

STUDIES IN MANETTIA (RUBIACEAE)
SECTION PYRRHANTHOS SCHUM.

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The first of this series of papers, section Heterochlora, appeared in Phytologia vol. 15 (no. 4): 272-288, 1967.

Six species are recognized in section Pyrranthos in this paper. The morphological characteristics of the section are as follows. The corolla is red, clavate-tubular or infundibular, gradually widened from the base upwards, 2-6 cm. long, mostly glabrous outside, sometimes sparsely puberulent with 1-few-celled hairs, or rarely densely pubescent with slender multicellular hairs outside, glabrous within except for a band of hairs near the base of the tube. Anthers are subsessile to with more or less apparent filaments, the filaments 0.5-5 mm. long, inserted at the summit of the corolla-tube. Stigmas are ovate to oblong, obtuse at the apex. The disk is free from the calyx; calyx-lobes 4.

Key to Species

1. Leaves very small, 7-15 (24) mm. long, with no apparent lateral veins; corolla glabrous outside.
2. Leaves coriaceous, elliptical, rarely ovate, 4-7 mm. wide, obtuse at apex, rounded to obtuse at base; calyx-lobes oblong, obtuse, about 2 mm. long; stipules coriaceous, truncate, glandular-toothed, hispid outside; branches subtetragonal to subterete, striate, scaberulous, with hispid, short hairs turned upward on the angles of young branches.
West Indies. M. domingensis
2. Leaves membranous, narrowly lanceolate, 1.5-3 mm. wide, acute to acuminate at apex, attenuate at base; calyx-lobes linear, acute, 3-4 mm. long; stipules membranous, with deltoid, entire, short, free portion, glabrous; branches strongly tetragonal, winged, smooth, glabrous. Uruguay, S. Brazil. . M. tweediana
1. Leaves large, 2.5-14 cm. long with conspicuous lateral veins.
 3. Flowers 4 or 5 in terminal cymes; calyx-lobes linear, attenuate-acuminate, 11-18 mm. long; free portion of stipules with 3 unequal aristae; corolla glabrous outside. Mexico M. zimbabweana
 3. Flowers 1 or 2 in leaf-axils and 1 to several at the end of short branches; calyx-lobes broadly ovate to linear, if linear or linear-subulate, then pedicels, ovaries, calyx-lobes, and outer surface of corolla densely pubescent with slender multicellular hairs. Central S. America.

4. Corolla and capsules densely pubescent with slender multicellular hairs outside. S. Brazil. . M. pubescens
4. Corolla and capsules glabrous or puberulent with 1-few-celled hairs.
5. Pedicels capillary, with 2 basally connate bracts at the base; capsules oblong to oblong-turbinate, 5-8 mm. long, 3-4 mm. wide; stigmas oblong. S. Brazil. M. gracilis
5. Pedicels not capillary, naked or with 2 distinct bracts near the middle; capsules mostly subcompressed ellipsoidal with slightly tapered apex or subglobose, mostly 8-12 mm. long, 6-7 mm. wide; stigmas ovate. Central S. America. M. cordifolia

M. domingensis Sprague, Bull. Herb. Boiss. II. 5: 266.

1905. Type: Eggers 2178 (K, isotypes BM,G). Fig. 1.

Branches slender, subtetragonal to subterete, striate, scarerulous, with hispid short hairs turned upward on the angles of young branches, internodes slightly shorter than the leaves; stipules truncate without free portion, coriaceous, glandular-toothed, hispid outside; petioles very short, 0.5-2 mm. long, hispid, leaf-blades coriaceous, elliptical, rarely ovate, obtuse at the apex, rounded to obtuse at the base, 7-15 (24) mm. long, 4-8 mm. wide, with no apparent lateral veins, glabrous on the wrinkled upper surface, glabrous beneath except for the short hispid hairs on the midvein, ciliate on the reflexed margins; flowers solitary rarely two at the ends of short lateral and terminal branchlets; pedicels slender, 5-9 mm. long, glabrous; calyx-lobes oblong, mostly about 2 mm. long and about 1 mm. wide, obtuse, glabrous, 1-nerved, connate at the base for about 0.2 mm.; corolla 20-30 mm. long (the lobes 4-6 mm. long), about 1.5 mm. wide at the base, 4-6 mm. wide at the apex of the tube, glabrous outside, glabrous within except for a band of hairs near the base; stamens reaching the apex of the corolla; filaments 3-5 mm. long, inserted at the apex of the corolla tube; anthers 2-2.8 mm. long; style exerted for about 3 mm., stigmas short, ovate, obtuse at the apex; disk free; capsules turbinate to oblong-turbinate, 5-7 mm. long, glabrous. West Indies: Sto. Domingo: Valle Nuevo, Eggers 2178 (BM,G,K), Santiago Bueno 1772 (F,GH); Prov. Azua, Ekman H6284 (S,US), H11988 (S). Prov. La Vega: Fuertes 1754 (G,GH, NY,P,US); Prov. San Juan: Sanbana Nueva, Howard 9012 (BM, NY, P,S, US).

M. tweedieana Schum. Mart. Fl. Brass. 6 (6): 1889.

Type: Tweedie. Fig. 2.

Branches slender, strongly tetragonal, winged on the angles, glabrous, smooth; stipules membranous, glabrous, 1-1.5 mm. long including the deltoid, entire free portion; leaf-blades narrowly lanceolate, acute to acuminate at the apex, attenuate to very short petioles, about 10 mm. long, 1.5-3 mm. wide, with no apparent lateral veins, glabrous on both sides except for the minute hispidulous hairs near the reflexed margins; flowers solitary, terminal; pedicels 8-18 mm. long, glabrous; calyx-lobes linear, 3-4 mm. long, about 0.3 mm. wide, acute, glabrous, connate at the base, alternate with glandular-toothed deltoid lobules (0.5 mm. long); corolla 30-37 mm. long (the lobes 2-3 mm. long), 1.7-2 mm. wide at the base, 6 mm. wide at the apex of the tube, glabrous outside, glabrous within except for a band of hairs near the base; anthers about 2.5 mm. long, nearly sessile, the very short filaments about 0.5 mm. long, inserted at the apex of the tube; style exerted for about 4 mm; stigmas ovate, obtuse at the apex. Uruguay: Rio Grande, Tweedie (type, B, photo!), Brazil: Santa Catharina, Tweedie (GH, K).

M. zimapanica Hemsl. Diagn. Pl. Nov. Mex. 30. 1878.

Type: Coulter 203 (K).

Flower-bearing branchlets subterete to somewhat compressed, moderately pubescent with short, spreading hairs; free portion of stipules trisetose, the middle arista 2-2.5 mm. long, the lateral aristae 1-1.5 mm. long, the sheath pubescent outside; petioles 4-5 mm. long, sulcate, pubescent; leaf-blades ovate-lanceolate, attenuate-acuminate at the apex, attenuate at the base, 6-9.5 cm. long, 2-4 cm. wide, sparsely pubescent except the upper surface of the midvein with dense short broad hairs and the lower surface of 3 or 4 pairs of lateral veins with moderate hairs; flowers 4 or 5 in terminal cymes; pedicels slender, 5-20 mm. long, minutely puberulent; ovaries semispherical, 1.5-2 mm. long, glabrous; calyx-lobes linear, attenuate-acuminate, 11-18 mm. long, connate at the very base, 1-3-nerved, sparsely ciliate, glabrous on both sides; corolla 35-39 mm. long (the lobes 5-7 mm. long), glabrous outside, glabrous within except the pubescent basal 10 mm; anthers about 3 mm. long, subsessile, inserted near the apex of the tube in short-styled flowers; stigmas oblong, obtuse at the apex.

Mexico: Zimapan, Coulter 203 (K).

The disk is slightly convex and free from the calyx, or nearly flat to slightly concave and adnate to the calyx-tube.

M. pubescens Cham. & Schl. *Linnaea* 4: 170. 1829.

Type: Sellow. Figs. 4-9.

M. villosa Cham. & Schl. l.c. 172. 1829. Type: Sellow.

Sellow 1750 (B, photo)!

M. confertiflora Benth. *Linnaea* 23: 443. 1850.

Type Regnell I: 368!

M. pubescens var. *villosa* Schum. *Mart. Fl. Bras.* 6(6): 173. 1889.

Branches, petioles, lower surface of leaves, pedicels, ovaries, capsules, calyx-lobes, outer surface of corolla densely pubescent with slender multicellular hairs; free portion of stipules erect, mostly lanceolate, often tapering to an arista, frequently 3-lobed, with the lateral ones shorter and setaceous, the middle one up to 11 mm. long; calyx-lobes linear-lanceolate to linear-subulate, 5-13 mm. long, subulate short (1-5 mm. long) lobules usually present; corolla 33-50 mm. long, 4-8 mm. wide; filaments about 1 mm. long, anthers about 5 mm. long; capsules subcompressed ellipsoidal, 6-15 mm. long, 5-7 mm. wide; leaf-blades mostly ovate, rounded to obtuse at the base, acuminate at the apex, 25-80 mm. long, 12-38 mm. wide.

Brazil: Prov. Minas Geraes: Damazio 966 (G), 40153 (NY), Claziou 17630 (P), Macedo 2895 (BM, G, MO, US), Mosen 905 (S), 1864 (S), Regnell I: 368 (K, P, S), Saint-Hilaire 529 in part (P), Widgren 189 (S), s.n. anno 1845 (GH, K, S); Rio de Janeiro: Widgren (F); S. Paulo: Leite 3951 (F), Loefgren 3445 (F), P. Campos Porto 3273 (F); Prov. Parana: Dusen 16539 (MO, S); Prov. Sta. Catharina: Dusen 8416 (F, S), Ule 1261 (P); Prov. Rio Grande do Sul: Leite 2772 (F), Rambo 42076 (F).

M. gracilis Cham. & Schl. *Linnaea* 4: 169. 1829.

Type: Sellow photo!

Var. *gracilis*. Fig. 3.

Young branches slender, subterete, striate, densely pubescent; stipules deltoid, erect, toothed; petioles 12-18 mm. long, densely pubescent; leaf-blades ovate-lanceolate, rounded at the base, acuminate at the apex, 3-7 mm. long, 6-25 mm. wide, moderately pubescent beneath, with 4 or 5 lateral veins on each side of the midvein; flowers 1 or 2 in the leaf axils or several at the end of the branchlets; pedicels capillary, 12-18 mm. long, glabrous or puberulent, with 2 small, basally connate bracts at the base; ovary glabrous to puberulent; calyx-lobes deltoid to lanceolate, more or less pubescent, 1-1.5 mm. long, connate at the base for about 0.5 mm; corolla 23-30 mm. long, slender, 3-5 mm. wide, glabrous or sparsely pubescent outside with slender few-celled hairs, glabrous within except for a band (3-5 mm. long) of hairs near the base; stigmas oblong, obtuse; anthers 2.5-4 mm. long; filaments 1.5-3 mm. long, inserted at the apex of the corollatube; capsules oblong to oblong-turbinate, 5-8 mm. long, 3-4 mm. wide, glabrous or sparsely puberulent.

Brazil: Prov. Minas Geraes: Regnell I: 366 in part (S); Prov. San Paulo: Hoehne 1642 (F), Weir s.n. (BM); Prov. Parana: Dusen 9984 in part (NY, PH, S); Prov. Santa Catharina: Reitz & Klein 3401 in part (NY, UC, US), 4115 (G, NY, UC, US), 6912 (UC, US).

M. gracilis var. glabra Benth. Linnaea 23: 444. 1850.

Type: Regnell I: 366!

M. burchellii Wernh. Journ. Bot. 57 Suppl. 18. 1919.

Type: Burchell 4855 (K)!

Branches glabrous; petioles ciliate; leaf-blades glabrous except for the puberulent veins on the lower surface; pedicels and calyx-lobes glabrous.

Brazil: Prov. Minas Geraes: Hoehne 10-5-1927 (NY), 19536 (F), Novaes 3634 (F), Regnell I: 366 (S, US), Widgren 191 (S); Rio de Janeiro: Brade 14642 (F), 21224 (F); Prov. S. Paulo: Brade 6314 (S), Hoehne 17637 (F), 42644 (F), Eiten 2793 (NY, US), Mosen 1340 (S), Usteri 128 (K), Weir 226 (F, BM), s.n. (K); Prov. Parana: Dusen 9765 (BM, F, G, S, US), 9904 (NY), 9984 in part (UC), Jonsson 283a (BM); Prov. Santa Catharina: Bowie & Cunningham s.n. (BM), Reitz & Klein 4240 (NY, S, UC, US), Schwacke 123 (F); Burchell 4855 (K).

Key to the Varieties and Forms of
M. cordifolia

1. Calyx-lobes connate at the base.
 2. Corolla glabrous outside or nearly so.
 3. Leaves more or less pubescent.
 4. Leaves at least puberulent on the veins beneath, but not tomentose.
 -var. cordifolia
 4. Leaves tomentose beneath with gray or yellowish-brown hairs.
 -var. cordifolia form. incana
 3. Leaves glabrous.
 5. Branches subterete, glabrous. . . .var. glabra
 5. Branches tetragonal, with short, reflexed, hispid hairs on the angles.
 -var. glabra form. boliviana
 2. Corolla puberulent outside; leaves and branches puberulent.var. hassleriana
 1. Calyx-lobes free to the base, broadly ovate.
 6. Young branches subterete, densely pubescent; leaves more or less pubescent above; pedicels densely pubescent; ovary glabrous or nearly so; calyx-lobes glabrous or with a few hairs near the base of margins; corolla glabrous outside.var. paranensis
 6. Young branches compressed, minutely puberulent; leaves glabrous or nearly so above; pedicels minutely puberulent; ovary minutely puberulent to glabrous; calyx-lobes sparsely minutely puberulent to glabrous except ciliolate margins; corolla more or less puberulent to glabrous. . . var. chrysoderma

- M. cordifolia Mart. Denkschr. K. Acad. Muench. 9: 95, t.7
1824.
Var. cordifolia. Figs. 10-16.
M. asperula Benth. Linnaea 23: 444. 1850. Type: Pegnell I:
367 (K)!
M. attenuata Nees & Mart. Nov. Act. Nat. Cur. 12(1): 14.
1824.
M. cordifolia var. attenuata (Nees & Mart.) Wernh. Journ.
Bot. 57 Suppl. 20. 1919.
M. grandiflora Miq. Linnaea 22: 803. 1849. Type: Blanchet
3600!
Guagnebina ignita Vell. Flor. Flum. 45, I. t. 115. 1825.
M. ignita (Vell.) Schum. var. cordifolia Schum. Mart. Flor.
Bras., 6(6): 171. 1889.
M. leianthiflora Griseb. Abh. Wiss. Goett. 19: 159. 1874;
Plant. Lorentz. III. 1874. Type: Lorentz 365!
M. stipulosa Wernh. Journ. Bot. 57 Suppl. 21. 1919. Type:
Gardner s.n. (K)!

Branches subtetragonal to subterete, striate, densely pubescent to glabrous; stipular sheath about 1 mm. high, pubescent to glabrous; free portion of stipules erect, deltoid to subulate, mostly 1-2 mm. long rarely 3-4 mm. long, pubescent to glabrous, toothed; leaf-blades membranous to chartaceous, ovate to ovate-lanceolate, rounded to attenuate at the base, acuminate to long-attenuate at the apex, with 3-5 lateral veins on each side of the midvein, densely pubescent on both sides to nearly glabrous except on the veins beneath, 2.5-12 (14.5) cm. long, 1-6.5 (9) cm. wide; petioles 2-15 (rarely up to 40) mm. long, pubescent; upper leaves on flowering branchlets much smaller, nearly orbicular to lanceolate, cordate to obtuse at the base, acute to acuminate at the apex; flowers axillary and terminal on branchlets, solitary to in cymelike inflorescences; pedicels 13-60 mm. long, pubescent to glabrous, naked or with small bracts near the middle or above the basal part; ovaries oblong to oblong-turbinate 3-5 mm. long, pubescent to glabrous; calyx-lobes connate at the base for 0.5-1.5 mm., free portions ovate-lanceolate to lanceolate, acute to acuminate, pubescent to glabrous, 2-8 mm. (rarely 10-11.5 mm.) long and 0.5-2 (rarely 3-4) mm. wide, sometimes with small teeth or lobules in between; corolla 3.5-6 cm. long (lobes 3-5 mm. long), glabrous outside, densely pubescent within for 5-10 mm. near the base of the tube; anthers about 4 mm. long, half-exserted; filaments about 2 mm. long, inserted at the apex of the tube; stigmas exserted, ovate, obtuse; disk free from the calyx-tube; capsules mostly subcompressed ellipsoidal with slightly tapered apex, (6-7) 8-12 (15) mm. long, (4-5) 6-7 (8) mm. wide, mostly glabrous.

Brazil: Prov. Bahia: Blanchet 2092 (BM, G, NY), 3600 (BM, G, K, MO, P); Prov. Goyaz: Gardner 3769 (BM, F, G, K, NY, F); Prov. Mato Grosso: Lindman A3417 (S), Moore 553 (BM), Weddell 3323 (F); Prov. Amazonas: Rio Acre, Ule 9864 (G, K); Prov. Minas Geraes: Brade 17862 (F), Claussen 689 (NY, P), s.n. (BM, G, GH, K, S), Duarte 459 (F), Gardner 4717 (BM), 4718 (K), Heringer 69 (F), Irwin 2338 (F, NY, UC, US), Macedo 1685 (MO, S), Magalhães 3254 (US), Mexia 5697a (BM, F, G, GH, MO, NY, S, UC, US), Mosen 1863 (F, S), 4474 (S), Regnell I: 367 (K, S, US), Saint-Hilaire 213 (P), Vauthier 208 (G), Williams, L.O. & V. Assis 8218 (F, GH); Prov. Sao Paulo: Glaziou 12774 (P, US), Valio 16 (US); Prov. Parana: Dusen 3426 (F, S), 7582 (S), 23872 (F), Reiss 54 (F, NY, S); Prov. Santa Catharina: Hoehne 24406 (F), Reitz & Klein 3401 in part (US), 4174 (NY); Ceara, Gardner 1699 in part (BM, G, GH, K, NY); Schott 855 (K).

Paraguay: Villarrica, Hassler 4132 in part (S), 8841a (G); Villa Rica: Joergensen 7269 (F); Prov. Tobaty: Hassler 6246 (BM, G, NY, UC); Caballero, Morong 512 (NY).

Argentina: Prov. Misiones: Bertoni s.n.; Prov. Jujuy: Bartlett 20396 (US), Fries 242 (S), Schreiter 11173 (F), Venturi 8352 (BM, F, GH, K, MO, US), West 8360 (GH, MO, UC, US); Prov. Salta: Borea 37073 (GH), Cabrera 3104 (F, NY), Donell 3137, Ragonesi & Coras 37800 (GH), Schreiter 5422 (F), 10114 (US), 33686 (GH), Venturi 5317 (F, GH, US), 8279 (F, US), West 6131 (MO, UC, US); Prov. Tucuman: Dinelli s.n. (BM), Gonzalez 21657 (G), Lorentz 321 (G), Meyer 9827 (F), Schreiter 748 (US), 2191 (F), Venturi 1204 (US), 1574 (UC, US), 4086 (GH, US), 4244 (BM, F), 7887 (GH, US), 8037 (F), 10359 (BM, MO, S, UC).

Bolivia: Prov. Beni: Rurhenabaque, Fleischmann 215 (S); Huahuanus-Reye, Cardenas 5390 (US); Prov. Cochabamba: Bang 1255 (BM, F, GH, K, MO, NY, PH, US), Kuntze s.n. (US); Nord-Yungas: Milluguaya, Buchtien 252 in part (GH, MO), 4723 (NY, US); Chaco: Cardenas 2605 (F).

Peru: Dept. San Martin: Ferreyra 5067 (US), 7776 (US), 7851 (US), 7911 (US), Klug 3541 (F, G, GH, MO, S, US), Spruce 3929 (K, S), Williams Ll. 7479 (F, G), 7773 (F), Woykowski 35259 (F), 35339 (F); Dept. Junin: Woykowski 6333 (US); Pozuzo, Macbride 4722 (F, S, US), Pearce 215 (BM).

Gardner s.n. (K), the holotype of *M. stipulosa* Wernh. (Journ. Bot. 57 Suppl. 21. 1919. *Gardner s.n.*, K) is characterized by the large leafy calyx-lobes which are about 9 mm. long, 4 mm. wide, ovate-lanceolate, acuminate, and glabrous; glabrous petioles and leaf-blades except for the minutely ciliolate margins; erect stipular free postions lanceolate, 2-4 mm. long; and the moderately pubescent young branches. Venturi 7887 (GH) from Argentina and Dusen 9180 (BM) from Parana, Brazil, also have similar, large, leafy calyx-lobes. In some of the stipules on Dusen 9180 (S) the free portion is as long as 4 mm. long. Although the leaf surfaces are glabrous, *M. stipulosa* Wernh is considered as a form of *M. cordifolia* var. *cordifolia*.

M. cordifolia var. cordifolia form. incana (Schum.) Chung, comb. nov.

M. ignita (Vell.) var. incana Schum. Mart. Fl. Bras. 6(6): 171. 1889. Type: Balansa 2135!

M. sublanata Wernh. Journ. Bot. 57 Suppl. 21. 1919. Type: Hassler 8841!

Distinguished from var. cordifolia by the tomentum on the lower surface of the leaves, which is gray or yellowish-brown. Corolla 25-45 mm. long; calyx-lobes 2-4 mm. long; ovaries often tomentose; capsules 7-10 mm. long, pubescent; pedicels and branches pubescent.

Brazil: Minas Geraes, Regnell I: 367 in part (S).

Paraguay: Villa Rica, Balansa 2135 (G); Cordillera de Villa Rica, Hassler 8841 (BM, G, GH, NY, S, UC); Villarrica, Jorgensen 4132 in part (F, GH, NY, PH, US).

Argentina: Prov. Corrientes: Santo Tome, Ybarrola 1503 (S).

M. cordifolia var. glabra (Cham. & Schl.) Standl. Field Mus. Bot. 7(3): 261. 1931.

M. glabra Cham. & Schl. Linnaea 4: 169. 1829. Type: Sellow Photo (B)!

M. ignita var. glabra (Cham. & Schl.) Schum. Mart. Fl. Bras. 6(6): 171. 1889.

M. micans Poepp & Endl. Nov. Gen. & Sp. 3: 24. 1845.

M. ignita var. micans (Poepp. & Endl.) Schum. Mart. Fl. Bras. 6(6): 171. 1889. Poeppig 2415 (G)!

M. cordifolia var. filiformis Wernh. Journ. Bot. 57 Suppl. 20 1918. Type: Fiebrig 4636!

Branches, petioles, leaf-blades, pedicels, and calyx-lobes glabrous.

Brazil: Prov. Bahia: Blanchet 3281 (G), Rose 20034 (US);

Prov. Mato Grosso: Kuntze s.n. (NY, US); Prov. São Paulo:

Loefgren 1252 (F), Weir 192 in part (K); Prov. Parana: Dusen 9059

(S), 9180 in part (PH), 11758 (S), 16171 (F, GH, MO, S, US), Hatschbach 3160 (US), 3763 (US); Prov. St. Catharina: Schwacke (F), Tweedie (GH).

Uruguay: Dept. Artigas: Herter 1157 (F, G, MO, NY, UC, US),

Rosengurt B-3663 (US); Dept. Salto: Osten 5451 B (US); Dept.

Paysandí: Calot 94 (P), 95 (P); Concepción, Lorentz anno 1895

(GH); Fray Bentos, Fruchard (P); Islands of the Uruguay River, Tweedie (K).

Paraguay: Between River Apa and River Aquidaban, Fiebrig 4636

(BM, G, GH); Upper River Apa, Hassler 8327 (BM, F, G, GH, MO, NY, S, UC); Sierra de Amambay, Hassler 11200 (BM, G, GH); Campo

Duarte, Hassler 1237 (G, K); Yerbaliu de Maracayu, Hassler 4435

(BM, F, G, NY); Central Cordillera, Hassler 7026 (BM, G, NY);

Lake Ypacaray, Hassler 11783 (BM, F, G, GH, MO, NY, S, UC, US);

Paraguari, Balansa 2134 (G, K).

Argentina: Prov. Misiones: Bertoni 1485 (UC, Ekman 1383, (MO, NY, S), Gruener 35 (F), Meyer 5319 (F), Rodriguez 337 (F), Spegazzini 20715 (F); Prov. Corrientes: Bonpland 599 (P), Ibarrola 1872 (S), Meyer 8972 (S), Wurth 74 (S); Prov. Entre Ríos: Lorentz 107 (PH), s.n. (PH), Tweedie s.n. (BM, K).
 Bolivia: Dept. Cochabamba: Steinbach 9055 (GH); Dept. Santa Cruz: Maguire 44492 (NY), Steinbach 6240 in part (G, GH); S. Bolivia, Chignica, Fiebrig 2686 in part (BM).
 Peru: Dept. Loreto: Rio Marano Valley, Killip, Smith & Dennis 29200 (F, US); Yurimaguas, Killip & Smith 27990 (F, NY, US), Poeppig 2415 (G); Balsapuerto, Klug 3080 (BM, F, G, MO, S, US); Tarapoto, Mathews 1343 (BM, F, G, GH); Haallaya River, Spruce 4592 (BM, F, G, GH, K, NY); Dept. San Martin: Ferreyra 4521 (US), Klug 2606 (BM, F, G, GH, MO, NY, S, US), 4075 (BM, F, GH, MO, NY, S, UC), Woytkowski 7242 (MO, US); Dept. Huancayo: Killip & Smith 26823 (F, NY, US); Dept. Junin: Ferreyra 3603 (US), 3678 (US), Killip & Smith 23519 (NY, US), 24748 (F, NY, US), 25213 (US), Macbride 5585 (F, US), Schunke 480 (F, S), 1430 (F), 1519 (F), Woytkowski 395 (US); 7451 (US); Dept. Cuzco: Sandeman 3646 (K), Vargas 1843 (GH, MO) 3791 (US), 15430 (MO).

The following specimens are rather intermediate between var. cordifolia and var. glabra in that the leaves are glabrous but the young branches are pubescent. Brazil: Bahia: Blanchet 3281 in part (BM, F, NY, P); Ceara, Loefgren 587 (S); Mato Grosso: Malme 1740 (F, S). Argentina: Corrientes: Ibarrola 1234 (S).

M. cordifolia var. glabra form. boliviana (Wernh.) Chung, comb. nov.

M. boliviana Wernh. Journ. Bot. 57 Suppl. 20. 1919.

Syntypes: Bang 1372!, Bridges!

Tetragonal branches with short reflexed hispid hairs or recurved teeth on the narrow wings.

Brazil: Bahia: Lemos Froes 20165 (US); Espirito Santo: Freire 68 (F); Mato Grosso: Kuntze 92 in part (NY); Ceara, Gardner 1699 in part (P).
 Bolivia: Dept. Santa Cruz: Brooke 5774 (BM, F, NY), Kuntze (NY), Steinbach 6240 in part (G), 7092 (BM, F, G, GH, MO, NY, PH, S, UC), Yapacani, Kuntze (NY); Dept. Cochabamba: Cardenas 3135 (F, US); Dept. La Paz: Mapire, Rusby 1126 (BM, F, GH, K, MO, NY, PH), Buchtien 1449 (S); Guanai, Bang 1372 (BM, F, G, MO, NY, PH, US), Rusby 1127 (F, NY); Nordyungas, Buchtien 262 in part (BM, F, G, GH, NY); Chignica, Fiebrig 2686 in part (G, K, S, US); Gran Choca, Fries 1372 (S).
 Argentina: Prov. Jujuy: Bartlett 20341 (US), Hunziker 1974 (GH), Spegazzini 381 (F); Prov. Salta, Dept. Oran: Hunidooboro s.n. (S, UC), Meyer 5072 (UC), Pierotti s.n. (S), Spegazzini 14280 (F).
 Peru: Dept. Cuzco: Storke, Horton & Vargas 10465 (F, UC).

M. cordifolia var. *hassleriana* (Chod.) Chung, comb. nov.

M. hassleriana Chod. Bull. Herb. Boiss. 7 App. 1: 82. 1899.

Type: Hassler 2509 (from near Rio Apa., Paraguay, not see)

M. angustifolia Wernh. Journ. Bot. 57 Suppl. 22. 1919.

Type: Fiebrig 5734!

Branches subterete, striate, puberulent; leaves lanceolate to ovate-lanceolate, acute to rounded at the base, attenuate-acuminate at the apex, 35-65 mm. long, 10-24 mm. wide, puberulent; calyx-lobes ovate-lanceolate, more or less narrower at the base, acuminate at the apex, 5-8 (12-13) mm. long, 2-5 mm. wide, puberulent; corolla 3-4 cm. long, moderately puberulent with short broad hairs; inside of corolla glabrous except for a band (6 mm. long) of dense hairs in the narrow tube about 4 mm. above the base; filaments about 2 mm. long, inserted at the apex of the tube, anthers 3.5-4 mm. long; stigmas ovate, obtuse; capsules oblong to oblong-turbinate, 6-7 mm. long.

Brazil: Parana: Duarte 1912 (F, NY); Sta. Catharina: Dusen 11894 (GH, MO, S).

Paraguay: River Alto Parana, Fiebrig 5734 (BM, G, GH, K, US).

Argentina: Misiones: Iguazu Falls, Sandeman 4770 (K), Smith 355 (K); Dept. Iguazu: Rodrigo 3681 (F).

M. cordifolia var. *paranensis* (Standl.) Chung, comb. nov.

M. paranensis Standl. Field Mus. Bot. 8(5): 331. 1931.

Type: Dusen 8964!

Distinguished from var. *cordifolia* mainly by the large leafy calyx-lobes which are free to the base; short, turbinate ovaries 1-2 mm. long; small subglobose capsules 5-6 mm. long. Branches subterete, densely pubescent; stipular sheath 0.5-1 mm. long; often ill defined, free portion of stipules 1.8-2.5 mm. long, triangular-lanceolate, often bilobed at the apex; petioles 7-13 mm. long, pubescent; leaf-blades ovate, 2.8-5.5 cm. long, 1-3 cm. wide, sparsely pubescent, with 2 or 3 lateral veins on each side of the midvein; calyx-lobes broadly ovate, acute to acuminate, 8-11 mm. long, 4-5 mm. wide, 3-nerved, glabrous or with a few hairs near the base of the margins; corolla 3.5-4.2 cm. long, glabrous outside.

Brazil: Parana: Serra do Mar, Dusen 8964 (G, GH, NY, S, US), 9007 (S), Morretes, Hatschbach 1741 (S); Piraquara, Hatschbach 2840 (US); Guaratuba, Hatschbach 6574 (US).

M. cordifolia var. *chrysoderma* (Sprague) Chung, comb. nov.

M. chrysoderma Sprague, Bull. Herb. Boiss. II. 5: 264.

1905. Type: Mueller 123 (K)!

M. paulina Standl. Field Mus. Bot. 8(5): 328. 1931.

Type: Saint-Hilaire 1229!

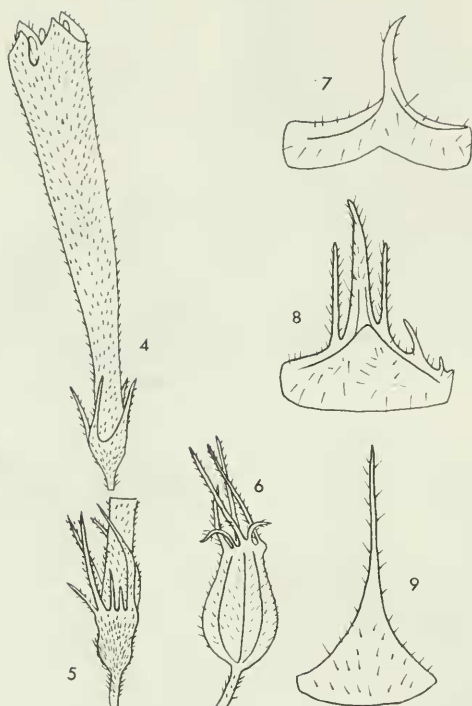
Young branches compressed, puberulent; free portion of stipules deltoid to round and apiculate; leaf-blades ovate to ovate-lanceolate, rounded to acute at the base, acuminate at the apex, 4-6 (-11) cm. long, 1.8-3 (4) cm. wide, glabrous or nearly so above, puberulent beneath mainly on the veins, with 4 or 5 lateral veins on each side of the midvein; pedicels more or less puberulent; calyx-lobes free to the base, ovate to ovate-lanceolate; acute to acuminate, 4-5 mm. long, 2-3 mm. wide, more or less puberulent to glabrous except the ciliate margins; corolla 35-55 mm. long, 6-9 mm. wide, more or less puberulent with short broad hairs or glabrous outside.

Brazil: S. Paulo: Edwall 1900 (F), Krieger anno 1863 (NY), Saint-Hilaire 1229 (F, P); Parana: Dusen s.n. (GH, MO), Glaziou (P), Hatschbach 4136 (US); Sta. Catherina: Mueller 123 (K), Smith & Klein 7450 (NY, US), Reitz 4363 (US), Reitz & Klein 4028 (S, US), 4700 (US), 5218 (UC, US).

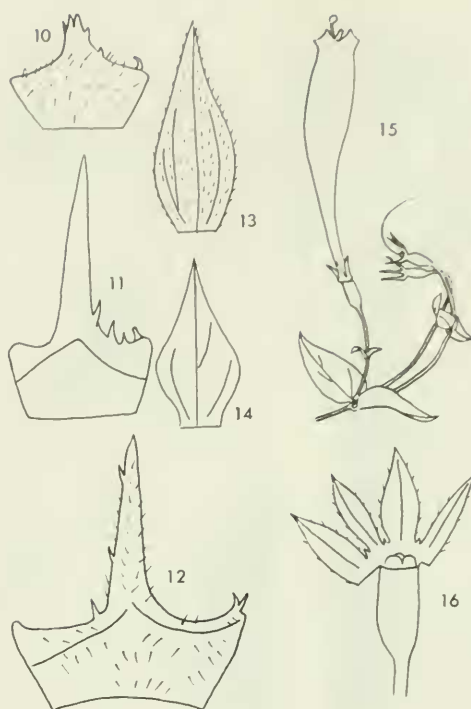
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Fig. 1. Manettia domingensis, flower, x4 (Ekman H6284, S)
Fig. 2. Manettia tweediana, flower, x4 (Tweedie, GH)
Fig. 3. Manettia gracilis, flower, x4 (Reitz & Klein 4115, G)



Figs. 4-9. Manettia pubescens. 4: flower, x2 (Macedo 2895, PH), 5: ovary and calyx, x2 (Damazio 966, G), 6: fruit, x2 (Damazio 966, G); 7-9: stipules, x10 (7: Regnell I: 368, K; 8: Regnell I: 368, S; 9: Macedo 2895, PH).



Figs. 10-16. *Manettia cordifolia* var. *cordifolia*. 10-12: stipules, x10 (10: Dusen 3426, S; 11: Gardner, K, M. stipulosa; 12: Dusen 9180, S) 13-14: calyx-lobe, x4 (13: Venturi 7887, GH; 14: Gardner, K, M. stipulosa), 15: flowering branchlet, x1 (Mosen 1863, S), 16: ovary and calyx-lobes, x4 (Gardner 1699, K)