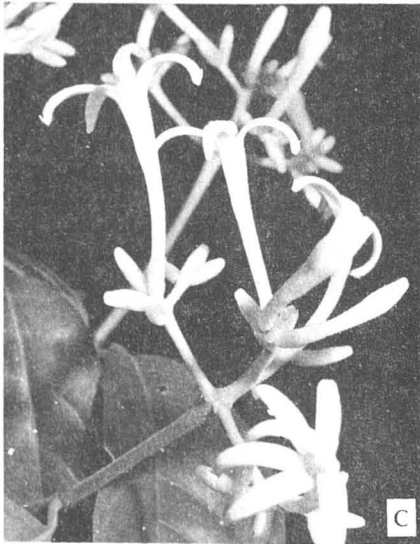


Figure 2. a, b. *Psychotria izabalensis* L. O. Williams subsp. *oaxacana* Lorence, flowering braches (both Lorence & Cedillo T. 4250, MEXU); c, d. *Psychotria megalantha* Lorence, inflorescence and flowering branches (Lorence & Cedillo T. 4190, MEXU).

US); 3 km N de Metates, 23-VII-1982 (fr), **Cedillo T. & Torres C.** 1666 (MEXU); 5 km S de Metates, 800 m, 25-IV-1982 (fl), **D. & G. Lorence** 4143 (MEXU); cerca Metates, 21 km S de Valle Nacional, 1100 m, 28-V-1973 (fl), **Rzedowski** 30675 (ENCB).

Psychotria izabalensis has been misidentified in the herbarium as *P. brachiata*, with which it grows sympatrically in the Sierra de Juárez. The latter differs most conspicuously in having bilobate, non-truncate stipules with a longer sheath and broad, obtuse lobes, an inflorescence with strictly opposite lateral branches, a larger, puberulent calyx cup 0.6-0.8 mm long with only minute or obsolete teeth, and a corolla that is externally puberulent in the distal half.

3. *Psychotria luteotuba* Lorence, sp. n. (fig. 3, a y b).

Frutices vel arbusculae subglabrae; stipulis persistentibus, minutis, vagina truncata, 0.4-0.8 mm longa, aristi 2-4 caduci subulati 0.3-0.6 mm longi ferens. Folia petiolata; lamina elliptica acuminata, 40-90 × 25-42 mm, supra nitida, venis secundariis 5-8 paribus. Inflorescentia terminalis, cymoso-paniculata, 25-60 × 15-35 mm, 15-22-flora, pedunculo 15-35 mm longo, ramis primariis 3-4; floribus extus glabris usque minute hirtellis, sessilibus vel breviter pedicellatis, hypanthio 0.4-0.6 mm longo, cupula calycis 0.2-0.3 mm longa, lobis deltoideis, 0.2-0.5 mm longis; corollae tubo luteo, 8-13 mm longo × 2.0-2.5 mm lato apicem versus, fauce intus sub filamentis sparsim barbata, lobis 4-5 albis, 3-4 × 1.5 mm, filamentis 0.5-1.0 mm longis, antheris 2.5 mm longis plus minusve exsertis, stylis 6.5-11 mm longis. Fructus subgloboso-ellipsoideus didymus 3.5-5.0 × 5.0-6.5 mm compressi; nuculis dorsaliter 3-costatis, saepe cellulam unam abortivam efferentibus.

TYPE: MEXICO. Veracruz; Municipio de Hidalgotitlán, zona de Uxpanapa, Río Solusuchil a 5-6 km ESE de Hermanos Cedillo, alt. 100-200 m, 24-III-1982 (fl), **D. Lorence, T. Wendt, R. Riviere, M. Vázquez T., A.S. Ton, & I. Navarrete** 3910 (HOLOTYPE, MEXU; ISOTYPES, BM, BR, CHAPA, ENCB, F, MO, UC, XAL).

Shrubs or small trees 1-4 m tall, the stem to 8 cm diam., the twigs usually forked, 1-2(-3) mm diam., glabrous or minutely hirtellous, wrinkled, greenish or stramineous, the nodes 15-45 mm distant; stipules persistent, greenish, glabrous, the truncate sheath 0.4-0.8 mm long, bearing 2-4 fragile ± caducous awns 0.3-0.6 mm long. Leaves petiolate, those of a pair subequal; petioles glabrous or minutely hirtellous, (1.5-)3-10 × 0.8-1.0 mm, often narrowly winged distally; lamina chartaceous, glabrous, drying green, discolored, the surfaces usually lustrous especially adaxially, with numerous raphides often visible, elliptic to ovate-elliptic, 40-100 (-125) × (18-) 25-47 mm, the base acute to cuneate, rarely obtuse, often attenuate, the apex acuminate, the acumens to 20 mm long, often falcate, the costa glabrous or rarely hirtellous abaxially, the 2° veins 5-8 (-10) pairs, arcuate, weakly festooned brochidodromous, prominent on both surfaces, pale, the 3° veins prominent, oblique, the margin thin, slightly revolute. Inflorescence terminal, a cymose panicle 25-60 × 15-35 mm, the slender peduncle 15-35 mm long, the flowers 15-22, the 1° branches few, 3-4, often minutely bracteolate, the axes glabrous or rarely minutely hirtellous; flowers glabrous or minutely hirtellous externally, sessile or on pedicels to 1.5 mm long, usually subtended by 1-several minute deltoid-subulate bracteoles, the hypanthium obconical-cylindrical, 0.4-0.6 mm long, the calyx cup 0.2-0.3 mm long, the lobes subequal, deltoid, 0.2-0.5 mm long; corolla externally glabrous or minu-

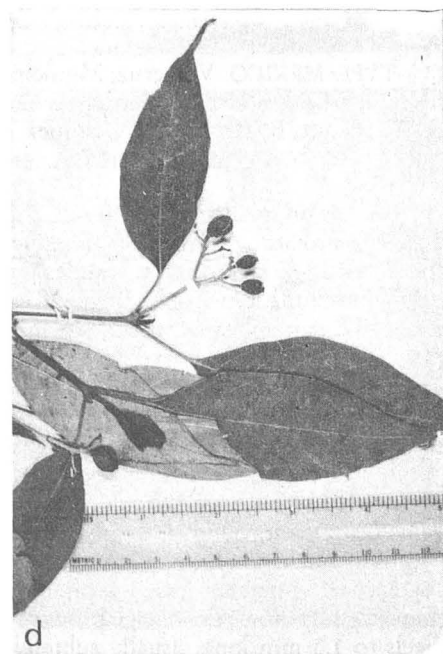
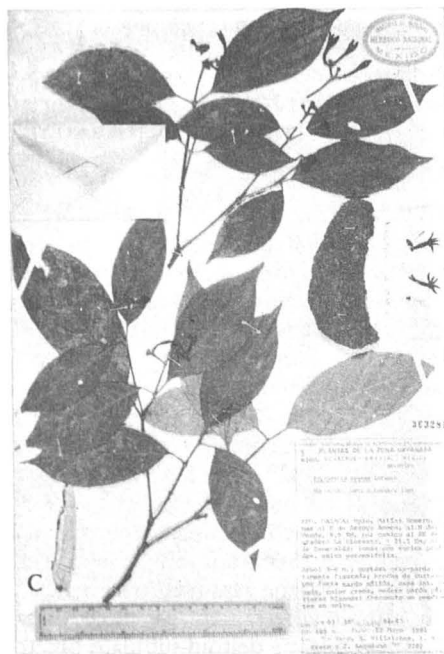
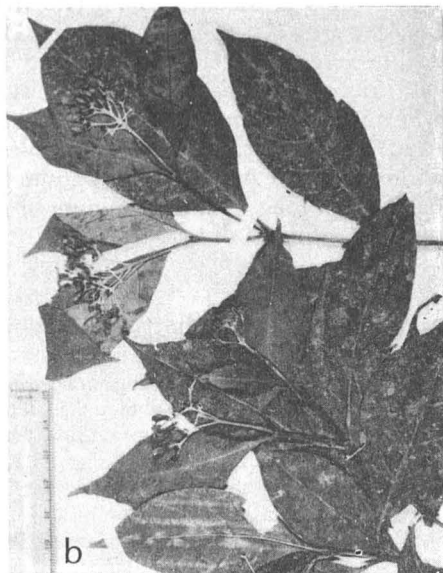


Figure 3. a, b. *Psychotria luteotuba* Lorence, flowering branches (Lorence et al. 3910, MEXU); c, d. *Psychotria sousae* Lorence. c. Flowering branches (Wendt et al. 3282, MEXU); d. Fruiting branch (Sousa 4190, MEXU).

tely hirtellous, the tube yellow, 8-13 mm long, 2-2.5 mm wide distally, the faux sparsely barbate within below the filaments, the lobes 4-5, ovate-ligulate, acute to obtuse, 3-4 × 1.5-2 mm, externally ± papillose, recurved at anthesis, the stamens 4-5, the filaments 0.5-1 (-3) mm long, the anthers linear-ellipsoid, 2-3 mm long, included or exerted, the style 6.5-11 mm long, glabrous, included or exerted (distylous), the 2 stigmas swollen, papillose, 0.5-1 mm long. Fruits ovoid, ellipsoid or subglobose, often didymous, 5-7 × 5-6.5 mm, compressed, the 2 pyrenes dorsally 3-ridged, or one cell often aborted, ripening dark blue-black.

Distribution: Mexico, known from Oaxaca, Veracruz, Chiapas and Tabasco.

Habitat: The species occurs in lowland tropical evergreen forest with *Calophyllum*, *Dialium*, *Elaeagia*, *Pouteria sapota* *Symphonia*, etc., and montane rain or cloud forest with *Quercus*, *Liquidambar*, *Magnolia*, Lauraceae, *Calatola*, *Podocarpus* and *Ardisia*, at altitudes ranging from about 20 to 1700 m.

Material studied: MEXICO. Chiapas; Municipio of La Independencia, 12 km from Laguna Tzisco, road to Ixcán, 1250 m, 19-X-1974 (fr), **Breedlove 38983** (MEXU); Municipio of Rayón, Selva Negra, 10 km above Rayón Mexcalapa, road to Jitotol, 1700 m, 8-V-1973 (fl), **Breedlove 34907** (MEXU); Municipio de Pueblo Nuevo Solistahuacan, Mirador El Caminero, 5 km NO de Rincón Chamula (fl), **Rzedowski 33209** (ENCB). Oaxaca; Distrito de Ixtlán, Sierra de Juárez, Ruta 175 Tuxtpec a Oaxaca, entre Puerto Eligio y Comaltepec, 7-X-1965 (fr), **Martínez C. 377** (ENCB, MEXU-3 colls., US); 5.3 km N de Vista Hermosa, 27-IX-1982 (fr), **Torres C. & Cedillo T. 1456** (MEXU); 5 km N de Vista Hermosa, 1260 m, 14-IV-1982 (fl), **Torres C. & Lorence 291** (MEXU); III-1982, **Cedillo T. 1115** (MEXU); **Rzedowski 32971** (ENCB); Municipio de Matías Romero, entre Río Verde y Arroyo Hamaca, 10 km SE del aserradero La Floresta, 300 m, 27-IX-1982 (fr) **Wendt et al. 4002** (MEXU); 4.1 km ENE de Col. Cuauhtémoc, camino a La Laguna, 0.8 km de Arroyo el Platanillo, 140 m, 20-III-1981 (fl), **Wendt et al. 3012** (MEXU); Municipio de Santa María Chimalapa, Distrito de Juchitán, 12 km SE de Santa María Chimalapa, 320 m, 12-III-1982 (fl), **Torres C. & Cedillo T. 104** (MEXU). Tabasco; Municipio de Huimanguillo, km 10, Ejido T. Nueva, 20 m, 4-IV-1972 (fl), **Puig 777** (MEXU). Veracruz; Municipio de Coatzacoalcos, Coatzacoalcos, 24-XI-1961 (fr), **González et al. 9245** (MEXU); Municipio of Soteapan, Cumbres de Bastonal, 14 km SE of Lago de Catemaco, 1320 m, 10-VI-1972 (fr), **Beaman 6140** (MEXU, XAL); between Bastonal and Arroyo Claro, 14 km E of Lago de Catemaco, 900 m, 10-VI-1972 (fr), **Beaman 6124** (MEXU); 13 km E of Tebanca, 5-IV-1980 (fl), **Nee & Hanson 18799** (XAL); Cumbres de Bastonal, 1100-1200 m, 26-IV-1982 (fl), **Lorence, Cedillo T. & Ibarra M. 4143** (MEXU); Volcán Santa Marta, 20-XII-1978 (fr), **Ortega et al. 1117** (XAL).

Psychotria luteotuba belongs to a group of relatively large-flowered species in *Heteropsychotria* including *P. skutchii* Standl. and *P. minarum* Standl. and Steyerl. It is, however, most closely allied to *P. galeottiana* (M. Mart.) Taylor & Lorence, which differs by its larger stipules with longer, persistent awns, its non-lustrous leaves, bracteolate inflorescence, and a white or purplish-pink corolla. The species keys out to *P. cuspidata* or *P. minarum* in the Flora of Guatemala Rubiaceae treatment (Standley & Williams, 1975). The Breedlove collections were distributed as *P. cuspidata* (*sensu* Flora of Guatemala), which differs in having smaller corollas and smooth, non-costate fruits.

4. *Psychotria megalantha* Lorence, sp. n. (figs. 2, c y d).

Haec species *P. chiapensi* Standley affinis, sed pubescentia subtiliter hirtello-velutina luteola; stipulis extus hirtellis intus sericeis, dentibus vel aristas 2, latis; inflorescentia brevior 3-5-radiata, tantum 50-90 × 25-70 mm, floribus tantum 8-18 (-24), hypanthio calyceque hirtello vel raro glabro, corolla extus papilloso-puberulenta; fructibus obovoideis, costis dorsalibus humilibus differt.

TYPE: MEXICO. Oaxaca; Distrito de Ixtlán, Sierra de Juárez; Ruta 175 Tuxtepec a Oaxaca, 5 km NE de Vista Hermosa, alt. 1 300 m, 28-V-1983 (fl), *D. Lorence & R. Cedi-llo T. 4190* (HOLOTYPE, MEXU; ISOTYPES, BM, BR, CAS, ENCB, F, K, MEXU, MO, NY, UC, US, W, WIS, TEX, XAL).

Trees 5-12 m tall, the trunk 10-20 cm diam., rarely a shrub 2.5 m tall, the new growth finely yellowish to brownish hirtellous-velutinous, the twigs 1.5-2.5 mm diam., hirtellous to glabrate, greenish to yellowish-brown, the prominent nodes spaced 10-40 (-120) mm, the internodes often constricted below the nodes; stipules persistent, hirtellous to subglabrous, ovate-deltoid, connate basally into a sheath 1-2 mm long, the free part acute to acuminate, 2-3 mm long, usually bidentate or with 2 short broad awns, the margin thin, ± ciliolate, internally sericeous with hairs 1-1.5 mm long. Leaves of a pair subequal, petiolate; petioles 10-22 (-33) × 1-1.2 mm, at first densely hirtellous, glabrescent; lamina chartaceous, drying greenish, discolorous, adaxially glabrous, abaxially hirtellous along the veins and costa, ovate, ovate-lanceolate, ovate-elliptic or rarely obovate-elliptic, 80-150 × 25-55 (-75) mm, the base narrowly cuneate, cuneate, rarely obtuse or rounded, the apex acuminate, usually ± falcate, the acumen 10-20 mm long, the costa and 2° veins abaxially prominent, yellowish, the 2° veins 6-10 pairs, weakly brochidodromous, the prominent intersecondaries perpendicular to the costa, the veins visible to 4° on both surfaces, the margin thin, slightly revolute. Inflorescence terminal, a cymose panicle 50-90 × 25-70 mm, the flowers 8-18 (-24), the peduncle 20-25 (-45) mm long, the axes pale yellowish hirtellous-velutinous, the 1° branches 3 (-5), 10-25 mm long, ± ascendent, subtended by persistent subulate hirtellous-ciliolate bracts 2.5 × 1-1.5 mm, each branch usually forking once, the ultimate branches bracteolate, bearing cymules of 3-6 flowers; flowers sessile, usually bracteolate, the hypanthium 0.8-1 mm long, hirtellous or rarely glabrous, the calyx cup cylindrical, 3-4 mm long, externally hirtellous or glabrous, internally glabrous, the margin with 4-7 unequal deltoid teeth 0.1-0.6 mm long, often splitting down one side at anthesis; corolla white, salverform, the tube (18-) 25-30 mm long × 3-4 mm wide distally, externally papillose-puberulent, internally glabrous, the lobes, 4-5, recurved at anthesis, linear-ligulate, acute, 9-12 × 1-2 mm, papillose-puberulent only externally, the stamens 4-5, the slender filaments 0.5-2 mm long, attached 2-4.5 mm below the faux, the anthers linear, sagittate, 3-4 mm long, half exerted or included; distylous, the style glabrous, included and 13-18 mm long, or exerted and 25-30 mm long including the 2 ellipsoid stigmas 1.5-2.5 mm long, the disc unlobed, 0.5-0.7 mm long. Fruit obovoid, 9-11 × 7-9 mm, crowned by the persistent calyx, ripening blackish, the 2 pyrenes 9 × 7 mm, each with 3 (-4) low dorsal ridges, or one locule sometimes aborted.

Distribution: Mexico, known only from the northeastern slopes of the Sierra de Juárez in Oaxaca, and from near Huatusco in the Sierra Madre Oriental of Veracruz.

Habitat: In Oaxaca the species occurs in the cloud forest zone at c. 800 to 1 800 m with *Engelhardtia mexicana*, *Hedyosmun mexicanum*, *Brunellia*, and Lauraceae. In Veracruz it likewise occurs in cloud forest at 1 400-1 500 m with *Quercus* and deciduous elements such as *Liquidambar*.

Material studied: MEXICO. Oaxaca; Distrito de Ixtlán, Sierra de Juárez, Ruta 175 Tuxtepec a Oaxaca, 5 km N de Vista Hermosa, 1 260 m, 29-V-1983 (fl), **Cedillo T. & Lorence 2348** (MEXU); 7 km SE de Vista Hermosa, 3-VI-1983 (fl), **Cedillo T. & Lorence 2421** (MEXU); 5 km N de Vista Hermosa, 1 260 m, 14-IV-1982 (fl), **Lorence & Torres C. 4012** (MEXU); 1 km S de La Esperanza, 1 600 m, 4-VI-1983 (fl), **Lorence & Cedillo T. 4276** (MEXU); Puerto Eligio, 9-VI-1966 (fl), **Martínez C. 871** (CHAPA, ENCB, MO); 5 km N de Vista Hermosa, 1 000 m, 16-IX-1965 (fr), **Martínez C. 291** (ENCB, MEXU); 5 km N de Vista Hermosa, IX-1982 (fr), **Torres C. & Cedillo T. 1458** (MEXU); 29 km S de Valle Nacional, 1 800 m, 27-XII-1975 (fr), **Rzedowski 33841** (ENCB, MEXU); Distrito de Tuxtepec, Chiltepec (st), **Martínez C. 1670** (MEXU). Veracruz; Municipio de Huatusco, cerro cerca de Río Seco, Huatusco-Coscomatepec carretera, 19°08' N Lat., 96°59' W Long., 1 450 m, 7-XI-1979 (fr), **Avendaño R. 557** (MEXU, XAL); Río Seco, 1 km SE de Huatusco-Coscomatepec carretera, 1 400 m, 30-VIII-1979 (fr), **Avendaño R. & Castillo C. 503** (MEXU, XAL).

Psychotria megalantha belongs to a group of primarily Mexican species characterized by their long, white salverform corollas and long, tubular calyx cups. The scant herbarium material of this species has been mostly confused with *P. chiapensis*, which differs by its more robust and much more highly branched inflorescence with numerous ovate floral bracts, its externally glabrous corolla, and its strongly angled fruits. Also belonging to this group are *P. faxlucens*, *P. domingensis* Jacq., and *P. sousae*, all distinguishable by being wholly glabrous. The only closely related Central American species (except *P. chiapensis*) is *P. umbelliformis* Dwyer & Hayden from Panama, which differs by its stipules with two lateral awns 2.5-3 mm long equalling or exceeding the sheath, and its strongly brochidodromous venation. Finally, *P. megalantha* resembles certain species of *Coussarea*, particularly *C. mediocris* Standl. & Steyerl. from Guatemala, a genus differing in having single-seeded fruits and a thin ovarian septum. In *P. megalantha* the septum is thick and the fruits are usually two-seeded.

5. *Psychotria sousae* Lorence & Dwyer, sp. n. (figs. 3, c y d).

Haec species *P. faxlucens* Lorence & Dwyer affinis, sed inflorescentia parce cymoso-paniculata ramulis 3, floribus 7-18, hypanthio breviori 1 mm longo, cupula calycis breviori 1.5-2.0 mm longa non fissi, tubo corollae breviori 13-15 mm longo; fructu longiore leviter costato vix umbonato differt.

TYPE: MEXICO. Oaxaca, Municipio de Matías Romero, zona de Uxpanapa, lomas al E de Arroyo Hamaca, 9.5 km al SE de La Floresta, a \pm 21.5 km S de Esmeralda, 400 m, 17°13' N Lat., 94°43' W Long., 22-V-1981 (fl), **T. Wendt, A. Villalobos, I. Navarrete & J. Anguiano 3282** (HOLOTYPE, MEXU; ISOTYPE, CHAPA).

Glabrous shrubs or small trees 3-6 m tall, the twigs greenish, slightly compressed, 1.5-2 mm diam., the nodes spaced 10-60 mm; stipules persistent, green, thin, connate

into a sheath 0.8-1.2 mm long, wider than long, the margin obtuse or truncate, usually bearing 2 minute obtuse teeth 0.2-0.5 mm long, internally villous, the hairs to 0.5 mm long. Leaves of a pair subequal, petiolate; petioles 6-22 × 0.8-1.0 mm; lamina chartaceous, drying green and ± lustrous adaxially, the raphides visible, discolorous, paler abaxially, elliptic, narrowly elliptic or lanceolate, 65-130 × 24-48 mm, the base narrowly cuneate to cuneate, the sides slightly unequal, the apex acuminate, the acumen 8-15 mm long, often ± falcate, the 2° veins 4-6 (-8) pairs, abaxially yellowish, festooned brochidodromous, the 3° veins oblique, the venation visible to 4° abaxially, the margin slightly revolute. Inflorescence terminal, glabrous, a cymose panicle 45-50 × 15-40 mm, the peduncle 16-25 mm, the flowers 7-18, the 1° branches (2-) 3, ascending, usually minutely bracteolate, each with 1-2 cymules of 1-6 flowers; flowers sessile, rarely subsessile, the glabrous hypanthium 1 mm long, the calyx cup glabrous, 1.5-2 mm long, the margin truncate-undulate, usually bearing several minute teeth 0.1-0.2 mm long, internally glabrous; corolla salverform, white, glabrous externally and internally, the tube straight or curved, 13-15 mm long, 2.5-4 mm wide distally, the lobes 5, lanceolate, 4.5-5.5 × 1-1.2 mm, reflexed at anthesis, the anthers linear, 4-4.5 mm long, acuminate, half exserted, the filaments 1 mm long, affixed 1-1.5 mm below the faux, the style slender, 13-18 mm long including the 2 linear stigmas 1.5-5 mm long, included or exserted. Fruit glabrous, ellipsoid, 9-10 × 6-8 mm, crowned by the calyx, ripening blackish, the pyrenes dorsally ribbed.

Distribution: México, known only from Oaxaca and Veracruz.

Habitat: The species occurs in low elevation tropical evergreen wet forest (400 m) at the type locality in the Isthmus of Tehuantepec near the Oaxaca-Veracruz border, and was also collected in Oaxaca on an extension of the Sierra Madre de Chiapas near Zanatepec at 1560 m. In southeastern Veracruz it is known only from the volcanic Sierra de Santa Marta, in the Los Tuxtlas region where it occurs in wet montane cloud and elfin forest, generally with some temperate deciduous elements such as *Liquidambar* and *Quercus*, at altitudes of 1220 to 1380 m.

Material studied: MEXICO. Oaxaca; Distrito of Juchitán, Municipio of Santo Domingo Zanatepec, Sierra Madre, Zanatepec, 1 560 m, 5-XI-1963 (fr), **MacDougall s.n.** (MEXU). Veracruz; Municipio of Sotapan, Sierra de Santa Marta, near Ejido Santa Marta, 1 220 m, 28-V-1972 (fl), **Beaman 5995** (MEXU); Santa Marta, ladera O de cima, 1350 m, 16-III-1968 (fr), **Sousa 3614** (MEXU-2 colls.); faldas del Cerro Platanillo, Sierra de Santa Marta, 18°26' N Lat., 94°57' W Long., 1 380 20-XII-1978 (fr), **Calzada 5090** (XAL).

Psychotria sousae is closely related to *P. faxlucens*, which differs in having a capitate inflorescence, a much longer calyx cup that splits along one side, a longer corolla tube, and pyrenes that are smooth or have a single low ridge. Also closely allied are *P. dominicensis*, which has longer acute stipule lobes, somewhat larger and thinner leaves, a shorter calyx cup 1 mm long with strongly dentate acute lobes to 0.5 mm long, and smaller fruits, and *P. gardenioides*, which differs by its stipules with a shorter sheath and longer lobes 0.5-1 mm long, its much denser inflorescence with longer subulate bracteoles 3-6 mm long, and its flowers with longer, acute or acuminate calyx lobes to 1 mm long, and somewhat longer corolla tube 18-22 mm long. Two other related species with long white flowers are *P. chiapensis*, with a much larger bracteolate inflorescence, longer flowers, and strongly angled fruits, and *P. megalantha*, which has hirtellous vegetative parts and inflorescence, and a papillose-puberulent corolla.

We take pleasure in naming this species after its first collector, Mario Sousa S., curator of the Herbario Nacional in recognition of his dedication to the advancement of plant taxonomy and floristics in Mexico.

6. *Psychotria veracruzensis* Lorence & Dwyer, sp. n. (fig. 4).

Frutices vel arbusculae subglabrae usque 2 (-3) m altae; stipulae persistentes, corpore brevi, aristis 2 fragilibus subulatis plerumque profunde bifidis 3-5 mm longis. Folia subsessilia, elliptica usque ovata, acuminata, 40-135 × 14-50 mm, base orbiculata usque late cuneata, saepe in sicco subrubra. Inflorescentia 10-22 × 15-35 mm terminalis, cymoso-paniculata compacta, sessilis vel pedunculo ad 20 mm; floribus sessilibus vel subsessilibus, hypanthio 0.6-0.7 mm longo, cupula calycina 0.2-0.3 mm longa, lobis 4 late deltoideis, 0.2-0.3 mm longis; corolla infundibuliformi, tubo 2-3 mm longo, extus minute puberulenti, intus barbato vel piloso, lobis 4, 1.5-2.5 mm longis galeatis, antheris 4, 2 mm longis, apicibus exsertis, filamentis 1.5-2.5 mm longis, stylo 4-5 mm longo, lobis stigmaticis 2, 0.6-0.8 mm longis. Fructus globosus in sicco ater, 4-6 mm diametro.

TYPE: MEXICO. Veracruz; Municipio de San Andrés Tuxtla, estación de biología tropical "Los Tuxtlas", entre Sontecomapan y Montepío; vereda al Cerro Vigía, 150-250 m alt., 18-IV-1981 (fl), **D. Lorence & T. P. Ramamoorthy 3313** (HOLOTYPE, MEXU; ISOTYPES, BM, F, MEXU, UC, XAL).

Shrubs or treelets 0.5-2 (-3) m tall, much branching, the twigs slender, ± compressed, 1-2 mm diam., drying greenish-yellow or reddish, often bifurcate, the new growth glabrous or minutely strigillose, the nodes well spaced; stipules persistent, the body scarcely measurable, free, the awns 2, subulate, entire or often divided to the base, (2-) 3-5 mm long, fragile. Leaves of a pair subequal, subsessile, glabrous; petiole 1-4 mm long; lamina chartaceous, usually discolorous, often drying reddish, elliptic, ovate-elliptic or ovate, 40-135 × 14-50 mm, the base rounded, obtuse or broadly deltoid, the apex deltoid, shortly acuminate, the acumen 10-20 mm long, the 2° veins 8-11 pairs, prominent on both surfaces, arcuate, brochidodromous, the intersecondaries (1-) 2-6, perpendicular to the costa, the 3° veins few, the venation raised and visible on both surfaces, the margin slightly revolute. Inflorescence white when fresh, often drying reddish, terminal, compact, cymose-paniculate, 10-22 × (5-) 15-35 mm, sessile or the peduncle to 20 mm long, the axes glabrous or sparsely hirtellous, the 1° branches (2-) 3, these 2-8 mm long, few-flowered, subtended by caducous linear-subulate bracts 2-3 mm long, the axes and flowers minutely bracteolate; flowers (15-) 30-60, sessile or subsessile, the hypanthium obconical-cylindrical, 0.6-0.7 mm long, the calyx cup scarious, obconical, 0.2-0.3 mm long, quadrangular, the lobes 4, broadly deltoid, 0.2-0.3 mm long, the margin sparsely ciliolate; corolla white, narrowly infundibuliform, the tube 2-3 mm long, externally minutely puberulent, internally pilose or barbate, the lobes 4, ovate-deltoid, 1.5-2.5 mm long, galeate, the stamens 4, exserted, the anthers linear, 0.8-1.5 mm long, the filaments slender, 1.5-2.5 mm long, attached 1.5-2.5 mm below the faux, the style glabrous, 4-5 mm long including the 2 stigmas 0.6-0.8 mm long, the disc 0.3-0.4 mm long. Fruit subglobose, 4-6 mm diam., slightly 6-costate, ripening blackish, blackish when dry.

Distribution: Mexico, known from Oaxaca, Veracruz, Chiapas and Tabasco, in and around the Isthmus of Tehuantepec.

Habitat: The species occurs in lowland tropical evergreen wet forest with *Dialium*,

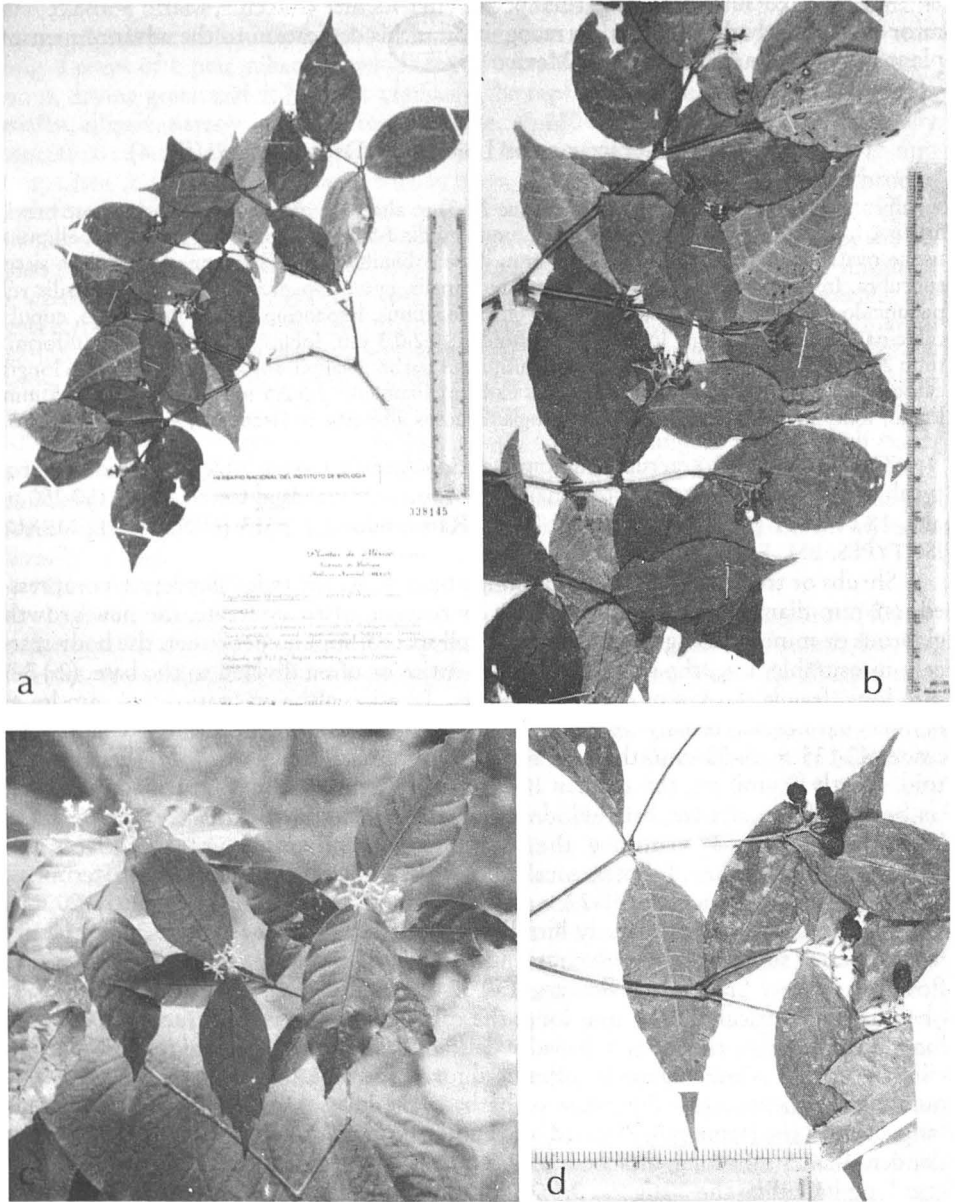


Figure 4. *Psychotria Veracruzensis* Lorence & Dwyer. a, b. Flowering branches (Lorence & Ramamoorthy 3313, MEXU); c. Habit, flowering branch (Ibarra M. 1463, MEXU); d. Fruiting branch (Wendt *et al.* 2607, MEXU).

Bursera, *Guarea*, *Cymbopetalum*, *Brosimum*, *Nectandra*, *Cedrela*, *Pouteria sapota*, and *Vochysia*, and lower montane wet and cloud forest with *Liquidambar*, *Quercus*, and Lauraceae up to about 1300 m altitude.

Material studied: MEXICO. Chiapas; near Fenia, April 1926 (fl), **Purpus 198** (US); **Purpus 322** (F, US). Oaxaca; Tolosita, 70 m, VI-1937 (fl), **Williams 9577** (F); **Williams 9585** (F, US). Tabasco; Balancan, 9-14-V-1939 (fl, fr), **Matuda 3037** (MEXU); Huimanguillo, 4-IV-1972 (fr), **Puig 754** (MEXU); Huimanguillo to Fco. Rueda, 10-X-1980 (fr), **Cowan & Magaña 3266** (ENCB, MEXU); 1 km N de Lavandera de Huimanguillo, Chontalpa, 12-XI-1971 (fl, fr), **Puig 318** (MEXU). Veracruz; Municipio de Catemaco, Chochovi, 500 m, 16-VIII-1972 (fr), **Ventura A. 5872** (ENCB, XAL); E of Coyame, Lago de Catemaco, 550 m, 29-X-1971 (fr), **Beaman 5212** (ENCB, F, MEXU, MO); 2 km E de La Palma, 14-V-1973 (fl), **Villegas H. 130** (C, ENCB, F, MEXU); Municipio de Hidalgotitlán, Zona de Uxpanapa, La Laguna, 24-V-1974 (fr), **Gómez-Pompa & Nevling 5202** (F, XAL); SE de Agustín Melgar, 152 m, 29-IV-1974 (fl), **Brigada Vázquez 501** (MEXU, XAL); Hermanos Cedillo a Escuadra, 150 m, 14-I-1975 (fl, fr) **Vázquez et al. 1668** (XAL); Cedillo a Río Alegre **Dorantes et al. 3918** (XAL); Campamento Hermanos Cedillo a Río Alegre, 140 m, 22-IV-1974 (fl), **Brigada Dorantes 2953** (F, MEXU, XAL); La Laguna, 22-I-1975 (fr) **Dorantes et al. 4093** (XAL); N de La Laguna, 23-IV-1981 (fl), **Wendt et al. 3232** (MEXU, XAL); 5-6 km ESE de Hermanos Cedillo, Río Solosuchil, 100 m, 24-III-1982 (fl), **Lorence et al. 3916** (CHAPA, MEXU); Plan de Arroyos a Álvaro Obregón, 130-150 m, 13-IV-1974 (fl), **Brigada Dorantes 2777** (F, MEXU, XAL); Plan de Arroyos a Río Alegre, 19-IV-1974 (fl), **Brigada Dorantes 2919** (MEXU); Poblado 6 a Río Cuevas, 17-VII-1980 (fr), **Wendt et al. 2607** (CHAPA, MEXU); 3-4 km S de Tanochapa, 9-VII-1970 (fl), **Gómez-Pompa & Nevling 1432** (MEXU); Municipio de Las Choapas, Las Choapas, Coatzacoalcos a Cárdenas, carretera, 50 m, 14-VI-1973 (fl), **Orozco S. 102** (MEXU); 16-VI-1973 (fl), **Orozco S. 158** (MEXU); Río Tonalá, 50 m, 15-VI-1973 (fl), **Orozco S. 146** (MEXU); Municipio de San Andrés Tuxtla, estación de biología tropical "Los Tuxtlas", entre Sontecomapan y Montepío, alt. 150-170 m, VIII-1970 (fl, fr), **Calzada 450** (F, INIF, MEXU); **Calzada 3155** (XAL); 25-X-1968 (fl, fr), **Rosas R. & Villalpando 1401** (C, F); **Ibarra M. 253** (MEXU); IV-1984 (fl), **Ibarra M. 1463** (MEXU); 16-II-1983 (fl, fr), **Ibarra M. 446** (MEXU); 16-IV-1981 (fl), **Lorence & Ramamoorthy 3282** (MEXU); 12-VI-1981 (fr), **Lorence 3480** (MEXU); Municipio de Santiago Tuxtla, summit of Cerro Blanco, NW of Santiago Tuxtla, 800 m, 6-VI-1972 (fl, fr), **Beaman 6068** (F, MEXU); Municipio of Soteapan, between Bastonal and Arroyo Claro, 900 m, 10-VI-1972 (fl, fr), **Beaman 6117** (ENCB, F, MEXU, MO); Cumbres de Bastonal, 14 km SE of Lago de Catemaco, 1 320 m, 10-VI-1972 (fr), **Beaman & Nevling 6152** (F, MEXU); **Beaman 5302** (MO); camino a Bastonal 8 km E de Tebanca, 23-III-1973 (fl), **Cedillo T. & Calzada 150** (XAL); 13 km E of Tebanca, 800-950 m, 5-VII-1980 (fr), **Nee & Hansen 18801** (F, MEXU, XAL); Bastonal a Santa Marta, 950 m, 26-XI-1978 (fl, fr), **Gómez-Pompa et al. 5474** (F, XAL); Sierra de Santa Marta, Cerro El Platanillo, 1 380 m, 20-XII-1978 (fr), **Calzada 5076** (XAL); Laguna de Sontecomapan, 1-XI-1981 (fr), **Nee 22567** (MEXU); Barra de Sontecomapan, 19-VII-1967 (fr), **Nevling & Gómez-Pompa 151** (F, MEXU); Municipio de Pajapan, Cerro San Martín, II-1971 (fl), **Calzada 102** (F, MEXU); SE slopes of Cerro San Martín, Pajapan, 700 m, 3-XI-1981 (fr), **Nee & Calzada 22771** (MEXU).

Psychotria veracruzensis is easily recognized by its subsessile leaves, which often dry at least partly reddish, its slender, usually deeply bifid stipule awns, and its small, sessile

or shortly pedunculate, relatively few-flowered inflorescence. It keys out to *P. cuspidata* or *P. pubescens* in the Flora of Guatemala Rubiaceae treatment (Standley & Williams, 1975), and many of the herbarium collections have been distributed under these names, or as *P. altorum* Standl. & Steyererm. or *P. involucrata* Sw.

A single fruiting collection of what may represent this species is known from Honduras (Dept. Atlántida, near La Ceiba, 300 m, Yuncker, Koepper & Wagner 8580, MO). The Honduras collection, however, is said to be a tree of 5 m, whereas in Mexico the species is a shrub or treelet reaching only 2 (-3) m. Although the Honduras collection seems to correspond with *Psychotria veracruzensis* in vegetative and fruiting characters, flowering material may reveal it to be distinct.

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