

Taxonomic Revision of *Sinningia* Nees (Gesneriaceae) III: New Species from Brazil and New Combinations

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ABSTRACT: Following previous accounts on the revision of the genus *Sinningia* (CHAUTEMS, 1990; 1991; 1993), three new species and two new combinations are provided. These results are based on more herbarium and fieldwork in Brazil.

KEY WORDS: Gesneriaceae, *Sinningia*, Brazil.

Sinningia carangolensis Chautems, spec. nov.

Figure 1

A. S. aggregata (Ker Gawler) Wiehler indumento densiore, inflorescentiis ramosis, pedicellis longioribus, descendentibus recedit.

Terrestrial herb, arising from perennial tuber, with stems erect, 25-40 cm tall and ca. 0.5 cm in diameter, with a dense hair-covering of 0.5-1 mm long trichomes interspersed with shorter glandular hairs (sticky at the touch in vivo); internodes 5-10 cm long; leaves usually ternate, equal to slightly anisophyllous, petioles 0.5-2.5 cm long, light green, with a dense indumentum of trichomes and glandular hairs; blade ovate to elliptic, 5-10 cm long x 3-6 cm wide, apex acute, base obtuse and sometimes slightly asymmetrical, above green, beneath pale green with a whitish hair-covering, margin irregularly crenate with teeth 1-2 mm high x 2-3 mm wide, 7-9 pairs of veins yellowish green. Inflorescences cymes with 1-4 flowers in axillary position on the 3-6 upper nodes, peduncle 1-5 mm; the pedicels 3-6 cm long, the flowers turned into a ± horizontal position at anthesis; calyx campanulate, lobes subequal, fused at base for ca. 3 mm, lanceolate, acuminate, 7-9 mm long x ± 3 mm wide, green, margin entire, with a dense hair-covering of erect trichomes; corolla tubular, erect in the calyx, 3-4 cm long, inflated at base in a 5-lobed ring ca. 0.6 cm in diam., then briefly constricted and expanding gradually in a tube ca. 0.6 cm wide, greenish in bud, turning red-orange at anthesis, covered with long, erect trichomes, lobes of the limb subequal, 0.4 x 0.6 cm, tube inside cream-white with red striations; stamens 4, included, filaments 2.8-3.8 cm long, white, glabrous, anthers connivent, pollen white; nectary consisting of 5 glands, the 2 dorsal large and

connate, the 2 lateral and the ventral much smaller (the 2 lateral sometimes fused with the 2 dorsal, forming an incomplete ring); ovary greenish, style and stigma white. Fruit a capsule, ca. 1 cm long x 0.4 cm wide; seeds elliptical, obliquely striate.

TYPE: BRAZIL: MINAS GERAIS: Município Carangola, Pedra do Elefante, 20°47'S 42°02'W, sobre a rocha, 600 m, 13 Jan. 1991. Leoni & Chautems 1394 (HOLOTYPE: GFJP; ISOTYPE: G).

ADDITIONAL MATERIAL EXAMINED: BRAZIL: MINAS GERAIS: Carangola, Pedra do Elefante, 700 m, 13 Dec. 1988, Leoni & Medeiros 586 (GFJP, US); Carangola, Pedra do Amendoeira, Bairro Amendoeira, 500 m, Nov. 1991, Leoni 1700 (G, GFJP); Serra da Araponga, Fazenda Neblina, 20°43'S 42°29'W, 1350 m, 1 Feb. 1992, Leoni 1756 (G, GFJP); Araponga, Fazenda de Gramma, rocky hill to SW, 25 Jan. 1930, Mexia 4226a (photo US).

MATERIAL IN CULTIVATION: Grown in Geneva, at the greenhouse of the Conservatoire Botanique under acc. no. AC-1507, received from Mauro Peixoto - tubers collected in Espera Feliz, Minas Gerais.

DISTRIBUTION: Known only from the SE corner of Minas Gerais, occurring on granitic outcrops, between 500-1400 m. The plants observed in the wild were growing in pockets of organic material and often in association with species of Selaginellaceae, Bromeliaceae and Velloziaceae.

ETYMOLOGY: The name of this species refers to the municipality of Carangola in Minas Gerais where my colleague and friend Lúcio de Souza

Leoni founded the GFJP herbarium, an excellent and priceless contribution to the knowledge of botany. Material has been recently distributed among amateur growers under the name *S. aggregata* "Espera Feliz". This name refers to a locality (a few miles from Carangola), where Mauro Peixoto had collected tubers some years ago.

Sinningia iarae Chautems, spec. nov.

Figure 2

Vernacular name: "orelha de onça" (meaning jaguar's ear).

A. S. leopoldii (Planch.) Chautems foliis subtus viridibus, inflorescentiae longe pedunculatae, pedicellis corolla multo brevioribus, corollis roseis, labium superius valde elongatum statim dignoscenda.

Terrestrial herb arising from a perennial tuber, stems 8-15 cm tall and 3-7 mm in diameter, reddish to wine red, finely tomentose with trichomes ca. 0.5 mm; leaves arranged in 1 or 2 whorls composed of 2 opposite-decussate pairs, petiole 1-6(8) cm long, dark red to wine red, finely tomentose, blade ovate to orbicular-ovate, slightly unequal in each pair, 5-17 cm long x 4.5-11 cm wide, apex acute to obtuse, ± cordate at base, margin irregularly crenate to serrate with teeth ca. 2 mm high x 2.5-5 mm wide, green above, paler beneath with a dense hair-covering of whitish trichomes, 4-6 pairs of veins. Inflorescences borne on an erect hypopodium, 12-30 cm, composed of cymes, arranged in 1 or 2 whorls (rarely 3), flowers on erect to oblique pedicels, 1-3 cm long, dark reddish; turning greenish toward the apex; calyx subcampanulate, fused at base for 3-5 mm, with subequal lobes, narrowly lanceolate, 4-5 mm long, 2-2.5 mm wide, green turning reddish at the very apex, margin entire; corolla tubular, 5-6 cm long, erect in the calyx, swelling at the base to a diameter of 5-6 mm, constricted above to 3 mm and expanding then gradually in a laterally compressed tube, 9-11 mm high x 6-8 mm wide, salmon pink; limb bilabiate, the 2 dorsal lobes nearly completely fused in a galea, 13-16 mm long x ca. 10 mm wide, the 2 lateral lobes reduced, 2-3 mm long x 10-12 mm wide, slightly revolute, the ventral lobe 1-2 mm long x 5-6 mm wide; stamens 4, filaments 4.5-5 cm long, cream colored, glabrous or with sparse trichomes; anthers included, connivent into a star pattern, pollen yellowish, turning cream at maturity; nectary consisting of 2 large dorsal

glands, 2 mm high x 1-1.5 mm wide, yellowish; ovary cone shaped, green; style 4.2-4.8 cm, cream at base, pinkish toward apex, finely pubescent. Fruit a cone shaped capsule 1-1.5 cm long x 0.6-1 cm wide, acute to the apex; seeds elliptical, obliquely striate, reddish brown.

TYPE: BRAZIL: São Paulo: Ilha Vitória, litoral Norte, Saco de Oeste, planta frequente na encosta, 3 Apr. 1965, J.C. Gomes 3634 (HOLOTYPE: SP).

ADDITIONAL MATERIAL EXAMINED: BRAZIL: São Paulo: Ilha Vitória, litoral Norte, planta de encosta, rupestre, Mar. 1965, J.C. Gomes 2657 (SP); Santos, Sombrio, nas pedras, Apr. 1924, J. de Mendonça 13 (R); São Sebastião, na praia de Guaeca, sobre pedras, 15 May 1991, N. Silveira 9861 (HAS); same area, 15 May 1991, N. Silveira 9859 (HAS); 9-10 km S of São Sebastião, facing E, bare rock face, Oct. 1991, H. Wiehler et al. 91184 (GES).

MATERIAL IN CULTIVATION: Grown in Geneva, greenhouse of the Conservatoire Botanique under acc. no. AC-1493, received from Mauro Peixoto as #176, unknown origin, purchased from a commercial source; grown in Mauro Peixoto's greenhouse in Biritiba Ussú, Brazil, under acc. no. AC-1635, from tubers collected in Jan. 1991 near S. Sebastião, Praia Guaicá, rocky area on road side; grown at the Gesneriad Research Foundation in Sarasota, FL under acc. no. G-3684, same material as Wiehler et al. 91184.

ETYMOLOGY: The name of this species honors Iara, Mauro Peixoto's sister.

This species belongs to a group sharing a similar growth habit: *S. micans* (Fritsch) Chautems, *S. leopoldii*, *S. calcaria* (Malme) Chautems, *S. insularis* (Hoehne) Chautems, having a short basal stem bearing 1 (sometimes 2) whorl(s) of 4 large leaves. Its recent introduction in cultivation constitutes a nice addition in the genus *Sinningia*, being a rather compact plant with large corollas held elegantly on the top of an erect stem. A hybrid with the following species has been produced by Mauro Peixoto, opening the possibility of numerous interesting crosses within the genus.

Sinningia mauroana Chautems, spec. nov.

Figure 3

Sinningiae reitzii (Hoehne) L. Skog affinis sed foliis utrinque viridis inflorescentiis non ramosis,

corollis aurantiacis rubris differt.

130000
Terrestrial subshrub, arising from fibrous roots or sometimes from a small tuber; stems erect, perennial, 50-150 cm tall and 4-8 mm in diameter, finely tomentose with trichomes ca 0.5 mm; internodes 1-5 cm; leaves opposite or ternate, deciduous at the base of the stem, petiole 2-6 cm long, reddish, with a dense hair-covering of fine trichomes ca 0.5 mm long; blade ovate, 5-12 cm long x 3-7 cm wide, apex acute, obtuse at base, above green with a very dense bright silvery hair-covering of trichomes, beneath pale green with a sparser hair-covering, margin serrate with teeth 1-2 mm high x 3-7 mm wide, 5-7 pairs of veins. Inflorescences with 1-4 flowers in each axil, in the upper part of the stem, peduncle lacking, prophylls linear-lanceolate 5-8 mm long, early deciduous, pedicels 4-6 cm long, reddish, finely tomentose; calyx a short tube, ca. 5 mm, clasping corolla at base, more open towards apex of lobes, lobes subequal, linear-lanceolate, 6-8 mm long, ca. 1.5 mm wide, green, margin entire; corolla tubular, 3-4 cm long x ca. 0.6 cm in diameter, the tube shortly constricted above the base, then gradually expanding, red-orange, finely tomentose, the limb spreading, the lobes subequal; 0.4 cm long x 0.5 cm wide, tube inside paler with darker dots; stamens 4, included, filaments ca. 2.5 cm long, white, glabrous, anthers 2.5 x 2.5 mm, pollen cream-white; nectary consisting of 2 dorsal glands; ovary conical, style cream with sparse trichomes. Fruit a capsule, ca. 1.5 cm long x 0.5-0.7 cm wide, brown; seeds ellipsoid, striate.

TYPE: BRAZIL: SAO PAULO: Município Mogi das Cruzes, Biritiba-Ussu, Pedra do Garrafão, topo, 11 Jun. 1987, Chautems & Peixoto 283 (HOLOTYPE: CEPEC; ISOTYPES: G, US).

ADDITIONAL MATERIAL EXAMINED: BRAZIL: SAO PAULO: Iguape, Estação Ecológica da Juréia, Serra da Juréia, trilha do Imperador em direção à praia da Juréia, mata, 25 July 1991, *Annuniação & Nicolau 88* (G, SP); São Paulo, em cultivo no Instituto de Botânica desde 1987, trazido da Reserva Biológica da Juréia, 11 Nov. 1992, *M. Kirizawa 2787* (SP); Iguape, Estação Ecológica da Juréia, beira de cachoeira, sobre rocha, 13 May 1983, *Rodrigues et al. 14699* (UEC); Iguape, Reserva Ecológica da Juréia, trilha do Imperador em direção à praia da Juréia, mata, 25 Apr. 1990, *Rossi, Mamede & Catharino 581* (SP); Peruipe, Estação Ecológica da Juréia, Barra do Una, 20

2881
526 silve
27 silve
Nov. 1990, *Rossi et al. 741* (G, SP); Mogi das Cruzes, no Morro do Garrafão, mata, sobre pedras e solo muito orgânico, 12 May 1991, *N. Silveira 9845* (HAS); São Sebastião, na Praia de Guaeca, sobre pedra, 15 May 1991, *N. Silveira 9860* (HAS); same area, sobre pedras na mata, 15 May 1991, *N. Silveira 9862* (HAS).

MATERIAL IN CULTIVATION: Grown in Geneva, at the greenhouse of the Conservatoire et Jardin Botaniques under acc. no AC-1318, from seeds collected in the same locality as *Chautems & Peixoto 283*.

DISTRIBUTION: Known so far only from the coastal mountain range near the city of São Paulo, from close to sea level to ca. 800 m. altitude.

+ *Antonia Parana*
By its shrubby habit *Sinningia mauroana* is related to *S. reitzii*. However, the more ovate leaves, green on both sides, the unbranched inflorescences and the red-orange corollas readily distinguish it. The absence or very limited development of a tuber and the continuous production of axillary shoots may relate this species to the genus *Vanhouttea* Lemaire, but the shape of the nectary and the fertile hybrids produced with *S. iarae* are good evidence for its inclusion in the genus *Sinningia*.

ETYMOLOGY: The specific epithet honors Mauro Peixoto, friend and field companion, who discovered and grew this species for several years before we collected material from the Garrafão area in 1987.

The following transfers are necessary:

Sinningia micans (Fritsch) Chautems, comb. nov.

Corytholoma micans Fritsch, Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl. 79: 290. 1908

This species was known so far only from the herbarium material cited in Fritsch's diagnosis. During a field excursion in 1992 Mauro Peixoto and I found tubers around the city of Iporanga, in the SW of the state of São Paulo. From pictures sent by Mauro last year of flowers produced in his greenhouse, I identified the plant by the bright red coloration and verrucose texture of the calyx and the large bilabiate corolla, a unique combination of characters in the genus.

Sinningia striata (Fritsch) Chautems, comb. nov.

Corytholoma striatum Fritsch, Bot. Jahrb. Syst. 29, Beiblatt 65: 21. 1900

In 1989 Mauro Peixoto and I found this species growing on top of the Pedra Blanca, Minas Gerais; this mountain is the locality where the type material had been collected by Mosén in 1873. It differs from *S. rupicola* (Mart.) Wiehler by its much larger size, leaf shape and ecology.

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trations carefully executed by Ms. Maya Mossaz (Fig. 1 + 3) and Ms. Angelina Prisco (Fig. 2). I thank also the gardeners of the Jardin Botanique in Geneva for the maintenance of the Gesneriaceae collection in the greenhouse.

LITERATURE CITED

- CHAUTEMS, A. 1990. Taxonomic revision of *Sinningia* Nees: nomenclatural changes and new synonymies. *Candollea* 45: 381-388.
 1991. Taxonomic revision of *Sinningia* Nees (Gesneriaceae) II: new species from Brazil. *Candollea* 46: 411-425.
 1993. Gesneriaceae. In: SPICHTER, R. L. & RAMELLA, Flora del Paraguay, vol. 22.

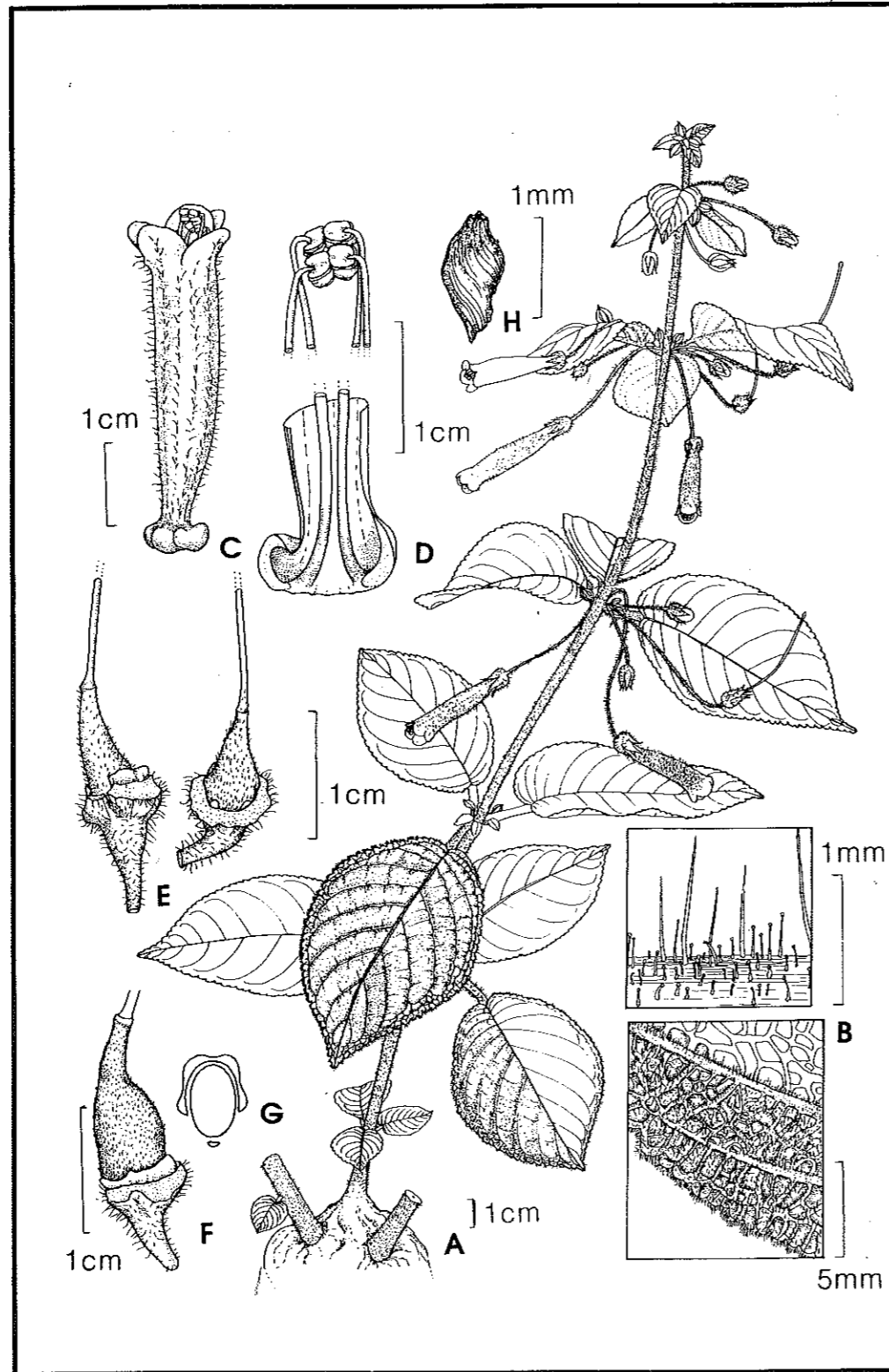


Figure 1: *Sinningia carangolensis* Chautems

Brazil

Illustrator: *Maya Mossaz*

Legend: A) habit; B) details of leaf hair-covering; C) corolla; D) anther arrangement; E) and F) ovary and nectariferous glands; G) nectary diagram; H) seed. [A-E based on cultivated material, AC-1507; F-H based on *Leoni & Chautems 1394*.]

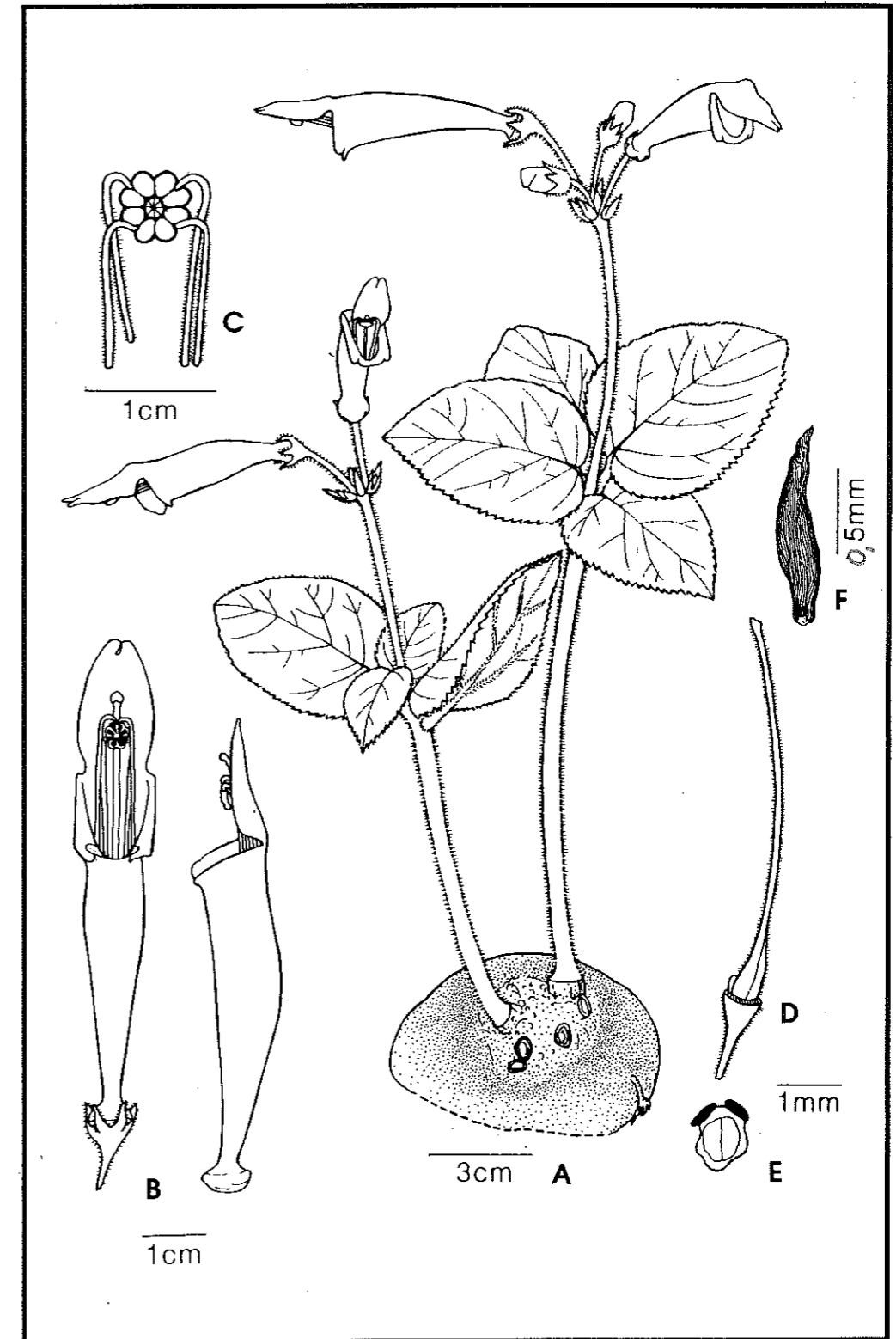


Figure 2: *Sinningia iarae* Chautems

Brazil

Illustrator: *Angelina Prisco*

Legend: A) habit; B) corolla, front view and side view; C) anther arrangement; D) style and nectariferous gland; E) nectary diagram; F) seed. [A-E based on cultivated material, AC-1493.]

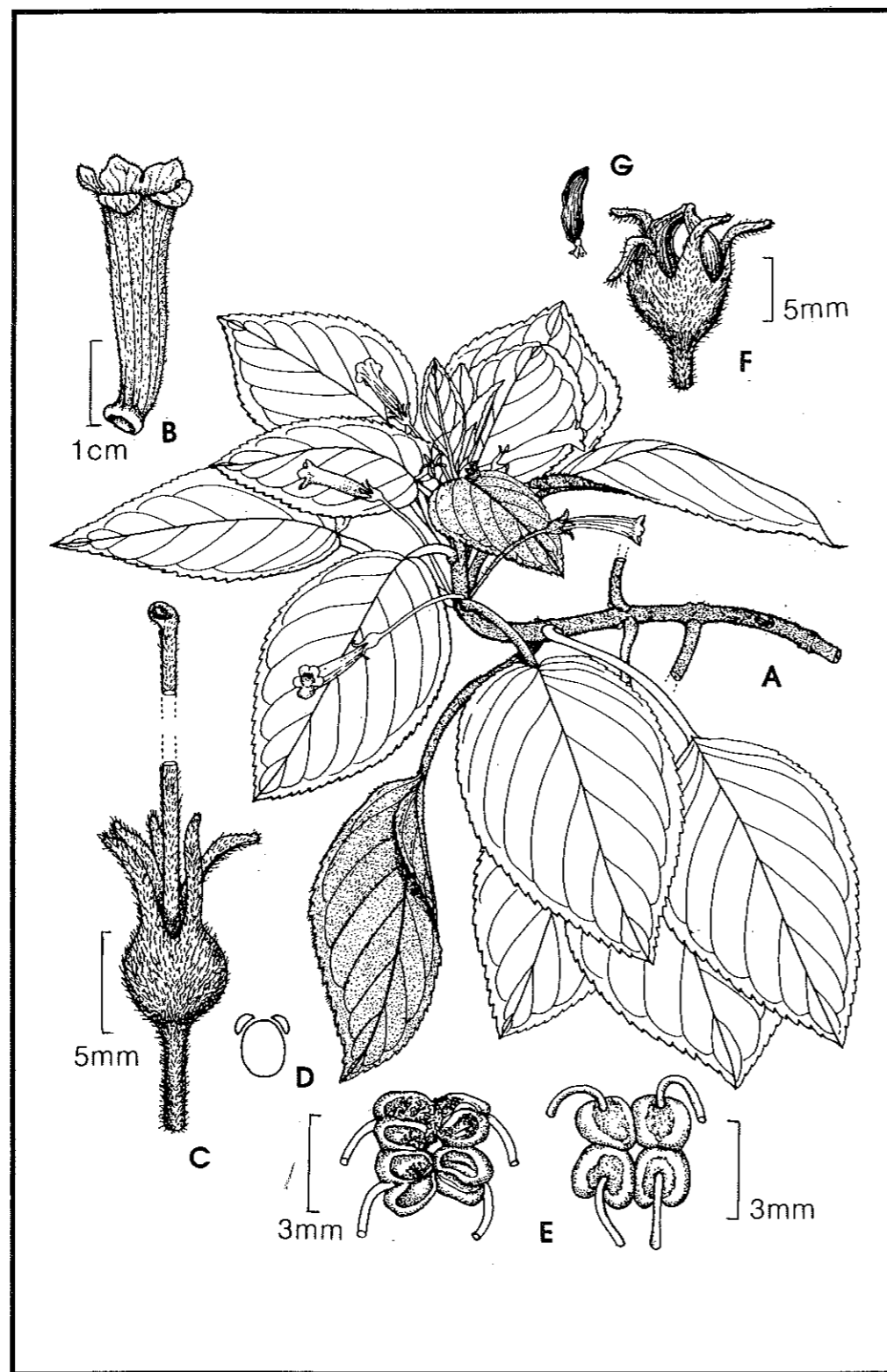


Figure 3: *Sinningia mauroana* Chautems

Brazil

Illustrator: Maya Mossaz

Legend: A) habit; B) corolla; C) calyx and style; D) nectary diagram; E) anther arrangement, front and dorsal view; F) fruit; G) seed. [A-C based on cultivated material, AC-1313; D-G based on Chautems & Peixoto 283.]

A New Species of *Drymonia* (Gesneriaceae) from Costa Rica

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ABSTRACT: *Drymonia submarginalis* from the tropical rain forests of Costa Rica is described and illustrated.

KEY WORDS: Gesneriaceae, *Drymonia*, rain forests, Costa Rica.

About 20 species of the large neotropical genus *Drymonia* Martius have been recorded from Costa Rica (MORTON, 1938; SKOG, 1978). They are predominantly epiphytic vines and subshrubs in rain and wet forests; a few are terrestrial subshrubs or succulent herbs. *Drymonias* are pollinated by euglossine bees, hummingbirds, bats and moths. The center of diversity of the genus is Colombia and Ecuador (WIEHLER, 1983).

Drymonia submarginalis Gómez-Laurito & Chavarría, sp. nov.

Figure 1

Species insignis foliis aequalibus, nervis submarginalibus conspicue, sepalis 5, foliosis, inaequalibus, corollis infundibularibus, albis, fauce lutea, lobulis superioribus reflexis, rubro-lineolatis, lobulis inferioribus (3) rectis, albis, luteo-suffusis, marginibus fimbriatis, fructibus compressis, pubescentibus a speciebus nobis notis bene distincta.

Epiphytic subshrub to 50 cm tall; stems quadrangular, flexuosus, succulent, glabrous, 5-8 mm in diameter, the internodes ca. 1 cm long, the nodes conspicuous; leaves opposite, very unequal in a pair, petioles 8-10 mm long, the lamina elliptic, 20-25 cm long, 4-7 cm wide, subcoriaceous, with 7-12 pairs of secondary veins, the venation slightly raised below, with conspicuous loops connected near the margins, the apex usually abruptly acuminate, the base rounded, dark green above, light green below, glabrous on both sides. Inflorescences in the upper leaf axils, 1-few flowered, peduncles lacking, bracts small, to 5 mm long, setaceous; calyx with 5 sepals, leaf-like, 4 cm long, 2-3 cm wide near the cordate base, acuminate at the tip, green, glabrous or with minute strigose hairs at the base, the posterior lobe smaller, lanceolate, 3 cm long, 1 cm wide; corolla oblique in the

calyx, funnellform, the spur 1 cm long, 0.6 cm wide, the tube 2.5 cm long, white, glabrous or somewhat puberulous, broader toward the limb, the lobes ovate, acute, to 11 mm long, the upper lobes reflexed, red-lineolate, the lower lobe straight, tinged with yellow, 18-20 mm long, 12 mm wide, the margins fimbriate, the throat light yellow; stamens included, the filaments broad, fleshy at the base, filiform above, to 2 cm long, yellow, glabrous, coiling after the pollen is shed, the anthers oblong, 4-5 mm long; nectary reduced to a fleshy, whitish posterior gland; ovary oblong, ca. 7 mm long, sparsely pubescent. Fruit a fleshy capsule, green, laterally somewhat compressed, pubescent; seeds not seen.

TYPE: COSTA RICA: ALAJUELA: Reserva Biológica Alberto M. Brenes (formerly Reserva Forestal San Ramón), sendero por la fila al NO del río, 10°13' N, 84°37' W, 900 m, 24 Aug. 1994, J. Gómez-Laurito, G. Herrera, V. Mora et al. 12675 (HOLOTYPE: USJ; ISOTYPES: CR, F).

ADDITIONAL MATERIAL EXAMINED: COSTA RICA: ALAJUELA: Reserva Biológica Alberto M. Brenes, 10°13' N, 84°37' W, 850-1000 m, 29 Sept. 1991, S. Martén 105 (USJ); same locality, 2 Sept. 1986, I. A. Chacón et al. 2238 (CR), same locality, 5 Aug. 1986, I. A. Chacón 2197 (CR); same locality, 24 Oct. 1993, J. Gómez-Laurito & V. Mora 12489 (CR, F, MO, USJ); 15 km NW of Arenal by air, 10°34' W, 700 m, 30 Apr. 1983, R. Liesner et al. 15061 (CR, MO). HEREDIA: Sarapiquí: Rara Avis, ca. 15 km al SO de Horquetas, alrededores del hotel y Quebradita Charral, 10°17' N, 84°02' W, 400 m, 29 Sept. 1989, O. Vargas 140 (CR); ibidem, 20 Apr. 1988, B. Hammel et al. 16707 (INB). LIMÓN: Cantón de Pococí: Sardinias, 10°38'38" N, 83°44'10" W, 0-50 m, 23 Nov. 1993, Flor Araya & J. Corrales