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Autor: Chautems, Alain

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New Gesneriaceae from São Paulo, Brazil

ALAIN CHAUTEMS

ABSTRACT

CHAUTEMS, A. (1997). New Gesneriaceae from São Paulo, Brazil. *Candollea* 52: 159-169. In English, English and French abstracts.

In the course of preparing a treatment of the Gesneriaceae for a flora of the state of São Paulo, Brazil, two new species of genus *Codonanthe* (Mart.) Hanst., *C. cordifolia* Chautems and *C. venosa* Chautems, along with a new species and a new name of the genus *Sinningia* Nees, *S. hatschbachii* Chautems and *S. areneosa* Chautems, are presented. A plate of *Sinningia insularis* (Hoehne) Chautems is also published for the first time. A key to the species of *Codonanthe* in the Brazilian coastal rainforest is provided.

RÉSUMÉ

CHAUTEMS, A. (1997). Nouvelles Gesneriacées de l'Etat de São Paulo, Brésil. *Candollea* 52: 159-169. En anglais, résumés anglais et français.

En vue du traitement des Gesneriacées pour une flore de l'état de São Paulo, Brésil, deux espèces nouvelles du genre *Codonanthe* (Mart.) Hanst., *C. cordifolia* Chautems et *C. venosa* Chautems, ainsi qu'une espèce et un nom nouveau du genre *Sinningia* Nees, *S. hatschbachii* Chautems et *S. areneosa* Chautems, sont présentés. Une planche de *Sinningia insularis* (Hoehne) Chautems est également publiée pour la première fois. En outre, une clé des espèces de *Codonanthe* pour la forêt côtière brésilienne est proposée.

KEYWORDS: Taxonomy – *Codonanthe* – *Sinningia* – Brazilian coastal rainforest.

Following previous accounts on Brazilian Gesneriaceae (CHAUTEMS 1988, 1990, 1991a, 1991b, 1995), and in the course of preparing a treatment of the *Gesneriaceae* for the "Flora Fanerogâmica do Estado de São Paulo", several undescribed taxa have been encountered. Two new *Codonanthe* and a new *Sinningia* are described below. A key for the eight *Codonanthe* species encountered in the Brazilian coastal rainforest is provided. In order to avoid a posterior illegitimate homonymy, a new name is proposed in *Sinningia*. A rare endemic species, *S. insularis* (Hoehne) Chautems is illustrated here for the first time.

Codonanthe cordifolia Chautems, **spec. nova** (Fig. 1)

Type: BRAZIL, limits São Paulo/Rio de Janeiro: Estrada Cunha-Parati, 1050 m, 02.I.1991, *A. Chautems & M. Peixoto 392* (Holotype: SP; isotypes: G, US).

Codonanthe gracili affinis, a qua imprimis differt foliis minoris, base cordatis, corollis brevioribus, tubulosis, dense ferrugineis punctatis.

Subshrubs 30-60 cm, epiphytic, rarely rupicolous, stems 1-5 mm diam., glabrous, creeping or trailing. Internodes 1.5-5 cm. Leaves subequal in each pair, blades ovate-orbicular, 1.5-3.5 ×

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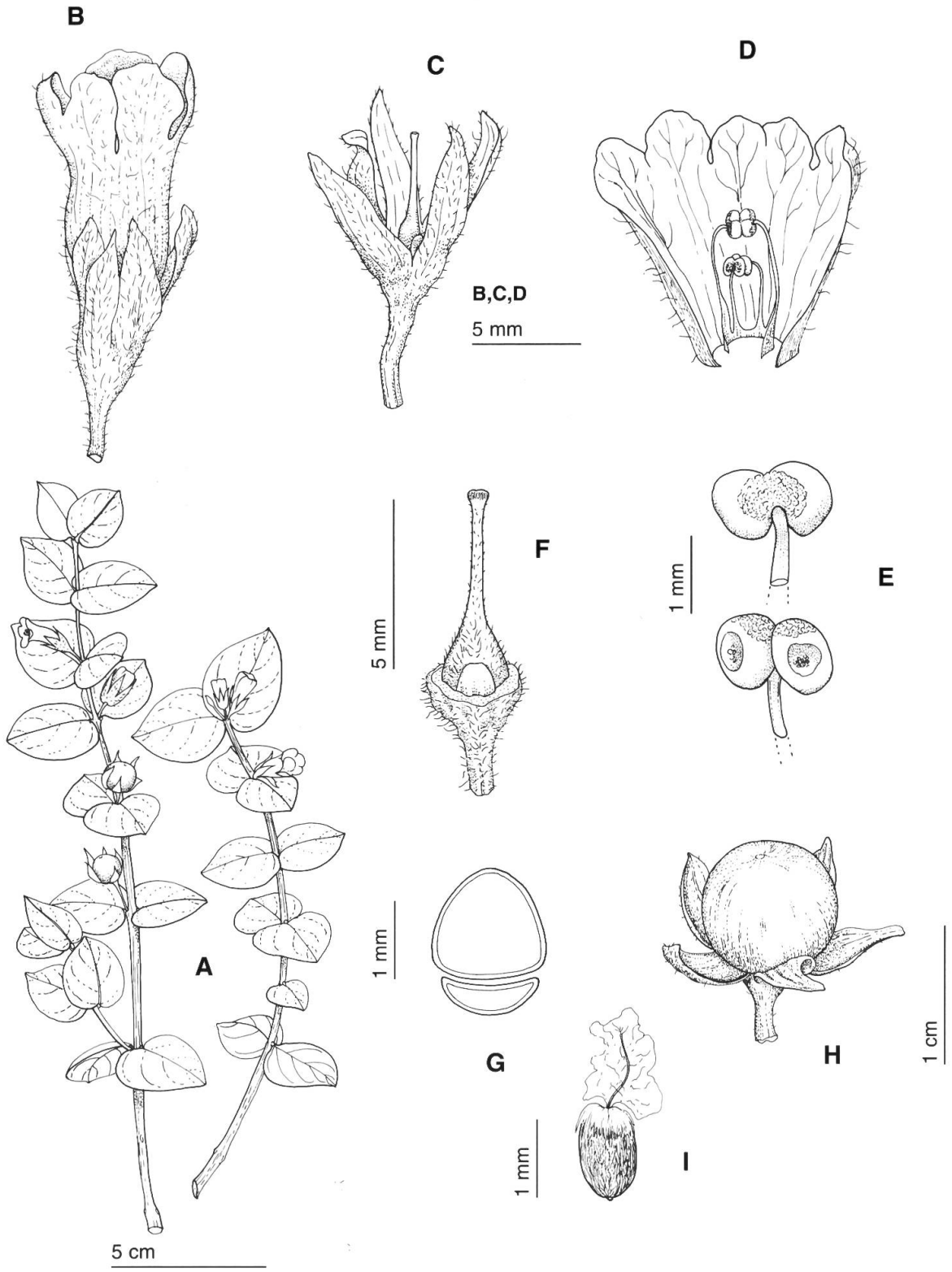

Fig. 1. – *Codonanthe cordifolia* Chautems

A habit; **B** flower; **C** calyx with corolla removed; **D** inside of corolla tube; **E** anther, dorsal and frontal view; **F** ovary and nectary gland; **G** nectary diagram; **H** fruit; **I** seed with part of funiculus (**A-I** based on cultivated material acc. no. AC-1618 and on *Chautems & Peixoto 392*).

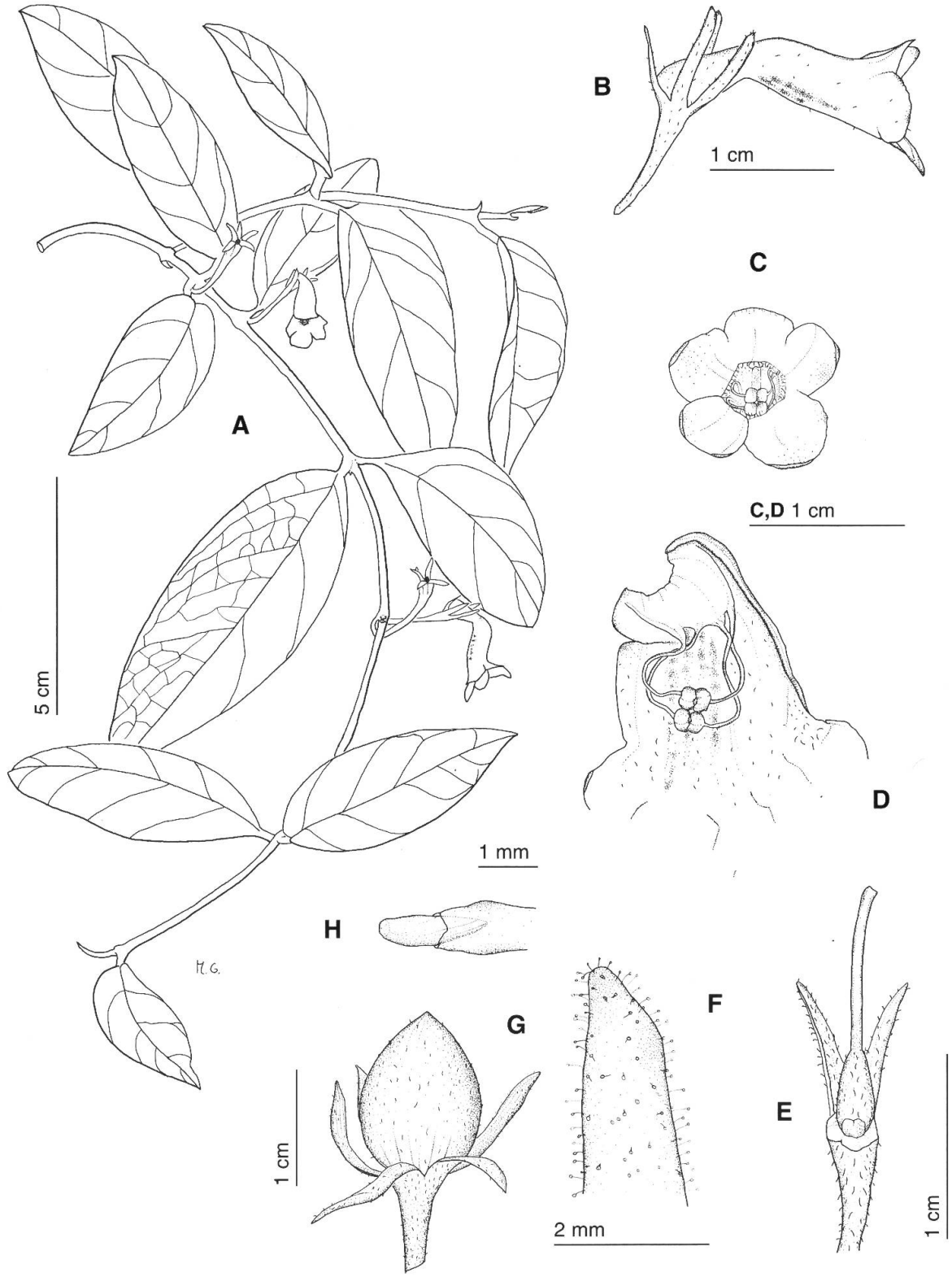

Fig. 2. – *Codonanthe venosa* Chautems

A habit; **B** flower; **C** corolla, front view; **D** inside of corolla tube; **E** ovary and nectary gland; **F** glandulous hairs on calyx lobe; **G** fruit; **H** seed with part of funiculus (**A-H** based on cultivated material acc. no. AC-1701).

1.5-3 cm, fleshy, margin entire, base cordate, apex acute, dark green and glossy above, paler below, venation not visible on live material, petioles 1-2 mm. Flowers 1-3 per leaf axil, glabrous, pedicels 3-5 mm, reddish. Calyx fused for 1-2 mm, lobes linear-oblong, 6-8 × 1.5-2.5 mm, green, margin entire. Corolla narrowly funnel-shaped, 3 mm at base, expanding to 5-6 mm at mouth, tube 7-9 mm long, cream with a fine brown-red punctuation on the outside, yellowish with brown spots in the throat, lobes spreading, subequal, 3-4 × 4-5 mm, rounded, cream on both sides. Stamens included, filaments 7-9 mm, white. Ovary cone-shaped, style 7-8 mm, reddish, stigma stomatomorphic, white. Disc a dorsal bilobed gland. Fruit a rounded berry, 7-9 mm, glossy, dark orange, placenta mass and funiculi light orange, translucent. Seeds 1-1.2 mm, light beige, striate.

This species belongs to subgenus *Codonanthe*. Among the glabrous *Codonanthe* known in South and Sout-East Brazil, it is immediately distinguished by the heart-shaped leaves and the small tubular corolla densely covered with red-brown punctuations.

Etymology. – The specific epithet refers to the cordate leaf bases.

Distribution. – Brazil: Minas Gerais, Rio de Janeiro, São Paulo, Santa Catarina.

Ecology. – Epiphytic or rupicolous in coastal rainforest, between 700-1400 m altitude.

Phenology. – Flowers from (July) September to February; fruits from February to May.

Additional material examined. – **BRAZIL, Minas Gerais:** Serra de Ouro Preto, II.1892, *Ule s.n.* (R 20916). **Rio de Janeiro:** Teresópolis, perto da Cascata Ferox, IX.1929, *Brade 9241* (R); Teresópolis, Serra Carvalho, XI.1929, *Brade 9840* (R); Nova Friburgo, Macaé de Cima, (Faz. Sophronites) caminho para a Pedra Bicudo, IV.1989 (fr), *H. B. Q. Fernandes 2748* (MBML); Macaé, Pico do Frade, 900-1000 m, X.1985, *Leitman & al. 18* (RB); Macaé, Pico do Frade de Macaé, 1000-1400 m, X.1985, *Leitman & al. 75* (RB); Nova Friburgo, Macaé de Cima, picada para a Pedra Bicudo, VIII.1990, *Leitman & al. 407* (RB); Teresópolis, Parque Nacional Serra dos Órgãos, margem do Rio Beija-Flor, II.1983 (fr), *G. Martinelli & E. Simonis 9066* (RB, US); Petrópolis, Floresta IBDF, Rocio, Mata do Facão, 8 km da BR-040, X.1983, *G. Martinelli & al. 9600* (RB, US); Nova Friburgo, Macaé de Cima, Pedra Bicudo, V.1989, *G. Martinelli & al. 13431* (RB). **São Paulo:** Serra da Bocaina, II.1959 (fr), *Castellanos 22373* (R); Mogi das Cruzes, Biritiba-Ussu, II.1984, *A. Chautems & M. Peixoto 105* (G); Bananal, Serra da Bocaina, estrada até sede moderna, II.1984, *A. Chautems & al. 116* (G, RB); Serra do Mar, above Ubatuba, 700 m, VIII.1976 (fr), *Davis & al. 59909* (MBM, UEC); Bananal, Parque Nacional da Serra da Bocaina, margens do Rio Bonito, II.1981, *G. Martinelli & M. C. Marques 7776* (RB). **Santa Catarina:** Blumenau, Morro Spitzkopf, XI.1959, *Klein 2326* (HBR); Ilhota, Parque Botânico do Morro do Baú, 920 m, VII.1966, *Reitz 7008* (HBR); Ibirama, Horto Florestal, VII.1956 (fr), *Reitz & Klein 3398* (HBR).

Material in cultivation. – Grown in Geneva at the Conservatoire et Jardin botaniques greenhouse under A. Chautems acc. no. AC-1152 from collection in RJ, Petrópolis, entre Rocio e Vale das Princesas, mata IBDF, 1200 m; acc. no. AC-1201 from collection in SP, Biritiba-Ussú, = voucher *Chautems 105*; grown in São Paulo in Mauro Peixoto's greenhouse under acc. no. AC-1616 from collection in RJ, Estrada Paratí-Cunha, 1250 m; acc. no. AC-1618, ibidem, 1050 m = *Chautems & Peixoto 392*.

Codonanthe venosa Chautems, **spec. nova** (Fig. 2)

Type: BRAZIL, São Paulo: Ubatuba, Picinguaba, X.1988, *N. M. L. Cunha 215* (Holotype: HRCB; isotype: SPF).

Species insignis foliis oppositis, grandis (3-12 cm), per paria inaequalibus, folio in paria saepe caduco, in statu vivo reticulo venularum conspicue visibili ab omnibus congeneribus differt.

Subshrubs 30-60 cm, epiphytic, stems 1-5 mm diam., somewhat quadrangular, glabrous, trailing. Internodes (2-)4-8 cm. Leaves anisomorphic, often with abscission of one leaf in a pair, blades ovate-elliptic, 3-12 × 1.5-4.5 cm, fleshy, green and glossy with whitish venation (live material) above, paler below, margin entire, base obtuse, apex acute, petioles green to reddish, 3-7 mm. Flowers 1-5 per leaf axil, pedicels 5-10 mm, reddish. Calyx fused for 1-2 mm, lobes linear-oblong, 6-8 × 1-1.5 mm, greenish to reddish, sparingly pubescent with glandulous hairs, margin entire. Corolla tubular, glabrescent, 3-4 mm at base, then slightly contracted to 2-3 mm and curved downward, gradually expanding to 5-6 mm at mouth, tube 15-16 mm long, white, ventral portion of throat spotted with brown, lobes spreading, subequal, 4-5 × 3-4 mm, rounded,

white. Stamens included, filaments 8-10 mm, white. Ovary 3-4 mm, cone-shaped, style 8-10 mm, stigma stomatomorphic, white. Disc a dorsal bilobed gland. Fruit a rounded to sharp-pointed berry, 1.4-1.6 cm, glossy, orange-red, placenta mass and funiculi orange, translucent. Seeds 1-1.2 mm, beige, striate.

This species belongs to subgenus *Codonanthe*. It is strikingly different from any other in the genus by the large leaves, anisomorphic, often with abscission of one leaf in a pair, giving at first look the appearance of an alternate arrangement. The well delineated venation on the adaxial side of the leaves is also unique.

It is rather surprising that this taxon has been found, so far, in only two locations approximatively 250 km distant from one another, both situated within a well known area since Vellozo's first explorations two centuries ago. This suggests a rare occurrence of the species.

Etymology. – The specific epithet refers to the leaves with distinct lateral veins and veinlets, on the abaxial face, visible on live material.

Distribution. – Brazil: Rio de Janeiro, São Paulo.

Ecology. – Epiphytic in coastal plain forest near streams, 10-300 m alt.

Phenology. – Flowers from May to October; fruits from July to December.

Additional material examined. – **BRAZIL, Rio de Janeiro:** Guapimirim, Granja Monte Olivete, margem do Rio Bananal, V.1994, *M. G. Bovini & J. Figuereido 403* (RUSU); ibidem, X.1993, *J. M. A. Braga & al. 766* (RUSU); Guapimirim, Rio Bananal, VIII.1995, *J. A. Lira & M. G. Bovini 117* (RUSU). **São Paulo:** Ubatuba, near beach of Tabatinga, X.1991, *H. Wiehler GRF91175* (GES); ibidem, cultivated in the Geneva greenhouse, II.1993, *A. Chautems 412* (G); idem, I.1994, *A. Chautems 422* (G); Ubatuba, Picinguaba, VI.1989, *J. E. L. S. Ribeiro & al. 675* (HRCB, SPF); ibidem, X.1989, *J. E. L. S. Ribeiro 694* (HRCB); ibidem, V.1989, *F. C. P. Garcia & al. 380* (HRCB); ibidem, IX.1989, *F. C. P. Garcia 493* (HRCB).

Material in cultivation. – Grown in São Paulo by Mauro Peixoto and in the Geneva Conservatoire botanique greenhouse under acc. no. AC-1701, from the same material as *Wiehler GRF91175* = voucher *Chautems 412* and *Chautems 422*.

The genus *Codonanthe* is distributed throughout the Neotropics. The subgenus *Codonanthe* is endemic to the Brazilian coastal rainforest. Two species of subgenus *Spathuliformae* L. B. Sm., with broader distribution, reach the northern part of this area. The rest of the genus is found between Central America, the Caribbean zone and northern South America down to Bolivia. A key to the species of *Codonanthe* occurring in the Brazilian coastal rainforest is presented below.

1 Corolla base not spurred, calyx with 5 subequal lobes, fruit a yellow-orange to red berry: *section ***Codonanthe*** 3

1a Corolla base spurred, calix with 5 unequal lobes, fruit a pink, red or purple berry: *section ***Spathuliformae*** 2

2 Calyx lobes less than 10 mm long, corolla 3-4 cm, plant frequently associated with ant-nests, occurrence in Bahia, Pernambuco, Alagoas and Amazonian Brazil ..... ***C. uleana***

2a Calyx lobes 10-15 mm long, corolla 2-3.5 cm, plant not associated with ant-nests, occurrence in Sergipe and Bahia ..... ***C. mattos-silvae***

3 Stem and leaves glabrous 4

3a Stem and leaves pubescent 6

4 Internodes 1.5-4(-6) cm, leaves 1.5-6 cm, subequal in each pair and not deciduous, limb with no apparent venation on live material 5

4a Internodes (2-)4-8 cm, leaves 3-12 cm, anisomorphic and one in a pair often deciduous, limb with well delineated venation on adaxial face on live material, occurrence in Rio de Janeiro and São Paulo ..... ***C. venosa***

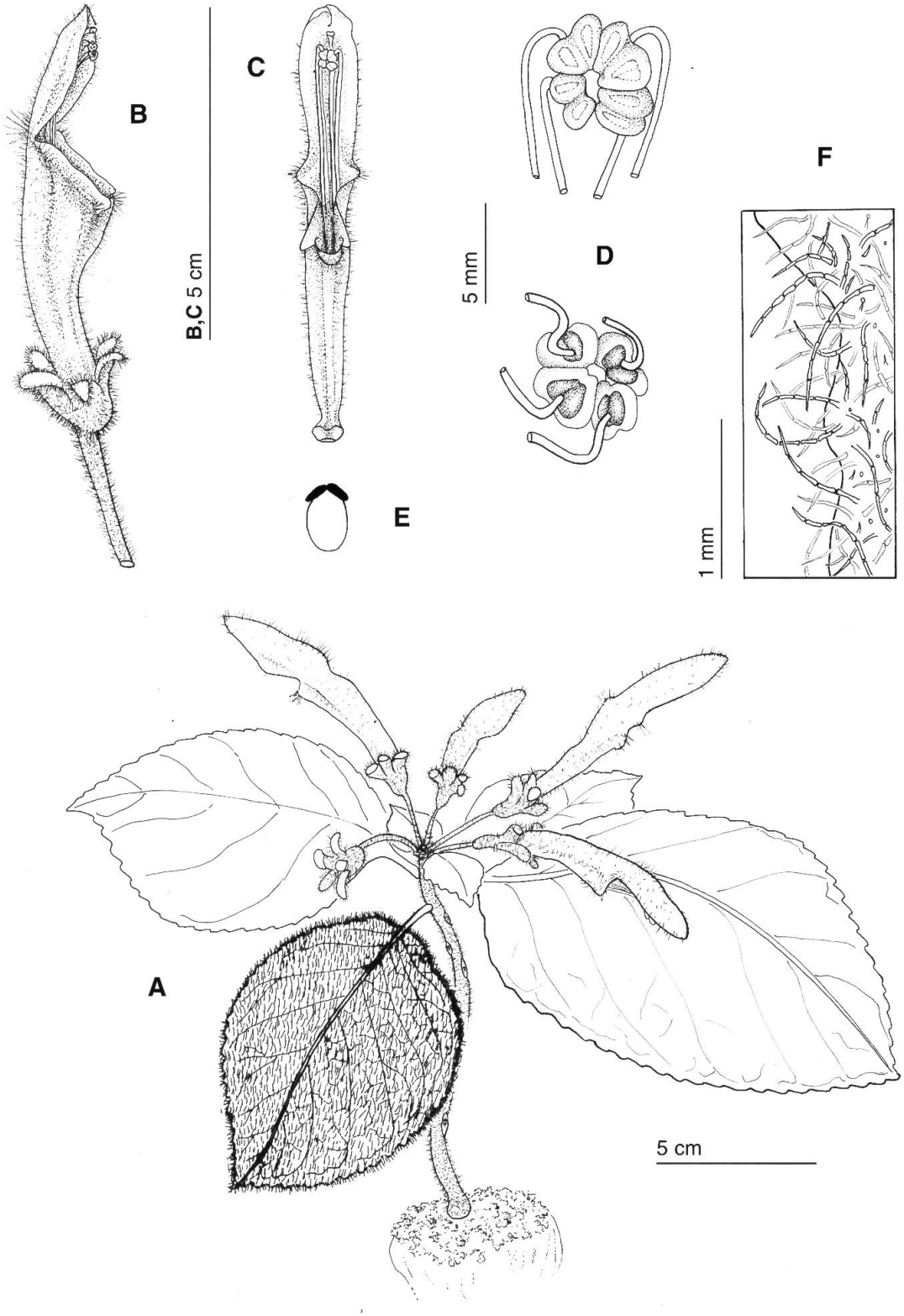

Fig. 3. – *Sinningia hatschbachii* Chautems

A habit; **B** flower, lateral view; **C** corolla, front view; **D** anthers arrangement; **E** nectary diagram; **F** trichomes, adaxial face of leaf (based on *Chautems s.n.* and cultivated material acc. no. AC-1479).

5 Leaves 1.5-3.5 cm long, ovate-orbicular, strongly cordate at base, corolla 1.4-1.8 cm long, tube gradually enlarged, cream with red-brown markings on the outside, occurrence in Minas Gerais, Rio de Janeiro, São Paulo and Santa Catarina ..... ***C. cordifolia***

5a Leaves 2.5-6 cm long, ovate, lanceolate or elliptic, never cordate at base, corolla 2-2.5 cm long, tube strongly ventricose, occurrence in Bahia, Esperito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul ..... ***C. gracilis***

6 Calyx lobes linear, ± 1 mm wide, leaves entire 7

6a Calyx lobes oblong-ovate, 2-2.5 mm wide, leaves with serrate margin, corollas larger than the leaves, occurrence southern Bahia ..... ***C. serrulata***

7 Corolla 2-2.5 cm long, tubular and somewhat sigmoid, occurrence Minas Gerais, Espirito Santo, Rio de Janeiro, São Paulo ..... ***C. carnosa***

7a Corolla 1,2-1,8 cm long, funnel-shaped, occurrence Esperito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, Rio Grande do Sul ..... ***C. devosiana***

Sinningia hatschbachii Chautems, **spec. nova** (Fig. 3)

Type: BRAZIL, Paraná: Morretes, Serra Marumbi, Picada frontal, 1390-1547 m, II.1950, *G. Hatschbach 1866* (Holotype: MBM; isotypes: SP, US).

Sinningiae cardinali affinis sed indumento in omnes partes densiore, laciniis calycis apicem versus reflexis, corollae fauce magis aperta, lateraliter compressa, lobis superioribus longioribus.

Terrestrial herb, arising from perennial tuber, stems erect 8-20 cm, rarely branched, velutinous. Internodes 0.5-5 cm. Leaves decussate, subequal, petioles 1-4 cm, blades ovate-orbicular, 5-13 × 3-7 cm, base obtuse-cordate, apex obtuse, margin serrate, above green, villous, beneath white sericeous, lateral veins 5-7 per side. Inflorescences of 1-3 flowers in upper leaf axils, pedicels 1.5-3 cm, sericeous. Calyx subcampanulate, fused for 3-4 mm, lobes lancelolate, 9-11 × 2-3 mm, recurved at the apex, white villous, margin entire. Corolla tubular, 6-7 cm, brilliant red, pilose, hairs translucent, base to 5 mm diam., gibbous with 5 globose swelling completely covered by the calyx lobes, tube then abruptely constricted to 3 mm, expanding progressively above to 10-12 mm in height, strongly compressed laterally at mouth, limb bilabiate, the 2 upper lobes united, erect, 20-24 × 10-12 mm, the 2 lateral 1.5-2 × 14-16 mm, the ventral 1.5-2 × 4-5 mm with wine-red marks inside. Stamens somewhat shorter than the upper corrolla lobes, filaments reddish, sparingly pilose, anthers coherent in a disk. Ovary conical, style reaching or sligthly longer than the upper corolla lobes, white, stigma stomatomorphic, nectary composed of a double connate gland. Fruit not observed.

This species looks like *Sinningia cardinalis* (Lehm.) H. E. Moore in habit and flower size. The distinctive features, i.e. much denser hair-covering on whole parts, calyx lobes reflexed at the apex and corolla tube laterally compressed, were only noticed after examination of cultivated material.

The fuzzy pilosity on calyx and abaxial leaf surfaces should make a nice addition to the ornamentally grown *Sinningia* species.

Etymology. – The specific epithet refers to the first collector of the species. It is also an opportunity for me to pay a tribute to Sr. Gert Hatschbach, founder and director of the MBM herbarium, for his great services to the Brazilian Botany.

Distribution. – Brazil: São Paulo, Paraná.

Ecology. – Rupicolous, on humid rocky outcrops, between 700-1500 m.

Phenology. – Flowers from November to February.

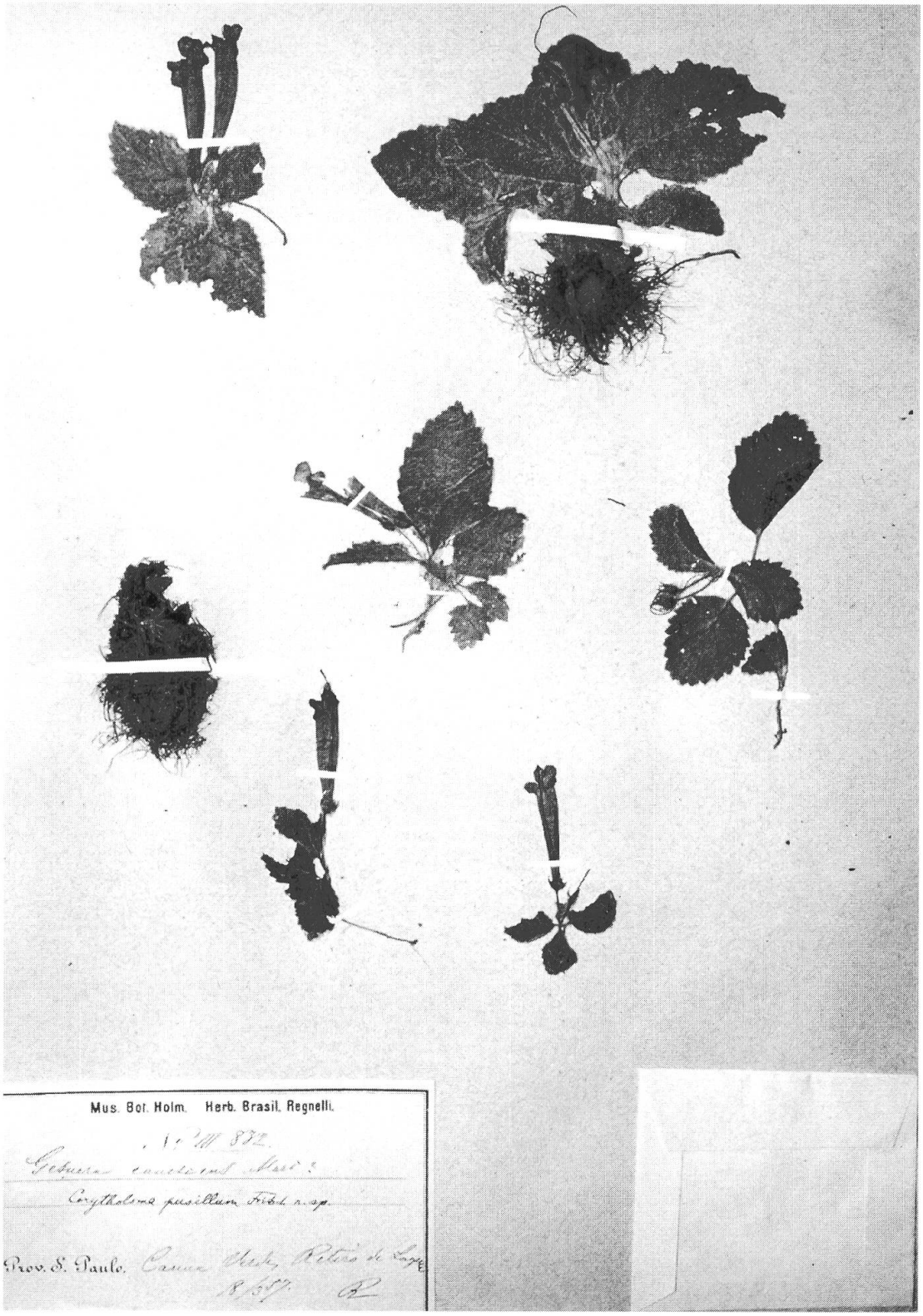

Fig. 4. – *Sinningia areneosa* Chautems

Photo of the type specimen (S), from a slide kindly provided by Dr. L. E. Skog, Smithsonian Institution.

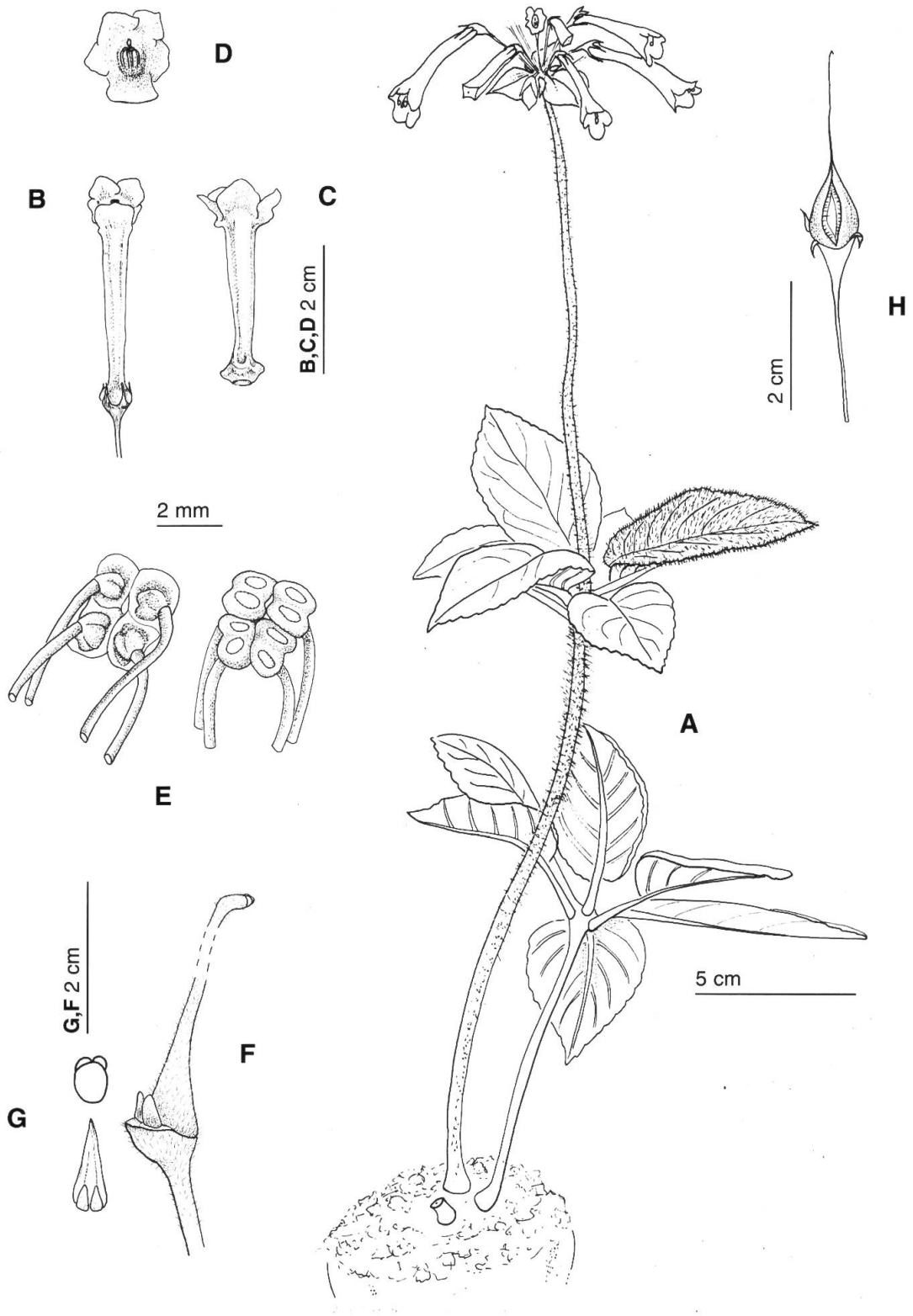

Fig. 5. – *Sinningia insularis* (Hoehne) Chautems

A habit; **B** flower; **C** corolla; **D** corolla lobes arrangement; **E** anthers arrangement, dorsal and frontal view; **F** ovary and nectary gland; **G** nectary, dorsal view and diagram; **H** fruit (based on cultivated material acc. no. AC-1662).

Additional material examined. – **BRAZIL, São Paulo:** Iporanga, route Apiaí-Capão Bonito (SP-250), flowered in the Geneva greenhouse XI.1993, *Chautems s.n.* (G). **Paraná:** Morretes, Serra do Marumbi, II.1950, *G. Hatschbach 1900* (MBM, US); Morretes, Serra Marumbi, 1250 m, II.1970, *G. Hatschbach 23939* (MBM, NY, UC); Marumbi, Estr. Ferro Curitiba-Paranaguá, base do Marumbi, I.1965, *M. L. Pereira 338* (PKDC).

Material in cultivation. – Grown in Geneva at the Conservatoire et Jardin botaniques greenhouse under acc. no. AC-1479 from collection in São Paulo, Mun. Iporanga, estrada SP-250 Apiaí-Capão Bonito, XII.1989 (sterile) = voucher *Chautems s.n.*; grown in São Paulo in Mauro Peixoto's greenhouse under acc. no. AC-1804 from collection in São Paulo, Mun. Apiaí, estrada Iporanga-Apiaí, 700 m, I.1993.

Sinningia areneosa Chautems, **nom. nov.** (Fig. 4)

≡ *Corytholoma pusillum* Fritsch in Bot. Jahrb. Syst. 29, Beibl. 65: 20. 1900 [non *Sinningia pusilla* (Mart.) Baill. in Bull. Mens. Soc. Linn. Paris 1: 722. 1888].

≡ *Rechsteineria pusilla* (Fritsch) Fritsch in Bot. Jahrb. Syst. 50: 436. 1913.

Type: BRAZIL, São Paulo: Canna Verdes, Retiro de Lageni, III.1857, *Regnell III 832* (Holotype: S).

Distribution. – Brazil: São Paulo.

Etymology. – The name refers to the lanate-arachnoid hair-covering on stem and leaves.

Additional material examined. – **BRAZIL, São Paulo:** Altinópolis, III.1994, *W. Marcondes-Ferreira & al. 783* (SP).

CLAYBERG (1968, 1970) suggested the merging of genus *Rechsteineria* Regel (including *Corytholoma* (Benth.) Decne.) with *Sinningia;* several authors followed this taxonomic point of view (CHAUTEMS, 1990, 1991, 1995). A new name needs to be proposed here in order to avoid a posterior illegitimate homonymy.

Unable to find Fritsch's type locality in current gazetteers or maps, I had some doubt on the geographic origin of this material. Examination of a recent collection, done in connection with the "Floraa Fanerogâmica do Estado de São Paulo" program, at the "Instituto de Botânica", confirmed the occurrence of the species in this state.

Sinningia insularis (Hoehne) Chautems (Fig. 5)

The first illustration of *Sinningia insularis* (Hoehne) Chautems is published here. This species grows on the "Ilha dos Alcatrazes", a small granitic island 30 km distant from the São Paulo mainland, between the cities of Santos and São Sebastião. The area was first visited by the botanists Loefgren and Edwall in the 1880, followed in 1920 by Luederwalt and Fonseca (LUEDERWALT & FONSECA, 1920). The material they collected is kept at the "Instituto de Botânica" of São Paulo. In 1958, Hoehne described *Rechsteineria insularis*, based on two exsicata of these collectors, but did not provide any illustration. The original Hoehne's description mentions 4-verticillate leaves. From a tuber given by Dra. Lúcia Rossi who took part in new expeditions to the island in 1988 and 1990 (POMPEIA et al., 1991), seeds were produced and distributed to a few growers. Based on this material, introduced in the Conservatoire greenhouse in Geneva, an illustration was prepared. The plant used at this time had 6-verticillate leaves, but the same individual produced a year later a stem bearing 4-verticillate leaves. Variation of the basic number of leaves between two and three, within the same taxon, has been observed in several other *Sinningia* species.

S. insularis with its elegant habit and bright-orange flowers makes a nice addition to the many other pink or red-flowered species in cultivation.

Conservation measures of the native habitat of this plant are strongly recommended by POMPEIA & al. (1991). The island measures some 2.5 by 0.5 km and reaches 316 m on its highest point. The absence of permanent water source and the distance from the mainland prohibits lasting human colonization, but the Brazilian Navy occupies some areas and occasionally

uses them for shooting exercices. The fires, ignited by the Navy projectiles or by the clearing of target zones, threaten several other rare plants, reptiles and the sea-birds colonies nesting there.

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I am very grateful to Maya Mossaz (Fig. 1), Myriam Guidoux (Fig. 2) and Laetitia Renlund (Fig. 3, 5) for the careful execution of the illustrations. I thank the curators of the cited herbaria for the loan of specimens and/or assistance and encouragement during my visits. I greatly appreciated the help provided by the gardeners in taking good care of the *Gesneriaceae* collection in the "Conservatoire et Jardin botaniques" greenhouse.

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Address of the author: Conservatoire et Jardin botaniques de la Ville de Genève, C.P. 60, CH-1292 Chambésy/GE, Switzerland.