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A REVISION OF THE GENUS CHAETOCALYX

BY VELVA E. RUDD

Introduction

Chaetocalyx is a genus of papilionaceous legumes. Its name is derived from a frequently occurring characteristic—the calyx beset with glandular setae. The plants are twining vines with slender, herbaceous, or somewhat woody stems. The fruits are loments, narrow and elongated in most species, shorter and flattened in others. The range is limited to the western hemisphere, from southern Mexico to the Antilles and South America.

There has been no general monograph of *Chaetocalyx*, the treatments which have been on a limited regional basis, with resulting misinterpretations of specific limits and publication of superfluous names. It has been virtually impossible to make satisfactory determinations of collections submitted for examination.

About 25 species have been attributed to the genus. In this paper the number of recognized species has been reduced to eleven, including the addition of one new species from Peru and the transfer of *Chaetocalyx* of two genera, *Raimondianthus* and *Isodesmia*.

In addition to material at the U. S. National Herbarium (US), specimens from the following herbaria have been consulted: Arnold Arboretum (A); British Museum (BM); Chicago Natural History Museum (formerly Field Museum) (F); Gray Herbarium of Harvard University (GH); Royal Botanic Gardens, Kew (K); University of Michigan (Mich); U. S. National Arboretum (NA); New York Botanical Garden (NY); Muséum d'Histoire Naturelle, Paris (P); Herbarium Anchieta, Colégio Anchieta, Porto Alegre, Brazil (PACA); Academy of Natural Sciences, Philadelphia (Ph); Jardim Botânico do Rio de Janeiro (RB); Herbario San Marcos, Museo de Historia Natural, Lima, Peru (USM); Instituto Botánico, Ministerio de Agricultura y Cría, Caracas, Venezuela (Ven). The writer is grateful to the curators of those institutions for making such material available. Abbreviations of herbarium names are those of the Index Herbariorum vanjouw and Stafleu, ed. 2, 1954).

The citations of "F. M. neg." refer to Field Museum negatives of series of photographs taken in European herbaria by J. F. Macbride.

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Historical consideration

The genus *Chaetocalyx* was established by de Candolle in 1825 (Mém. Leg. 6:262, 1825; Prodr. 2:243, 1825) and assigned by him to the tribe Loteae of the Leguminosae. It segregated two species previously assigned to *Glycine*—*vincentina* and *pubescens*. The name *Chaetocalyx* was given because of a common characteristic of the genus (although not unique to it), that of the calyx beset with glandular setae.

The following year Sprengel (Syst. Veg. 3:245, 1826) published a new genus, *Bönninghausia*, also based on *Glycine vincentina*. Later Urban (Symb. Antill. 2:292, 1900) recognized that this taxon was referable to Linnaeus' *Coronilla scandens* (Sp. Pl. 2:743, 1753), and that the correct name of the type of the genus should be *Chaetocalyx scandens* (L.) Urb.

The genus *Planarium* was initiated by Desvaux (Ann. Sci. Nat. 9:416, 1826), based on his *Poiretia latisiliqua*, which he originally had based on *Hedysarum latisiliquum* Juss. ex Poir. (in Lam. Encyclop. Meth. Bot. 6:432, 1804). In 1865, Bentham (in Benth. and Hook. Gen. Pl. 1:513, 1865) placed *Planarium* with *Chaetocalyx* but did not cite the two genera as synonyms, nor did he mention the specific name *latisiliquum*. Hemsley, however, did make the combination *Chaetocalyx latisiliqua* (Biol. Cent. 1:268, 1880), which he attributed to Bentham.

Another new genus, *Rhadinocarpus*, subsequently reduced to synonymy under *Chaetocalyx*, was described by Vogel in connection with his treatment of Brazilian Hedysareae (Linnaea 12:108–111, 1838). Bentham (in Mart. Fl. Bras. 15(1):74–76, 1859) transferred Vogel's *R. brasiliensis* and *R. acutifolius* to *Chaetocalyx*, and added four new species; *C. parviflora*; *C. latifolia*; *C. hebecarpa*, with three varieties; and *C. polyphylla*.

Gardner (in Hook. Lond. Journ. Bot. 2:339, 1843) published *Isodesmia*, with one species, *tomentosa*. Bentham (in Mart. Fl. Bras. 15(1):71, 1859) added a second species, *blanchetiana*. The latter species appears to be distinct, but the former, the type of the genus, is identical with *Chaetocalyx polyphylla* Benth. Assigning this material to *Chaetocalyx* seems to be correct.

Raimondianthus, a monotypic genus established by Harms (Notizblatt 10:387, 1928), differs but slightly from the two species of *Isodesmia* and should be treated as congeneric. In the present paper it also is transferred to *Chaetocalyx*.

Some 17 additional species of *Chaetocalyx* have been published during the past century. Two of these, *C. wislizenii* A. Gray (Pl. Wright. 1:51. 1852) and *C. schottii* Torr. (Bot. Mex. Bound. 56. 1859) have been transferred to *Nissolia*. The most sizable contribution is the work of Pittier (Bol. Soc. Venez. Cienc. Nat. 6:185-192. 1940) with six new species. Other authors with one or two new taxa include Gray (*in* U. S. Expl. Exped. 1:423. 1854), Taubert (Flora 72(n.s. 47): 425. 1889), Harms (Fedde Rep. Spec. Nov. 17:132. 1921), Blake (Contr. U. S. Nat. Herb. 20:523. 1924), Standley (Field Mus. Pub. Bot. 8:14. 1930; 12:410. 1936), Burkart (Darwiniana 3:165. 1939), and Lundell (Contrib. Univ. Mich. 6:26. 1941).

Economic consideration

Chaetocalyx is a relatively inconspicuous and unimportant element of the vegetation. There is scant mention of usefulness, and there seem to be no records of its being considered noxious.

Schipp has noted on a collection of *Chaetocalyx brasiliensis* from British Honduras (*Schipp* No. 1330), "small vine and one of the best I have seen as a cover crop, forming carpets of foliage . . . Rare."

Mexia recorded that *Chaetocalyx latisiliqua* (*Mexia* No. 8463), "chupa-chupa," in the province of Esmeraldas, Ecuador, was "common locally. Leaf used bruised for skin eruptions."

Geographic distribution

Chaetocalyx is known only from the New World. It ranges (fig. 1) from southern Mexico into the Antilles, through Central America and South America to Peru, northern Argentina, southern Brazil, and Uruguay, at elevations up to about 2,000 meters.

The species occur in more or less mesic habitats such as stream banks, at the edge of woods, along roadsides, on hillsides, and, less commonly, in dry places or in dense forest shade.

Morphological characters

The species of *Chaetocalyx* apparently are all twining vines. The stems are herbaceous or slightly woody, slender, subterete, striate, about 1-4 mm. in diameter. The surface may be glabrous to densely pubescent with simple hairs, and may or may not be beset with yellowish, bulbous-based glandular setae. One species, *C. nigricans*, is generally nigrescent on drying.

Stipules are paired, attached at the base, deltoid or deltoid-ovate to lanceate, acute to attenuate, entire to setose-ciliate or laciniate. Stipels are lacking.

The leaves are imparipinnate, 5–17-foliolate. The rachis, glabrous to pubescent like the stems, is about 2–12.5 cm. long, with the petiole comprising about one-half to two-thirds the total length. The leaflets are oblong, elliptical, ovate, or obovate, ranging in length from 10–80 mm. and in width from about 5–50 mm. The margin is entire in all

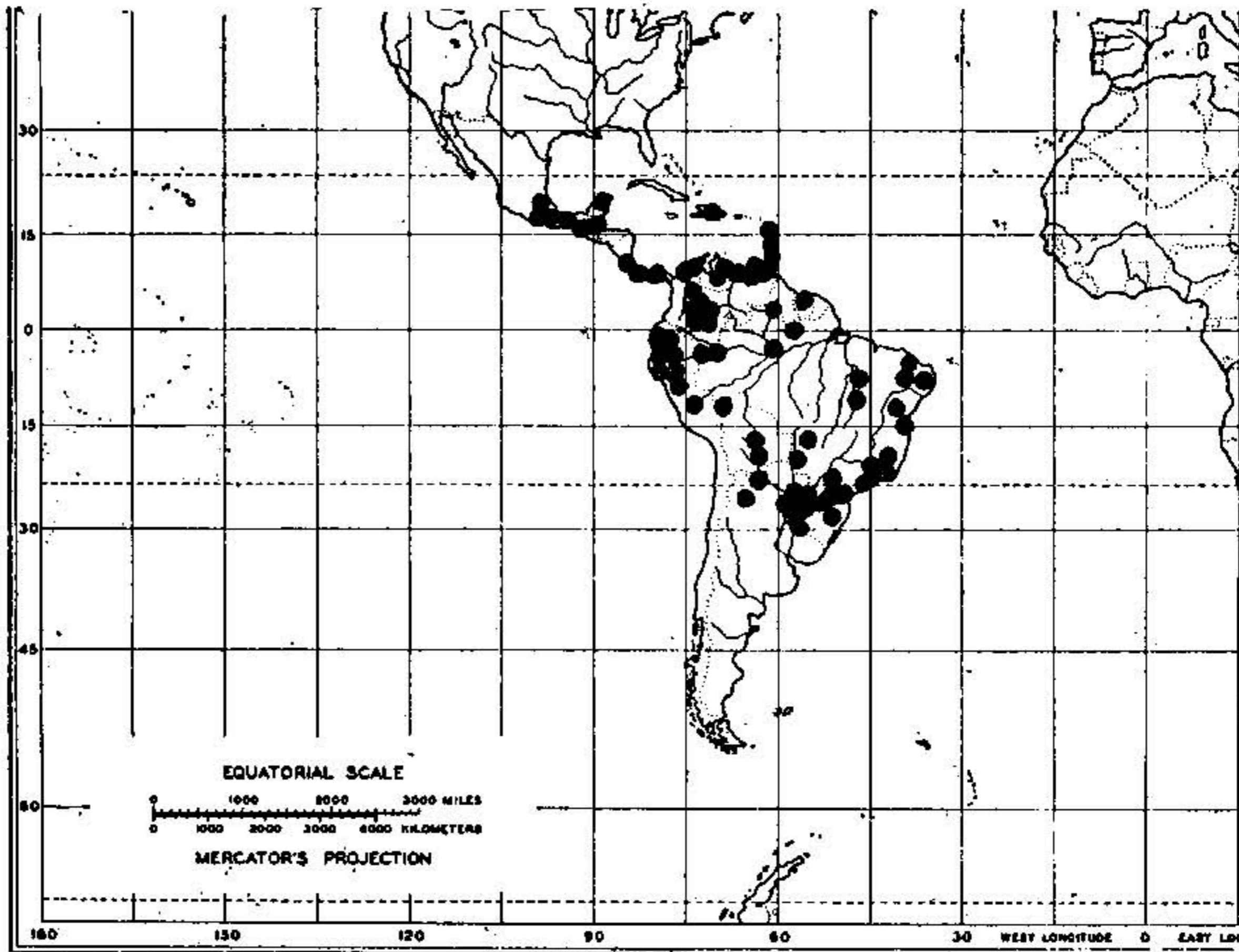


FIGURE 1.—Geographic distribution of the genus *Chaetocalyx*.

species. The apex is mucronulate and acute to obtuse or, in some species, retuse. The base is rounded, cuneate, or subcordate. The surfaces, sometimes discoloured, may be glabrous to pubescent, sometimes micropunctulate. The venation is pinnate, the costa and a few secondary veins obvious, the others inconspicuous. The petioles are somewhat pulvinate, about 1–2 mm. long.

Vegetatively, much of the material of *Chaetocalyx* is virtually indistinguishable from specimens of *Nissolia*.

The inflorescences are axillary or terminal, in racemes, panicles, fascicles, or the flowers sometimes are solitary. The bracts and stipules intergrade, the former being slightly smaller. The flowering axis, like the stem, may be glabrous to pubescent, sometimes beset with glandular setae. The peduncles and pedicels are too variable in length to be useful as diagnostic characters.

The flowers are moderate in size, ranging from about 12 mm. to 30 mm. in length. Measurements are from the base of the calyx to the apex of the standard petal.

The calyx is campanulate with five subequal lobes or teeth. The tube may be glabrous to densely pubescent, with or without glandular setae. In some species it is essentially symmetrical, in others, gibbous. The basal portion of the tube, about 1 mm. long, is abruptly narrowed to essentially the diameter of the pedicel, and within it all the floral parts appear to be more or less adnate. An articulation commonly develops at the base of the tube.

The corolla is papilionaceous and yellowish. The standard petal is pubescent on the outer face in some species, glabrous in others. It is spatulate, clawed, and slightly longer than the keel and wings. The shape of the standard blade, which varies but little, seems not to be a particularly useful nor convenient diagnostic character.

The ten stamens are subequal, about as long as the keel. The filaments, glabrous or somewhat pubescent, are free from the apex to about midlength, but below that are united to form a sheath that splits along the vexillar side and sometimes also the carinal side, as the fruit develops. The anthers are dorsifixed, ellipsoidal, the largest but slightly over 1 mm. long.

The ovaries commonly are 6–16-ovulate, sessile or stipitate, glabrous to densely pubescent. The style is glabrous, the stigma capitate.

The fruits are elongate loments, 6–16-articulate. In some species they are laterally compressed, reticulate-striate, in others subterete and longitudinally striate. The surface may be glabrous to pubescent, with or without glandular setae. There sometimes is variation of vestiture on different areas of the same fruit, rendering degree of pubescence as of limited diagnostic value.

The seeds are sublustrous, smooth, reddish brown, elongate, 2.5–6 mm. long, and about 1–2 mm. wide, somewhat compressed. Mature fruits and seed of a few species have not been available for observation.

Apparently no chromosome counts of *Chaetocalyx* have been published.

Taxonomic position

Chaetocalyx is a genus of papilionaceous legumes, closely related to *Nissolia*. Originally placed in the tribe Loteae by de Candolle (Mem. Leg. 6:262. 1825), it was included in the Hedysareae by subsequent authors. Taubert (*in* Engler & Prantl, Die Natürlichen Pflanzenfamilien 3(3):316. 1894) placed it in his subtribe Aeschynomeninae, a group characterized by stamens united to form a sheath, which later splits along one side, or along two sides, forming two phalanges of five stamens each. The other genera of this subtribe are *Aeschynomene*,

Amicia, *Balisaea*, *Brya*, *Climacorachis* (= *Aeschynomene*), *Cyclocarpa*, *Diphaca*, *Discolobium*, *Fiebrigiella*, *Geissaspis*, *Isodesmia* (= *Chaetocalyx*), *Nissolia*, *Pictetia*, *Poiretia*, *Pseudomachaerium* (= *Nissolia*), *Raimondianthus* (= *Chaetocalyx*), *Smithia*, *Soemmeringia*, and *Weberbauerella*.

Chaetocalyx is most readily distinguished by its climbing habit, its imparipinnate leaves, and, in most species, by its elongate loment. The articles of the loment are uniform in size rather than with a terminal, expanded, winglike article as in *Nissolia*. Setae on the calyx, basis of the generic name, are not always present in *Chaetocalyx* and are sometimes to be found in other genera.

Systematic treatment

Chaetocalyx

Chaetocalyx DC. Mém. Leg. 6:262. 1825; Prodr. 2:243. 1825.

Bönninghausia Spreng. Syst. Veg. 3:245. 1826.

Planarium Desv. Ann. Sc. Nat. 9:416. 1826.

Rhadinocarpus Vog. Linnaea 12:108. 1838.

Isodesmia Gardn. in Hook. Lond. Journ. Bot. 2:339. 1843.

Raimondianthus Harms, Notizblatt 10:387. 1928.

Twining vines, herbaceous or somewhat woody; leaves imparipinnate, 5–17-foliolate; stipules deltoid or deltoid-ovate to lanceate, attached at the base; inflorescences axillary or terminal, the flowers in racemes, panicles, fascicles, or solitary; flowers 5-merous; calyx campanulate with five subequal teeth or lobes, the tube gibbous or symmetrical; corolla papilionaceous, yellowish, sometimes with red or violet; stamens 10, the filaments united to form a sheath that later splits, commonly along the vexillar side; fruit a 6–16-articulate loment, elongate, compressed to subterete; seeds reniform-rod shaped, sublustrous, reddish brown.

The type of the genus is *Chaetocalyx vincentina* (Ker.) DC., based on *Glycine vincentina* Ker., and now identified by an older specific name, *C. scandens* (L.) Urb.

Key to species, based on flowering material

Standard petal glabrous or mostly so.

Calyx tube essentially symmetrical, 3–4 mm. in diameter.

Flowers 22–25 mm. long; standard mostly glabrous, but pubescent toward the base; calyx tomentulose, the teeth attenuate, 2–5 mm. long (Peru).

1. *C. weberbaueri*

Flowers 15–25 mm. long; standard essentially glabrous; calyx pubescent to subglabrous, sometimes glandular-setose, the teeth deltoid, 1–2.5 mm. long (Costa Rica to Ecuador) 5. *C. latisiliqua*

Calyx tube gibbous, 4–5 mm. in diameter.

Plant drying blackish (southeastern Brazil; northeastern Argentina; Uruguay).

6. *C. nigricans*

Plant drying green or brownish.

Teeth of calyx (2-) 4-6 mm. long; standard commonly pubescent but rarely glabrous; leaves 5-foliolate, the leaflets elliptical, obtuse to subacute, pubescent (Bolivia; southeastern Brazil) 7. **C. longiflora**

Teeth of calyx 1-3 mm. long; standard usually glabrous, rarely pubescent; leaves 5-11-foliolate, the leaflets elliptical, suborbicular, or obovate, obtuse to truncate-emarginate (southern Mexico to northern Argentina, Paraguay, and southern Brazil) 9. **C. brasiliensis**

Standard petal pubescent on the outer face.

Calyx tube gibbous, 4-5 mm. in diameter.

Stems, leaf and floral axes fulvous-pubescent; stamens with filaments pubescent at least at the base.

Calyx teeth deltoid, 0.5-2 mm. long.

Leaves 5-7-foliolate (Peru) 2. **C. platycarpa**

Leaves 11-17-foliolate (Brazil) 3. **C. tomentosa**

Calyx teeth oblong-lanceate, 2-5 mm. long (Brazil) . 4. **C. blanchetiana**

Stems, leaf and floral axes glabrous or whitish to stramineous-pubescent; stamens with glabrous filaments.

Leaflets obtuse or emarginate to subacute, the surfaces pubescent.

Leaves 5-11-foliolate, the leaflets elliptical, suborbicular, or obovate, obtuse to truncate-emarginate; calyx teeth 1-3 mm. long (southern Mexico to northern Argentina, Paraguay, and southern Brazil).
9. **C. brasiliensis**

Leaves 5-foliolate, the leaflets elliptical, obtuse to subacute; calyx teeth (2-) 4-6 mm. long (Bolivia; southeastern Brazil) . 7. **C. longiflora**

Leaflets acute to acuminate, the surfaces glabrous to sparsely pubescent (southern Brazil) 8. **C. acutifolia**

Calyx tube symmetrical or sometimes gibbous, 2.5-3.5 mm. in diameter.

Tube of calyx somewhat gibbous, truncate, the teeth subulate, 1-2 mm. long (Peru) 10. **C. klugii**

Tube of calyx essentially symmetrical, the teeth lanceate-deltoid, usually attenuate, 2-7 mm. long.

Leaflets glabrous; calyx glabrous or nearly so, except for glandular setae and marginal cilia (Antilles; northern Venezuela; northern Colombia).

11a. **C. scandens** var. **scandens**

Leaflets densely pubescent to subglabrous; calyx pubescent (southern Mexico; Antilles; Venezuela; Colombia; eastern Brazil).

11b. **C. scandens** var. **pubescens**

Key to species, based on fruiting material

(Two Peruvian species, *C. klugii* and *C. weberbaueri*, are excluded from the key because the fruits are not known.)

Legume strongly compressed, 5-20 mm. broad.

Fruit sessile; stems, leaf, and floral axis fulvous-pubescent.

Leaves 5-7-foliolate; fruit [submature] about 20 mm. broad, 6-articulate (Peru) 2. **C. platycarpa**

Leaves 7-17-foliolate; fruit 5-10 mm. broad.

Fruit mostly 10-14-articulate; leaves 7-9-foliolate (Brazil).

4. **C. blanchetiana**

Fruit mostly 6-8-articulate; leaves 11-17-foliolate (Brazil).

3. **C. tomentosa**

Fruit stipitate; stems, leaf and floral axis whitish to stramineous-pubescent glabrous.

Stipe of fruit 5-7 mm. long; articles of fruit 7-10 mm. wide, 4-5 mm. long; calyx tube essentially symmetrical; plant green or brownish when dry (Costa Rica to Ecuador) 5. *C. latisiliqua*

Stipe of fruit 10-15 mm. long; articles of fruit 6-7 mm. wide, 6-10 mm. long; calyx tube gibbous; plant blackish when dry (southeastern Brazil, northeastern Argentina; Uruguay) 6. *C. nigricarpa*

Legume subterete to slightly compressed, 1.5-4 mm. broad.

Calyx tube gibbous, 4-5 mm. in diameter; fruit stipitate, 2-4 mm. broad.

Fruit somewhat compressed, the stipe about 6-12 mm. long; calyx teeth attenuate, (2-) 4-6 mm. long.

Leaflets obtuse to subacute, the surfaces pubescent; articles of fruit 3 mm. broad, 7-10 mm. long (Bolivia; southern Brazil).

7. *C. longifolia*

Leaflets acute to acuminate, the surfaces glabrous to sparsely pubescent; articles of fruit [submature] about 2-2.5 mm. broad and 12-17 mm. long (southern Brazil) 8. *C. acutifolia*

Fruit subterete, the stipe 5-8 mm. long; calyx teeth deltoid, 1-3 mm. long (southern Mexico to northern Argentina, Paraguay, and Brazil).

9. *C. brasiliensis*

Calyx tube essentially symmetrical, 2.5-3.5 mm. in diameter; fruit sessile, 1.5-2 mm. broad.

Leaflets glabrous; calyx glabrous or nearly so, except for glandular setae and marginal cilia (Antilles; northern Venezuela; northern Colombia).

11a. *C. scandens* var. *scandens*

Leaflets densely pubescent to subglabrous; calyx pubescent (southern Mexico; Antilles; Venezuela; Colombia; eastern Brazil).

11b. *C. scandens* var. *pubescens*

1. *Chaetocalyx weberbaueri* Harms, Fedde Rep. Spec. Nov. 17:132. 1921.

FIGURE

Stems, leaf rachis, and floral axis sordid-tomentulose and setose with yellowish, glandular hairs, the stems glabrescent; stipules 7-10 mm. long, about 2 mm. wide at the base, lanceate, attenuate, entire, tomentulose; leaves 5-foliolate, the rachis 3-10 cm. long; leaflets elliptical to obovate, 15-70 mm. long, 10-50 mm. wide, obtuse, mucronulate, entire, the base rounded or cuneate, the upper surface glabrous, the lower surface subglabrous or moderately pubescent, especially along the veins and margin; inflorescences axillary, few-flowered fascicles or short racemes, exceeded by the subtending leaflets; the bracts ovate-lanceate, acuminate, often lacinate, 1-2.5 mm. wide at the base, tomentulose, the pedicels about 10 mm. long; flowers 22-25 mm. long; standard petal slightly pubescent toward the base but otherwise glabrous; calyx campanulate, essentially symmetrical, 7-10 mm. long, tomentulose, sometimes setose, the tube 4-6 mm. long, 3.5-4 mm. in diameter, the teeth lanceate, attenuate, 2-5 mm. long; stamens with glabrous filaments; ovary sessile, elongate, cor-

pressed, densely tomentulose, about 8-10-ovulate; mature fruit not seen.

TYPE LOCALITY: Palambra, Province of Huancabamba, Department of Piura, Peru, at 1,000-1,200 meters, in evergreen brush. Type collected by A. Weberbauer (No. 6020), cited below.

DISTRIBUTION: Known only from Department of Piura, Peru.

PERU

PIURA: Palambra, *Weberbauer* 6020 (F, F. M. neg. 2137 of TYPE ex B, GH, US). Canchaque, *Ferreya* 10901 (US).

This is a distinctive but little known species. The sordid-tomentulose indument seems to be unique. The more or less symmetrical

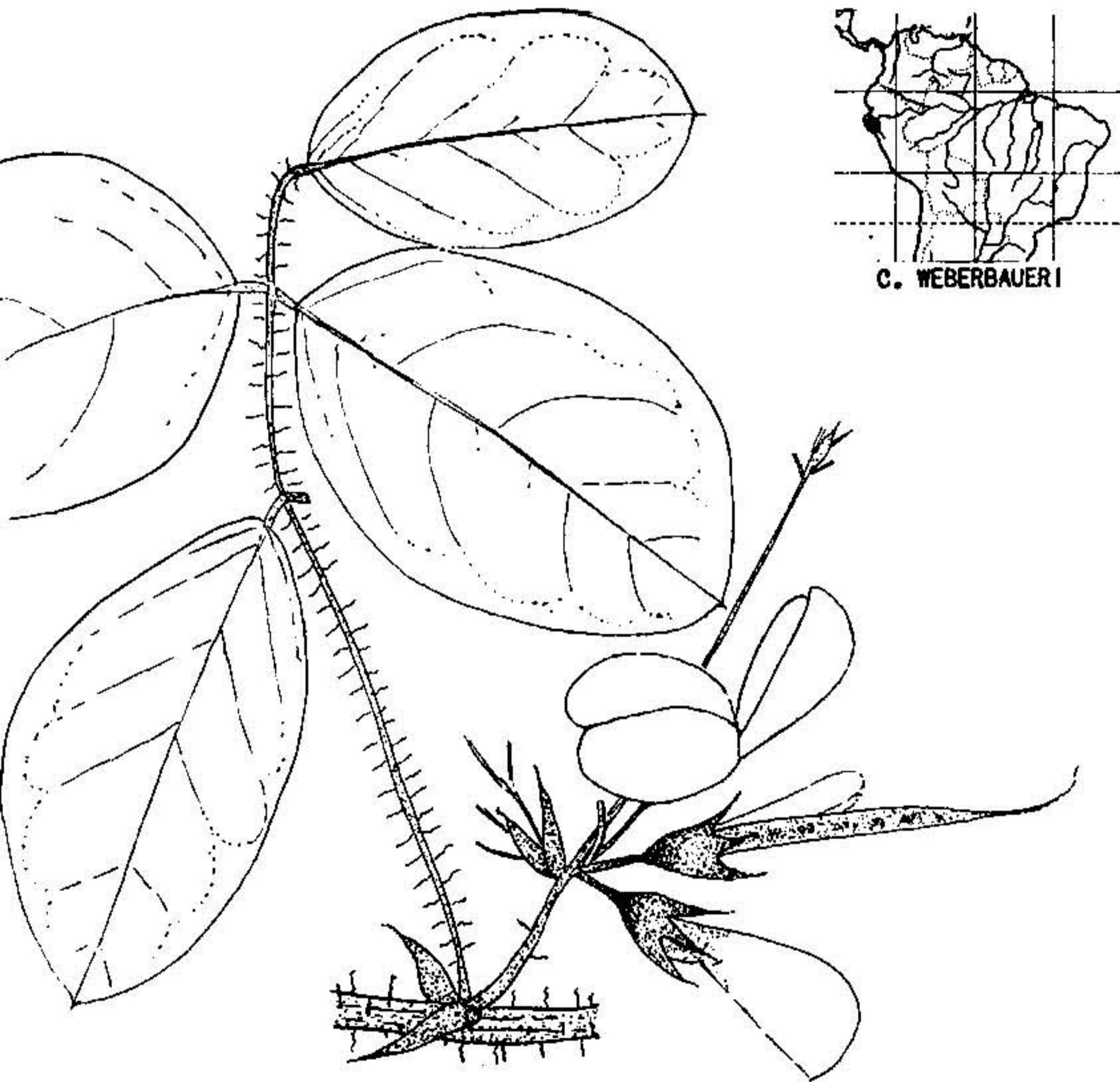


FIGURE 2.—*Chaetocalyx weberbaueri*. Natural size.

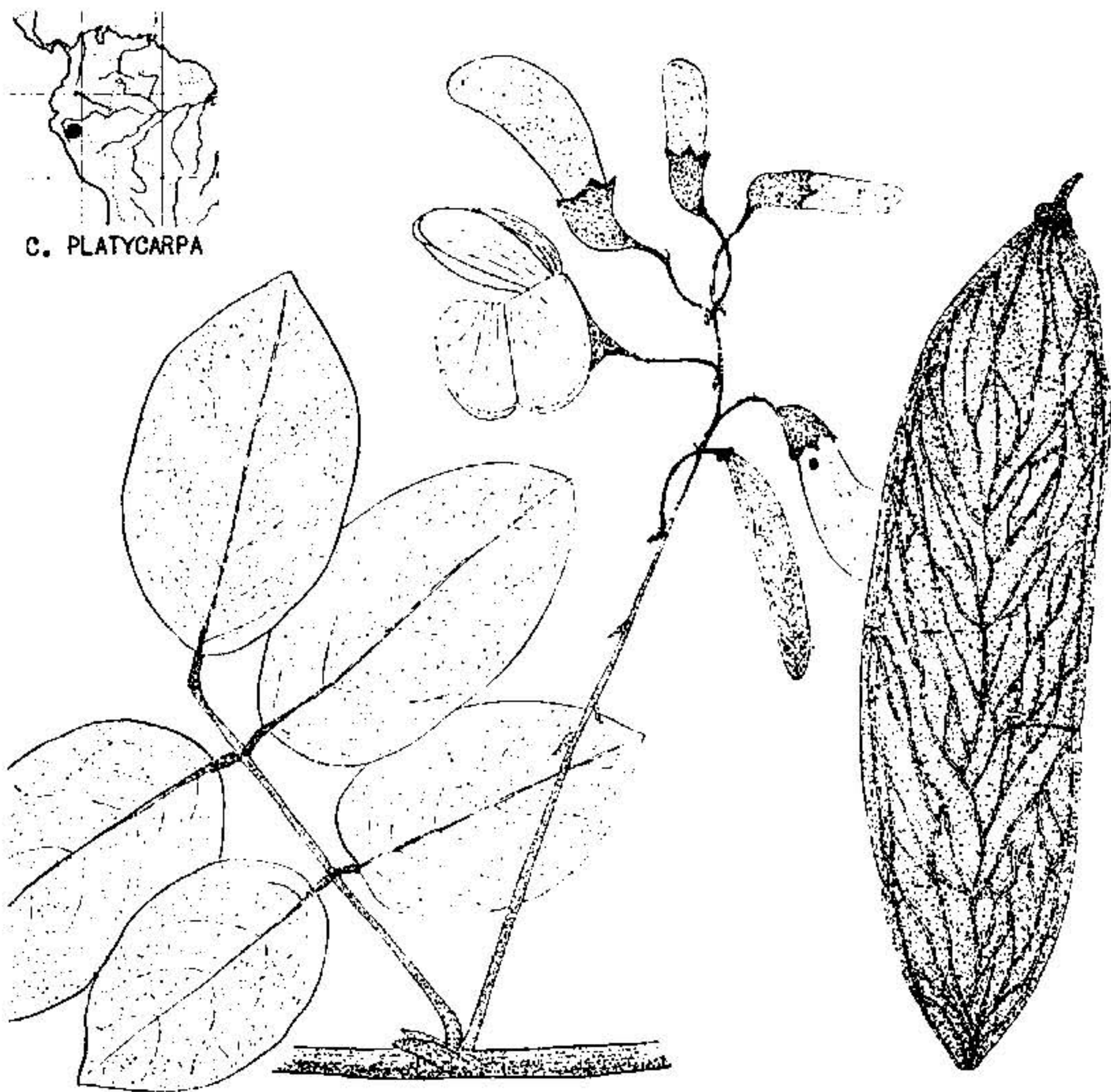
lyx tube suggests relationship to *C. latisiliqua* except that in *C. weberbaueri* the teeth are much longer and more attenuate. Mature fruit has not been seen but the ovary and immature fruit are compressed and possibly develop into fruit somewhat similar to that of *C. latisiliqua*.

2. *Chaetocalyx platycarpa* (Harms) Rudd, comb. nov.

FIGURE

Raimondianthus platycarpus Harms, Notizblatt 10:387. 1928.

Stems, leaf rachis, and floral axis fulvous-velutinous; stipules deltoid, attenuate-acute, entire, densely velutinous, about 5 mm. long and 2 mm. broad at the base; leaves 5-foliolate (or 7-foliolate fide Harms), the rachis 3-10 cm. long; leaflets oblong-ovate, 15-40 mm. long, 7-25 mm. wide, entire, acute to obtuse, mucronulate, the base rounded or sometimes subcordate, the surfaces pubescent, the upper surface darker than the lower, nitid and somewhat glabrescent.

FIGURE 3.—*Chaetocalyx platycarpa*. Natural size.

inflorescences axillary or terminal, paniculate, usually longer than the subtending leaves, the bracts stipule-like but mostly smaller and less attenuate, the pedicels 7-13 mm. long; flowers 20-24 mm. long, the standard petal pubescent on the outer face; calyx campanulate, gibbous, pubescent, 7-8 mm. long, the tube 6-7 mm. long, 4-5 mm. in diameter, the teeth deltoid, acute, 0.5-1.5 mm. long; stamens with pubescent filaments; fruit sessile, oblong, acute, compressed, velutinous to subglabrous, obliquely reticulate-striate, about 6-seeded, 7-

cm. long and about 2 cm. wide (submature); mature fruit and seed not seen.

TYPE LOCALITY: Tambillo, Province of Cutervo, Department of Cajamarca, Peru. Type collected by A. Raimondi (No. 6714), cited below.

DISTRIBUTION: Known only from the type locality.

PERU

CAJAMARCA: Tambillo, *Raimondi* 4096 (USM), 6714 (F. M. neg. 2138 of LECTOTYPE ex B; F); *Jelski* 216 (US).

This taxon, the basis of the genus *Raimondianthus*, is being transferred to *Chaetocalyx*. The flowers, immature fruits, and indument are essentially indistinguishable from those of *C. tomentosa* from Brazil. Mature fruits, unfortunately, are not known from either species. The most obvious difference between these two little-known taxa is in the leaf structure, *C. platycarpa* being 5- or 7-foliolate, and *C. tomentosa* 11-17-foliolate. In the widespread species *C. brasiliensis*, however, a variation in number of leaflets, 5-11, is not considered to be significant. Lacking intermediate examples, and because of the geographic distance between the two type localities, *C. platycarpa* and *C. tomentosa* are being maintained as separate species, but in the same genus.

In the original description of *Raimondianthus platycarpus*, Harms cited four collections by Raimondi (3514, 4078, 4144, 6714), with no designation as to type. Because photographs of *Raimondi* 6714 at Berlin have been widely distributed and there is material of that collection available at Chicago, it is designated as lectotype. Presumably the specimen at Berlin is no longer extant and the type is merely represented by the Field Museum photograph (F. M. neg. 2138).

3. *Chaetocalyx tomentosa* (Gardn.) Rudd, comb. nov. FIGURE 4

Coronilla hirsuta Vell. Fl. Flum. Text 311. 1825; Icon. 7: pl. 122. 1835. non DC. Prodr. 2:310. 1825.

Isodesmia tomentosa Gardn. in Hook. Lond. Journ. Bot. 2:340. 1843.

Chaetocalyx polyphylla Benth. in Mart. Fl. Bras. 15(1):76. 1859.

Stems, leaf rachis, and floral axis fulvous-pubescent and also beset with a few glandular setae; stipules lanceate, attenuate, entire, densely pubescent, 4-7 mm. long and about 1-2.5 mm. broad at base; leaves 11-17-foliolate, the rachis 5-12 cm. long; leaflets elliptic-oblong to obovate, 10-40 mm. long, 5-20 mm. wide, entire, obtuse or retuse, mucronulate, the base rounded to cuneate, the surfaces pubescent; inflorescences axillary or terminal, usually few-flowered, the bracts stipule-like but smaller and less attenuate, the pedicels about 10 mm.

long; flowers 24–30 mm. long; standard petal pubescent on the outer face; calyx campanulate, gibbous, 8–10 mm. long, pubescent, sometimes with a few glandular setae, the tube 7–8 mm. long and about 5 mm. in diameter, the teeth deltoid, acute, 1–2 mm. long; stamens with pubescent filaments; fruit [submature] sessile, oblong, acute at

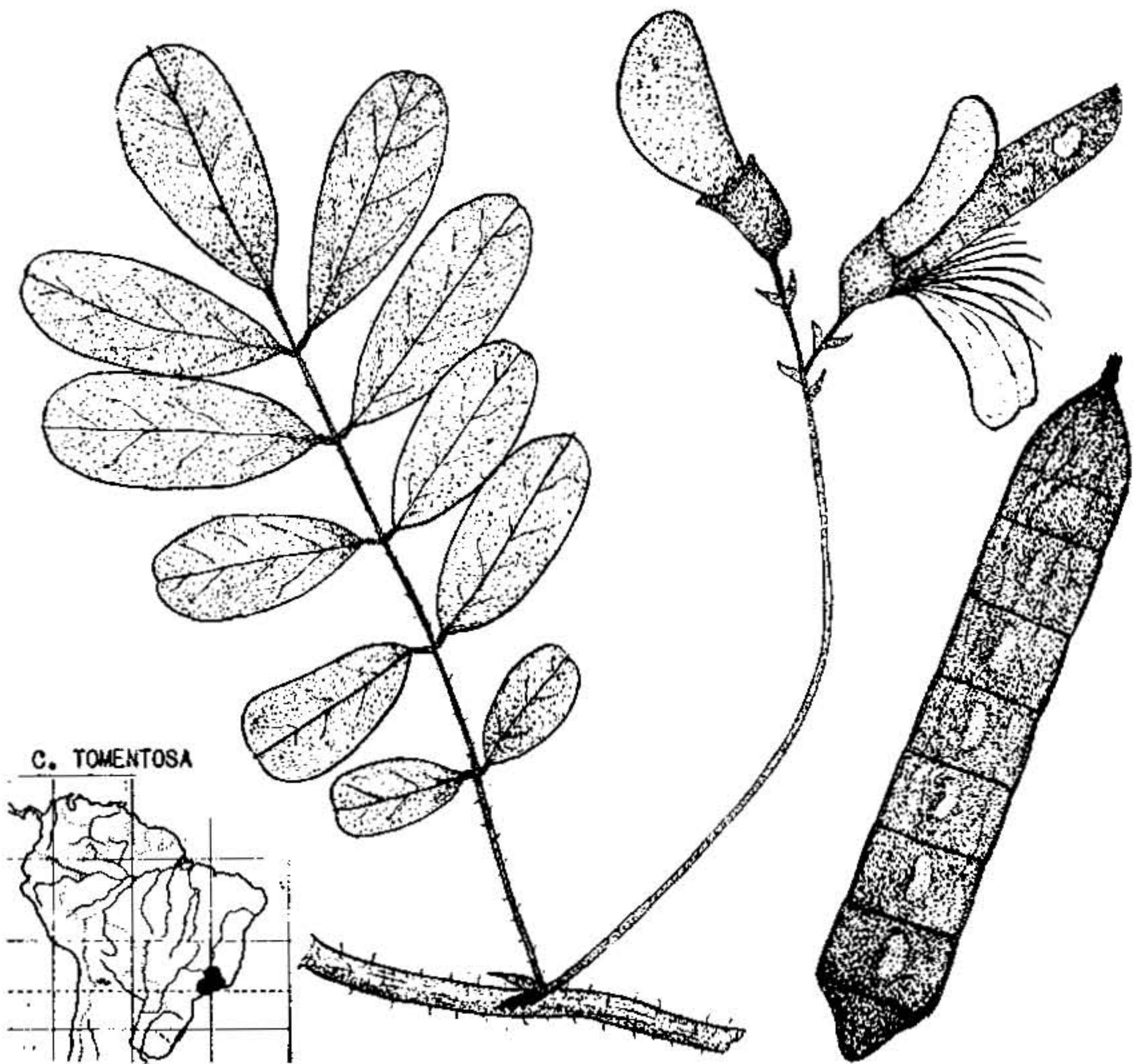


FIGURE 4.—*Chaetocalyx tomentosa*. Natural size.

base and apex, compressed, velutinous, obliquely reticulate-striate, 6–8-articulate, the articles 7–10 mm. long and 5–10 mm. wide; mature fruit and seed not seen.

TYPE LOCALITY: Near Imbuhy, Serra dos Orgãos, Rio de Janeiro, Brazil. Type collected by G. Gardner (No. 350), cited below.

DISTRIBUTION: Minas Gerais and Rio de Janeiro, Brazil.

BRAZIL

Minas Gerais: "Fazenda de Jeronima," *St. Hilaire* Cat. B', No. 1071 (P TYPE of *C. polyphylla*, fragm. F).

Rio de Janeiro: Near Imbuhy, Serra dos Orgãos, *Gardner* 350 (BM, photo of LECTOTYPE of *Isodesmia tomentosa*; K). Petropolis, á Santo-Antonio, *Glaziou* 5813 (K). Itatiaia, Maromba, *Barros* 679 (RB).

This species appears to be closely related to *C. platycarpa* from northern Peru. The flowers of the two species are essentially identical. Specimens of fully mature fruit are lacking but submature material indicates that the fruits of *C. tomentosa* might be about one-half as broad as those of *C. platycarpa*. The most convenient basis of distinction, in addition to the geographic location is the leaflet number; the leaves of *C. tomentosa* are 11–17-foliolate, and those of *C. platycarpa* are 5- or 7-foliolate.

Another closely related species is *C. blanchetiana*, which is recognized by its slightly longer calyx lobes and by having fewer leaflets than *C. tomentosa*.

These three species, *C. tomentosa* and *C. blanchetiana* (both originally assigned to *Isodesmia*) and *C. platycarpa* (the type of *Raimondianthus*) are very similar and should be together, in whatever genus. In my opinion, they are correctly placed in *Chaetocalyx*.

Examination of the illustration of *Coronilla hirsuta* Vell. and of type material of *Isodesmia tomentosa* and *Chaetocalyx polyphylla* shows that the three taxa are identical. The oldest specific name is *hirsuta* but that is rejected under Article 64(2) of the International Code of Botanical Nomenclature (1956): "When the same new name is simultaneously published for more than one taxon, the first author who adopts it in one sense, rejecting the other, or provides another name for one of these taxa must be followed". In the absence of exact data we must assume that publication of *Coronilla hirsuta* DC. and *C. hirsuta* Vell. was simultaneous. The subsequent history of *C. hirsuta* DC. is vague. After being included among "Species dubiae" and having cited in synonymy: "*Coronilla argentea* Burm! cap 22 et verosim. Thunb. fl. cap. 592?", the name *C. hirsuta* DC. apparently has been ignored—neither adopted nor rejected. *Coronilla hirsuta* Vell., on the other hand, was provided with a new name. Benthams (Fl. Bras. 15(1):71. 1859) cited it as a synonym of *Isodesmia tomentosa* Gardn. In transferring this taxon to *Chaetocalyx*, it appears that the correct specific name should be *tomentosa*.

4. *Chaetocalyx blanchetiana* (Benth.) Rudd, comb. nov.

FIGURE 5

Isodesmia blanchetiana Benth. in Mart. Fl. Bras. 15(1):71. 1859

Stems, leaf rachis, and floral axis fulvous-pubescent and also beset with glandular setae; stipules lanceate, acute to attenuate, entire, sometimes glandular ciliate, tomentose, about 4–6 mm. long and 2 mm. broad at the base; leaves 7–9-foliolate, the rachis about 6–8 cm. long; leaflets elliptic to orbiculate, 10–35 mm. long, 10–20 mm. wide, entire, obtuse or emarginate, mucronulate, the base rounded, the upper surface pubescent to subglabrous, the lower surface pubescent; inflorescences axillary or terminal, few-flowered, the bracts stipule-like, the pedicels 10–15 mm. long; flowers 22–27 mm. long; standard

petal pubescent on the outer face; calyx campanulate, gibbous, 8–12 mm. long, tomentose and setose, the tube 5–7 mm. long and about 5 mm. in diameter, the teeth 2–5 mm. long, oblong-lanceate, acute; stamens with pubescent filaments; fruit sessile, compressed,

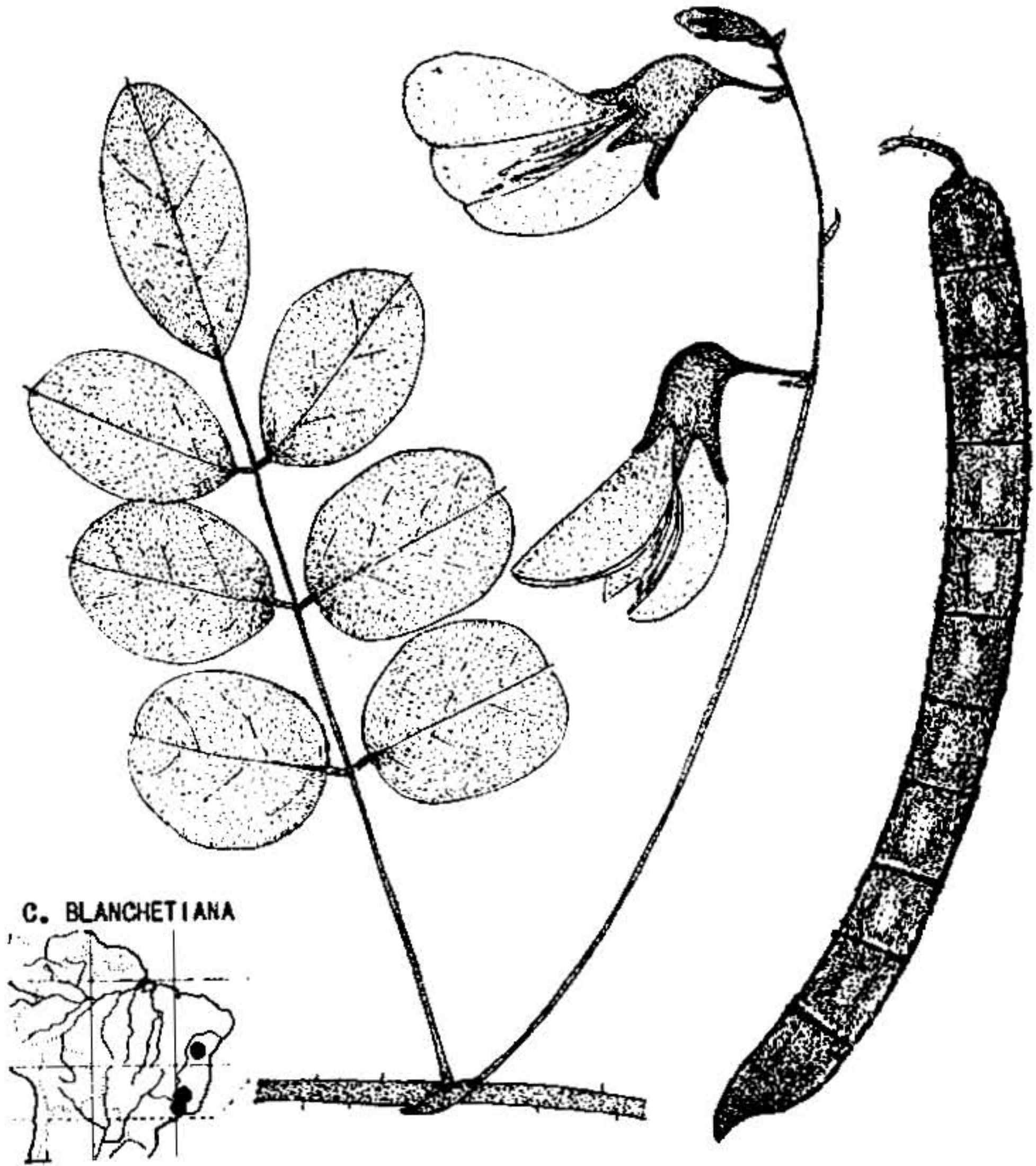


FIGURE 5.—*Chaetocalyx blanchetiana*. Natural size.

pubescent, obliquely reticulate-striate, the margins somewhat thickened, about 10–14-articulate, the articles 7–8 mm. long and 8 mm. wide; mature seed not seen.

TYPE LOCALITY: Serra do Açuruá, Bahia, Brazil. Type collected by J. S. Blanchet (No. 2892), cited below.

DISTRIBUTION: Eastern Brazil.

BRAZIL

BAHIA: Serra do Açuruá, Blanchet 2892 (K LECTOTYPE of *Isodesmia blanchetiana*, F. M. neg. 2132 of isotype ex B).

MINAS GERAIS: Campos do Caraça, Glaziou 13704 (K).

RIO DE JANEIRO: Petropolis, à Santo Antonio, Glaziou 13702 (K).

This species, originally assigned to *Isodesmia*, is closely related to the preceding two species—*C. tomentosa*, the type of *Isodesmia*, and *C. platycarpa*, the type of *Raimondianthus*—but it differs from them in having longer calyx lobes. The fruits are less than one-half as broad as those of *C. platycarpa*, and the leaves have fewer leaflets than those of *C. tomentosa*. In addition to these three species, relatively broad, compressed fruits are also found in *C. latisiliqua* and probably in *C. weberbaueri*.

Pubescence on the petals is a character shared with several species, but that same type of pubescence extending up the filaments seems to be peculiar to *C. blanchetiana*, *C. tomentosa*, and *C. platycarpa*.

5. *Chaetocalyx latisiliqua* (Poir.) Benth. ex Hemsl. Biol. Cent. Amer. 1:268. 1880. FIGURE 6

Hedysarum latisiliquum Juss. ex Poir. in Lam. Encycl. 6:432. 1804.

Poiretia latisiliqua (Poir.) Desv. Journ. Bot. 1:122. 1813.

Planarium latisiliquum (Poir.) Desv. Ann. Sci. Nat. 9:416. 1826.

Aeschynomene latisiliquosa Hill ex Steud. Nom. ed. 2, 1:31. 1840, nomen in synonymy.

Stems, leaf rachis, and floral axes sordid-pubescent to subglabrous and usually beset with glandular setae, the pubescence patent or finely crispate; stipules deltoid-ovate to lanceate, attenuate, entire or setose-denticulate, 3–10 mm. long, 1–3 mm. broad at the base, pubescent, sometimes beset with glandular setae; leaves 5-foliolate, the axis about 4–10 cm. long; leaflets 10–50 mm. long, 6–35 mm. wide, oblong-elliptic or slightly obovate, entire, obtuse, mucronulate, the base rounded or cuneate, the surfaces finely pubescent, usually discolorous, the lower surface whitish, the upper green; inflorescences racemose, sometimes paniculate, sometimes fasciculate, the bracts stipule-like but slightly smaller, the pedicels 6–12 mm. long; flowers 15–25 mm. long; standard petal glabrous or with a mere trace of pubescence near the base; calyx campanulate, essentially symmetrical, 5–6 mm. long, pubescent to subglabrous, sometimes beset with glandular setae, the tube 4–5 mm. long, 3–4 mm. in diameter, the teeth deltoid, acute, 1–2.5 mm. long, usually ciliate; filaments glabrous; fruit compressed, linear, 60–80 mm. long, 7–10 mm. wide, finely pubescent to subglabrous, longitudinally striate along the margins but the center of the articles usually reticulate-striate, about 12–15-articulate, the stipe 5–7 mm. long, the articles 4–5 mm. long, 7–10 mm. wide; seeds reddish brown, smooth, 2.5–3 mm. long and about 1.5 mm. wide.

TYPE LOCALITY: Probably Ecuador, the type collected by J. de Jussieu and cited from Peru.

DISTRIBUTION: Costa Rica to Ecuador, in thickets, on brushy slopes, and along roadsides.

COSTA RICA

GUANACASTE: Boca de Culebra, *Pittier* 12086 (US).

LIMÓN: "Bord du río Zent," *Pittier*, Herb. No. 16069 (GH, NY, US).

SAN JOSÉ: El General, *Skutch* 2424 (Mich, NY, US).

NO EXACT LOCALITY: "Sur les rives de l'Amoura à Shirores-Talamanca," *Tonduz* 9350 (F, US).

PANAMA

BOCAS DEL TORO: Almirante, *Cooper* 88 (F, NY, US).

CANAL ZONE: Changuinola Valley, *Dunlap* 369 (US), 400 (F, US). Empire, *Hayes* 513 (K), Feb. 2, 1862 (BM). Between Empire and Mandinga, *Piper* 5155 (US), 5165 (US). Culebra, *Pittier* 2212 (NY, US). Balboa, *Standley* 27158 (US), 32153 (US). Darién, *Standley* 31592 (US). Gamboa, *Standley* 28322 (US), 28452 (US). Summit, *Standley* 25812 (US), 29540 (US).

Between Farfan Beach and Palo Seco, *Hunter & Allen* 435 (GH).

PANAMÁ: Matías Hernández, *Pittier* 6898 (NY, US).

NO EXACT LOCALITY: *Seemann* 457 (BM, GH, K).

COLOMBIA

BOLÍVAR: Boca Verde, Río Sinú, *Pennell* 4242 (NY, US).

NO EXACT LOCALITY: *Purdie* (NY).

ECUADOR:

ESMERALDAS: "Parroquia de Concepción, Island in Río Santiago, Playa Rica, *Mexia* 8463 (F, GH, NA, NY, US). Atacames, *Barclay* 746 (BM, K).

MANABÍ: El Recreo, *Eggers* 15050 (F, GH, K, US). Jipijapa, *Haught* 3398 (F, US).

GUAYAS: Guayaquil, *Schimpff* 1097 (US). Chongón, *Asplund* 7682 (US). Milagro, *Hitchcock* 20247 (NY, US). Teresita, near Bucay, *Hitchcock* 20509 (GH, NY, US). Tenguel, *Holmgren* 23 (US).

BOLÍVAR: Balzapamba, *André* 4038 (F, GH, K, NY).

CHIMBORAZO: Río Chanchan, *Spruce* 5968 (K, NY).

SANTIAGO-ZAMORA: "Seipa," *André* 4223 (K).

LOCAL NAME: Chupa-chupa (Ecuador).

The generic placement of this species has been rather unstable. Nomenclaturally, all the combinations are traceable to *Hedysarum latisiliquum*, an herbarium name ascribed by Jussieu and validated by Poiret. Desvaux transferred the taxon to *Poiretia* but later used it as the basis of a new genus, *Planarium*. Steudel presented it in various combinations, "*Aeschynomene latisiliquosa* Hill. *Poiretia latisiliqua*"; "*Hedysarum latisiliquum* Poir. *Planarium latisiliquum*"; "*Poiretia latisiliquosa* Desv. *Planarium latisiliquum*." The use of the epithets *latisiliquum* and *latisiliquosa* seems to be inconsistent, and, fortunately, not of significance.

Bentham apparently was the first to recognize the relationship to *Chaetocalyx* (in Benth. & Hook., Gen. Plant. 1:513. 1865), but did not actually transfer the species. The combination *Chaetocalyx latisiliqua* was published by Hemsley, although attributed to Bentham. Macbride apparently overlooked the earlier papers when he published *Chaetocalyx latisiliqua* (Desv.) Macbr. (Field Mus. Pub. Bot. 13(3):446. 1943).

The flat fruits of this species, with longitudinal striae along the margins and being more or less reticulate-striate in the center of the articles, are distinctive and apparently intermediate between the

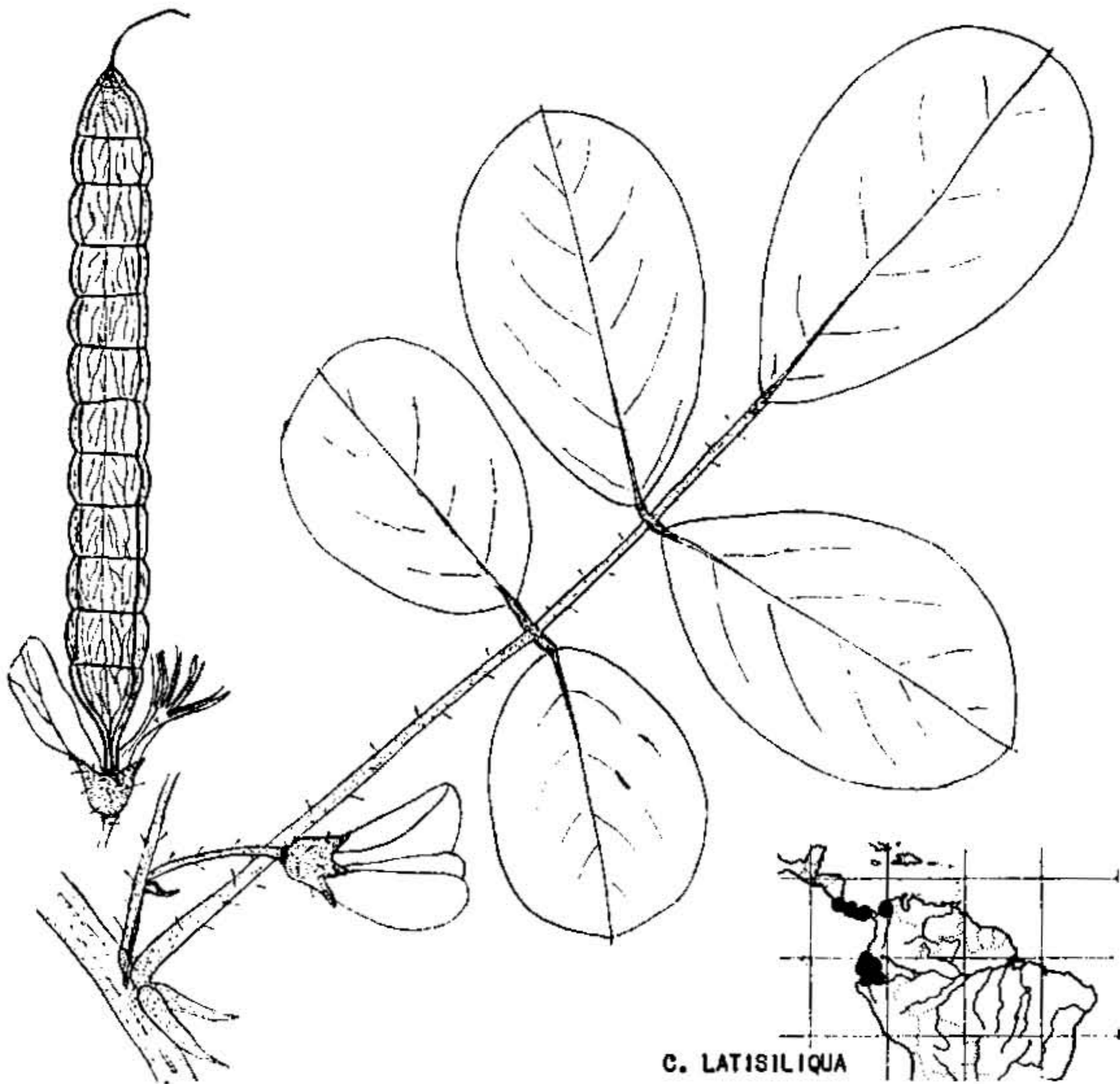


FIGURE 6.—*Chaetocalyx latisiliqua*. Natural size.

wider, flat, reticulate fruits of *C. platycarpa* and the slightly narrower, longitudinally striate fruits of *C. nigricans* and *C. longiflora*.

6. *Chaetocalyx nigricans* Burkart, Darwinian 3:160, figs. 6a, 7a, tab. 6. 1939.

FIGURE 7

Plant generally nigrescent; stems, leaf rachis, and floral axes moderately sordid-pubescent to subglabrous, with scarce development of glandular hairs; stipules lanceate, attenuate, entire, about 4–5 mm. long, 1–1.5 mm. wide at the base, pubescent to subglabrous; leaves 5-foliolate, the axis 2–9 cm. long; leaflets 10–35 mm. long, 5–20 mm. wide, elliptic, the terminal leaflet sometimes obovate, entire, obtuse, mucronulate, the base rounded to cuneate, the surfaces subglabrous; inflorescences racemose or fasciculate, few-flowered, the bracts

stipule-like but usually smaller, the pedicels 10–35 mm. long; flowers 20–30 mm. long; standard petal glabrous except for marginal cilia, or slightly pubescent toward the base; calyx campanulate, gibbous, 8–10 mm. long, lightly pubescent to subglabrous, beset with a few glandular setae, the tube 7–8 mm. long, 4–5 mm. in diameter, the teeth about 2 mm. long, deltoid, acute to attenuate, usually ciliate and pubescent

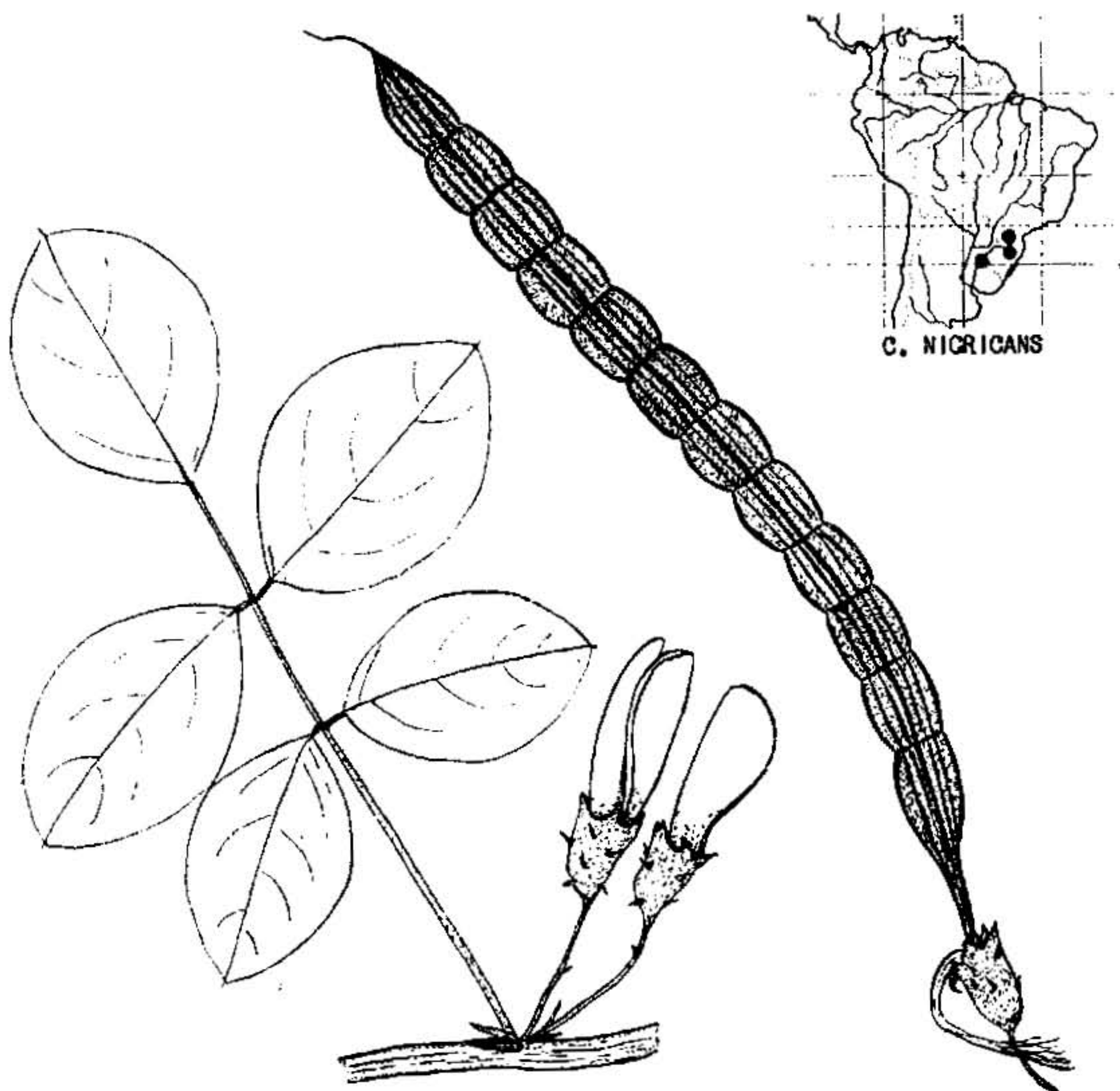


FIGURE 7.—*Chaetocalyx nigricans*. Natural size.

on the inner surface; filaments glabrous; fruit compressed, linear, 9.5–12 cm. long, 6–7 mm. wide, moderately pubescent to subglabrous, longitudinally striate with about 7–12 ribs on each valve, the midrib the most prominent, about 8–11-articulate, the stipe 10–15 mm. long, the articles 6–10 mm. long, 6–7 mm. wide; seeds about 5 mm. long and 1.5 mm. wide, reddish brown.

TYPE LOCALITY: In woods along the Río Uruguay, La Cruz, Province of Corrientes, Argentina. Type collected by A. Burkart (No. 8197), cited below.

DISTRIBUTION: Northeastern Argentina, southeastern Brazil, and Uruguay (fide Burkart).

BRAZIL

PARANÁ: Between Therezinha and Prudentópolis, *Dusén* 11272 (US).

SANTA CATARINA: *Müller* 216 (K). Itapiranga, *Rambo* 1400 (PACA).

ARGENTINA

Corrientes: La Cruz, *Burkart* 8197 (GH Isotype).

This seems to be the only species of *Chaetocalyx* that turns blackish on drying. The flowers are similar to those of *C. brasiliensis*. The flat fruits resemble those of *C. longiflora* but are distinguished by slightly greater width and by longer stipes.

7. *Chaetocalyx longiflora* A. Gray in U. S. Expl. Exped. 1:423. 1854 (as *C. longiflorus*), non sensu Benth. ined. FIGURE 8

Chaetocalyx hebecarpa Benth. in Mart. Fl. Bras. 15(1):76. 1859.

Chaetocalyx hebecarpa var. *oblongifolia* Benth. in Mart. Fl. Bras. 15(1):76. 1859.

Chaetocalyx hebecarpa var. *mollis* Benth. in Mart. Fl. Bras. 15(1):76. 1859.

Chaetocalyx glaziovii Taub. Flora 72(n. s. 47):425. 1889.

Stems, leaf rachis, and floral axis sordid to stramineous-pubescent, and sometimes beset with glandular setae; stipules deltoid-lanceate to ovate, acute to attenuate, entire or lacinate, 4–5 mm. long, 1–2 mm. wide at the base, pubescent; leaves 5-foliolate, the rachis 3–8 cm. long; leaflets elliptic, 15–50 mm. long, 10–25 mm. wide, entire, obtuse or subacute, mucronulate, the base subcuneate to subcordate, the surfaces pubescent; inflorescences axillary, few-flowered, fasciculate or racemose, the bracts stipule-like, the pedicels 15–35 mm. long; flowers 20–28 mm. long; standard petal commonly pubescent on the outer face, sometimes subglabrous; calyx campanulate, gibbous, pubescent, 10–11 mm. long, the tube subtruncate, about 6 mm. long, 4–5 mm. in diameter, the teeth attenuate, (2–)4–6 mm. long; stamens with glabrous filaments; fruit somewhat compressed, linear, about 10 cm. long, 3–4 mm. wide, pubescent to subglabrous, sometimes with a few glandular setae, longitudinally striate; stipitate, the stipe about 6–10 mm. long; 7–10-articulate, the articles 7–10 mm. long, 3–4 mm. wide; seed about 6 mm. long and 2 mm. wide, reddish brown.

TYPE LOCALITY: Rio de Janeiro, Brazil. Type collected by the U. S. Exploring Expedition under the command of Capt. C. Wilkes, cited below.

DISTRIBUTION: Southeastern Brazil and Bolivia.

BOLIVIA

SANTA CRUZ: Cerro de la Cruz, *Kuntze*, May 1892 (F, NY, US).

BRAZIL:

MINAS GERAIS: Cachoeira do Campo, *Claussen* 196 (K SYNTYPE of *C. hebecarpa*). "Inter Cabo d'Agosto et Cocaës et Rio da Onça," *Martius Herb.* 1175 (F. M. neg. 6271 of SYNTYPE of *C. hebecarpa* ex M). *Caldas, Regnell* III.417 (K). Campos do Caraça, *Glaziou* 13703 (F. M. neg. 2133 of TYPE of *C. glaziovii* ex B; K). Bento Pires, near Bello Horizonte, *Williams & Assis* 6161 (GH). Estação de Barreiro, Bello Horizonte, *Williams & Assis* 7129 (GH, US). Capoeira, Serra do Taquaril, Bello

Horizonte, *Magalhães* 3255 (US). Diamantina, *Mezia* 5835 (BM, F, GH, Mich, NA, NY, Ph, US). Caeté, Serra da Piedade, *Mello-Barreto* 5703 (F). Gaia, *Mello-Barreto* 5704 (F). Florestal, Pará de Minas, *Gouvea*, May 28, 1936 (F).

RIO DE JANEIRO: *Wilkes Exped.* (US TYPE.)

SÃO PAULO: Salto do Itú, *Hoehne*, S. P. 3307 (BM, GH). Campinas, *Novae* 258 (US).

PARANÁ: Capão Grande, *Dusén* 16881 (F, GH, Ph). Rio das Cinzas, *Dusén* 16821 (GH).

This species is characterized by flowers with a pubescent standard, a subtruncate calyx tube with attenuate teeth, and leaflets that are pubescent on both surfaces. Fruiting specimens are distinctive; the loment is somewhat compressed and apparently intermediate



FIGURE 8.—*Chaetocalyx longiflora*. Natural size.

between those of *C. nigricans*, which are slightly broader and more compressed, and those of *C. brasiliensis*, which are narrower and subterete.

Gray's description of *C. longiflora* is brief, but most of the salient points are included. It is implied that the species resembles *C.*

vincentina (i. e., typical *C. scandens*) but that the five leaflets are slightly smaller and are pubescent on both sides. The size of the leaflets is not critical, but the pubescence is characteristic. A good diagnostic character is provided by the calyx, "a truncate orifice . . . bearing the setaceous teeth, which are almost as long as the campanulate tube."

Gray published the specific name of this taxon as "*longiflorus*." In this paper "*longiflora*" is being used to bring the gender into conformity with classical Greek usage observed by de Candolle, Bentham, and other authors who treated *Chaetocalyx* as feminine.

The name *Chaetocalyx longiflora* A. Gray has priority over the commonly used *C. hebecarpa* Benth. It was applied to a specimen collected by the Wilkes Expedition, using as a basis an unpublished herbarium name of Bentham's. The material annotated by Bentham as *C. longiflora* was subsequently recognized as referable to *Rhadinocarpus acutifolia* Vog., or *Chaetocalyx acutifolia* (Vog.) Benth.

The Wilkes specimen designated by Gray as *C. longiflorus* Benth. seems to be identical with typical *Chaetocalyx hebecarpa* Benth., rather than with *C. acutifolia*. It becomes, therefore, the type of a new species, *C. longiflora* A. Gray, with *C. hebecarpa* as a later synonym, rather than a validation of Bentham's unpublished name.

The additional varieties of *C. hebecarpa*, var. *oblongifolia* and var. *mollis*, seem not to be sufficiently distinctive to warrant segregation.

Type material of *C. glaziovii* appears to represent a robust specimen of *C. longiflora*, and the species are therefore placed in synonymy.

8. *Chaetocalyx acutifolia* (Vog.) Benth. in Mart. Fl. Bras. 15(1):75. 1859.

FIGURE 9

Rhadinocarpus acutifolius Vog. Linnaea 12:111. 1838.

Stems, leaf rachis, and floral axes stramineous-pubescent to subglabrous and also moderately beset with glandular setae; stipules lanceate, attenuate, entire, about 5 mm. long and 1-2 mm. broad at the base, pubescent; leaves 5-foliolate, the rachis 3-6 cm. long; leaflets ovate to oblong-elliptic, 20-50 mm. long, 10-20 mm. wide, entire, acute to acuminate, mucronulate, the base cuneate to subcordate, the surfaces glabrous to sparsely pubescent; inflorescences axillary, fasciculate, few-flowered, the bracts stipule-like but smaller, the pedicels 10-15 mm. long; flowers 22-26 mm. long; standard petal pubescent on the outer face; calyx campanulate, gibbous, pubescent and glandular-setose, 10-11 mm. long, the tube about 7 mm. long and 5 mm. in diameter, pubescent within, the teeth attenuate, 3-4 mm. long; filaments glabrous, fruit (submature) somewhat compressed, linear, about 12-16 cm. long, 2 mm. wide, pubescent to subglabrous,

longitudinally striate with about 5 or 6 major ribs on each valve, about 10-articulate, the stipe about 10 mm. long, the articles about 12-17 mm. long and 2-2.5 mm. wide; mature fruit and seed not seen.

TYPE LOCALITY: "In Brasil. merid.," probably near Rio de Janeiro. Type collected by Sellow, cited below.

DISTRIBUTION: Known only from the vicinity of the type collection.

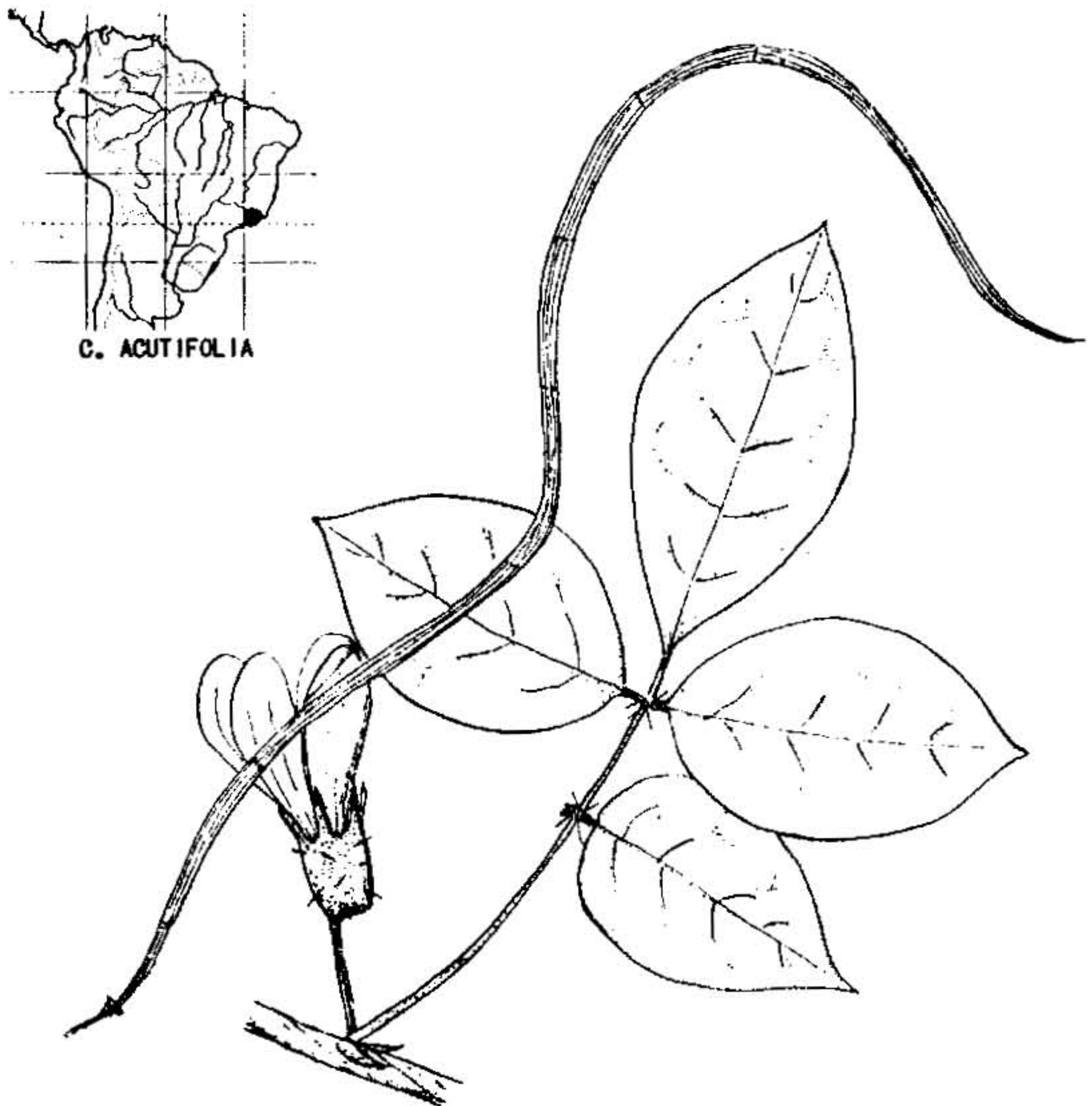


FIGURE 9.—*Chaetocalyx acutifolia*. Natural size.

BRAZIL

RIO DE JANEIRO: *Sellow* (fragment, presumably of TYPE, F); *Luschnath* (K); *Pohl* (K); *Schott* (F. M. neg. 32121 ex W; fragment F, NY); *Riedel* 139 (BM). Distrito Federal, Morro do Sacopan, *Apparicio* [Duarte] & *Rizzini* 27 (US). Corcovado, *Kuhlmann*, RB Herb. No. 852 (RB).

This taxon was the basis of the herbarium name *Chaetocalyx longiflora*, subsequently recognized as being referable to Vogel's *Rhadinocarpus acutifolius*, and cited by Bentham as *Chaetocalyx acutifolius*.

Gray adopted and published the name "*Chaetocalyx longiflorus* Benth.," applying it to a specimen collected by the Wilkes Expedi-

tion. I am not, however, accepting his determination of the two entities as identical, but am treating them as two species.

The fruit of *C. acutifolia* seems to be distinctive. In the submature material observed, the transverse sutures are not perfectly defined, but it appears that the articles are about 12–17 mm. long, in contrast to the 7–10 mm. articles of other, related species.

9. *Chaetocalyx brasiliensis* (Vog.) Benth. in Mart. Fl. Bras. 15(1):75. 1859.

FIGURE 10

Rhadinocarpus brasiliensis Vog. Linnaea 12:110. 1838.

Chaetocalyx latifolia Benth. in Mart. 15(1):75. 1859.

Chaetocalyx ilheotica Taub. Flora 72(n.s. 47):425. 1889.

Chaetocalyx belizensis Standl. Field. Mus. Pub. Bot. 12:410. 1936.

Chaetocalyx latifolia var. *setulifera* Burkart, Darwiniana 3:165, figs 6d, 7c. 1939.

Chaetocalyx matudai Lundell, Contrib. Univ. Mich. Herb. 6:25. 1941.

Stems, leaf rachis, and floral axes moderately pubescent, sometimes setose, the stems usually glabrate; stipules 5–10 mm. long, 1–2 mm. wide at the base, deltoid-lanceate, attenuate, entire or setose-ciliate, moderately pubescent to subglabrous; leaves 5–11-foliolate, the rachis about 3–11 cm. long; leaflets 10–40 mm. long, 6–30 mm. wide, elliptical or suborbicular to obovate, obtuse to truncate-emarginate, mucronulate, the base rounded, the surfaces moderately pubescent to glabrous; flowers 15–30 mm. long, axillary, solitary or in few-flowered fascicles, or in short racemes; bracts ovate-deltoid, acuminate, often lacinate, usually setose, moderately pubescent to subglabrous, 1–2 mm. broad at the base; pedicels about 10 mm. long; standard glabrous or rarely pubescent; calyx campanulate, gibbous, 8–10 mm. long, ciliate and usually setose but otherwise subglabrous, the tube truncate, 5–8 mm. long, 4–4.5 mm. in diameter, the teeth deltoid to subulate, 1–3 mm. long; filaments glabrous; fruit subterete, longitudinally striate with 5–10 major ridges on each valve, glabrous or pilose, sometimes beset with glandular setae, 12–18 cm. long, 2.5–3 mm. in diameter, 12–16-articulate, the articles 8–15 mm. long, the stipe 5–8 mm. long; seeds dark reddish brown, 5–6 mm. long, 1.5–2 mm. in diameter.

TYPE LOCALITY: "Inter Campos et Victoria," Espirito Santo or Rio de Janeiro, Brazil. Type collected by Sellow.

DISTRIBUTION: Southern Mexico, southward and eastward to Paraguay and southern Brazil.

MEXICO

VERA CRUZ: Fortuña, Ll. Williams 8890 (F).

OAXACA: Chiltepec, Martínez-Calderón 256 (A, US).

TABASCO: Teapa, Linden 737 (GH, K). "Prope Pantheum Sancti Joannis Baptistae," Roviroso Herb. 115 (Ph, US).

CHIAPAS: Escuintla, Matuda 834 (Mich TYPE of *C. matudai*, US).

GUATEMALA

ALTA VERAPAZ: Cubilgütz, von Türckheim 7741 (GH, NY, US); Steyermark 44359 (F, US). Río Ixvolay, Steyermark 44746 (F).

IZABAL: Quiriguá, *Standley* 24590 (US).

SAN MARCOS: Río Cabús, near Malacatán, *Standley* 68869 (F).

BRITISH HONDURAS

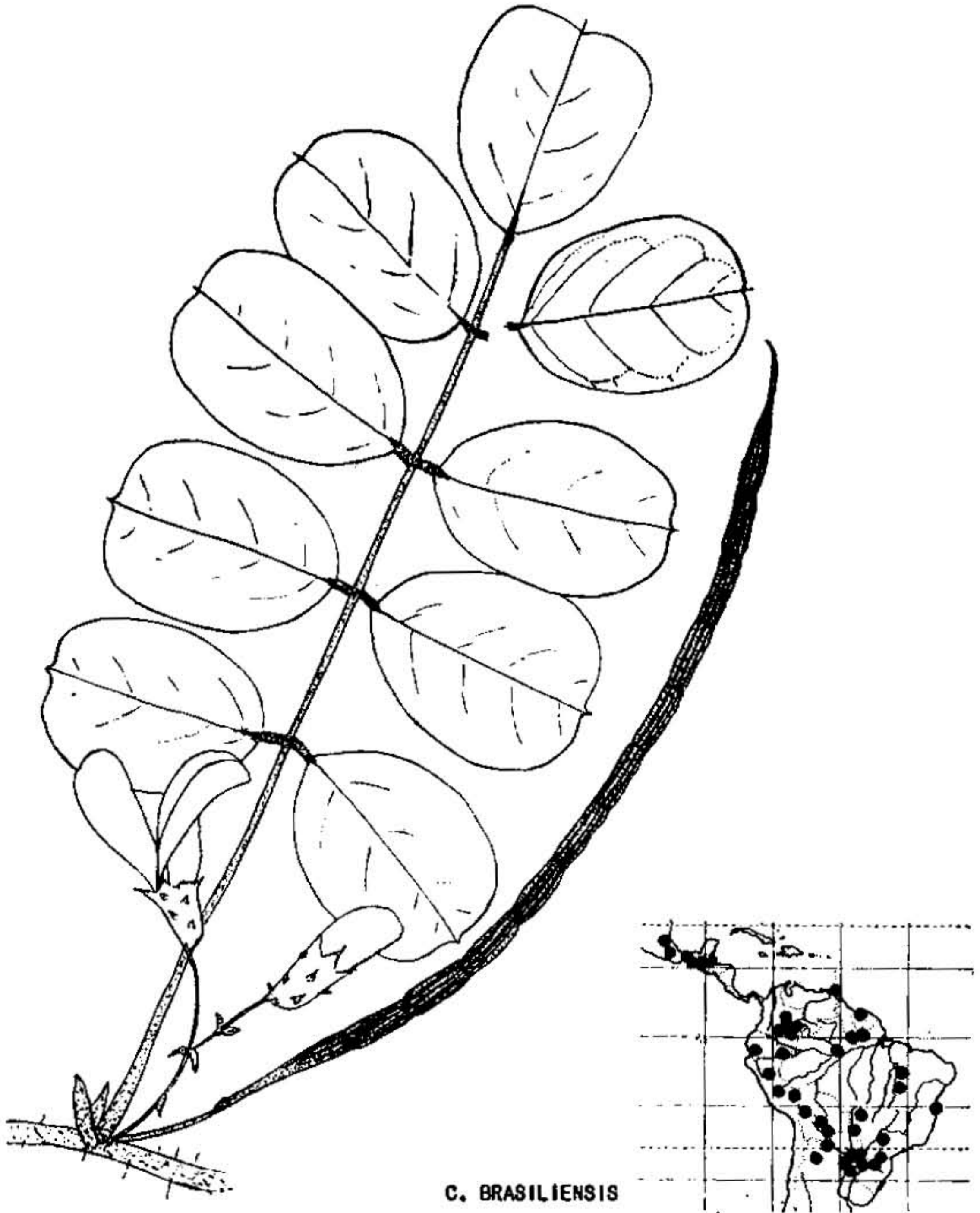
NO EXACT LOCALITY: "Temash River," *Schipp* 1330 (A, F TYPE of *C. belizensis*, GH, Mich, NY).

TRINIDAD

NO EXACT LOCALITY: *Crüger* 171 (K).

SURINAM

NO EXACT LOCALITY: *Hostmann* 165 (BM, K, NY).



C. BRASILIENSIS

FIGURE 10.—*Chaetocalyx brasiliensis*. Natural size.

COLOMBIA

BOYACÁ: Peñon de Pita, *André* 452 (K, NY).

META: Villavicencio, *Cuatrecasas* 4720 (US).

VICHADA: Amanabel, *Perez-Arbeláez, Araque-Molina, & Barkley* 18.Vi.104 (US).

VAUPÉS: Amanavén, *Romero* 1241 (US).

CAQUETÁ: Mocoa, *Sprague* 399 (K, US).

ECUADOR

GUAYAS: Naranjito, *Camp E-3618* (F, NY, US).

PERU

SAN MARTÍN: Juanjui, Alto Río Huallaga, *Klug* 4361 (A, F, NY, US).

LORETO: Iquitos, *Killip & Smith* 27336 (NY, US). Yurimaguas, *Spruce* 3897 (K).

JUNÍN: Río Pinedo, north of La Merced, *Killip & Smith* 23581 (NY, US).

MADRE DE DIOS: Río Acre, Seringal Auristella, *Ule* 9452 (F, K).

NO EXACT LOCALITY: *Ruiz & Pavon* 2137 (F).

BOLIVIA

LA PAZ: Between Guanay and Tipuani, *Bang* 1348 (F, GH, Mich, NY, Ph, US). Guanay, *Rusby* 2398 (F, Mich, NY). Yuri, *R. S. Williams* 254 (NY, US). San Carlos, *Buchtien* 1782 (NY, US).

SANTA CRUZ: Río Yapacani, *Kuntze*, June 1892 (NY, US). Camiri, *Cárdenas* 4703 (US). Río Palometillas, Sara, *Steinbach* 7330 (GH).

BRAZIL

AMAZONAS: "S. Antonio, R. Madeira," *Traill* 131 (K). "Ad oram meridionalem flum. Amazonum, ad ostium flum. Solimoes," *Spruce* 1638 (GH). Manaquery, *Spruce* 1638 (K).

PARÁ: Rio Branco de Obidas, *Ducke*, MG Herb. No 17128 (RB, US). Monte Alegre, Rio Maicurú, *Froes* 30228 (US).

MARANHÃO: Carolina, Ilha dos Botes, *Pires & Black* 2068 (NY), 2072 (K, NY).

BAHIA: Ilheos, *Riedel* 252 (F. M. neg. 2134 of TYPE of *C. ilheotica* ex B, K).

MINAS GERAIS: São Lourenço, Ituiutaba, *Macedo* 1783 (US). Santa Terezinha, Ituiutaba, *Macedo* 1799 (NY).

GOIÁS: Arrayas, *Gardner* 3671 (BM, K TYPE of *C. latifolia*, F. M. neg. 2135 ex B).

MATTO GROSSO: Corumbá, *D. Smith* 50 (K). Cuyabá, *Malmé (Regnell* II.1894 (GH).

PARANÁ: Ivahy, *Tessmann* 6079 (A, K, RB).

SANTA CATARINA: Nova Teutonia, *Plaumann* 363 (RB).

PARAGUAY

CENTRAL: Asunción, *Balansa* 1555 (K). "Villa-Occidental," *Balansa* 1555a (K). "In regione Cordillerae centralis," *Hassler* 6201 (BM, NY). "Paraguaria septentrionalis," *Hassler* 7564 (BM, NY). Lago Yparacay, *Hassler* 11538 (BM, F, GH, NY, US), 12613 (BM, GH, US).

CORDILLERA: Cordillera de Altos, *Fiebrig* 946 (BM, F, GH, K).

GUAIRA: Villarrica, *Jørgensen* 4194 (NY, Ph, US). Tapytá, *Jørgensen* 4194a (F, US).

NO EXACT LOCALITY: "Alto Paraná," *Fiebrig* 6147 (BM, GH, K, US).

ARGENTINA

SALTA: Río Tartagal, *Schreiter* 11060 (GH). Las Tabillas, *Schreiter* 11061 (F).

TUCUMÁN: Tucumán, *Sprenger* 69 (K).

FORMOSA: Formosa, *Jørgensen* 3108 (US).

CORRIENTES: Paso de la Patria, *Meyer* 2125 (GH). Estancia "Las Tres Marias," Río Paraná, Empedrado, *Pedersen* 2769 (US).

MISSIONES: La Mina-San Juan, *Montes* 2199 (GH).

This taxon is characterized by subterete lomentis 2.5–3 mm. in diameter, flowers with glabrous standard and gibbous calyx, and leaves with 5, 7, 9, or 11 leaflets, commonly obovate, truncate-emarginate.

There is some variation in pubescence, in flower size, and in leaflet shape and number. *Chaetocalyx latifolia* is generally glabrous and the leaves 5-foliolate; *C. ilheotica* has flowers slightly longer than those of average *C. brasiliensis*; *C. belizensis* has 9-foliolate leaves; the fruits of *C. matudai* are setose; at least one collection from Peru and one from Mexico has a pubescent standard; a few specimens from Paraguay, northeastern Argentina, and southeastern Brazil have pubescent leaflets and longer calyx teeth, suggesting some relationship to *C. longiflora*. I do not believe, however, that specific segregation is warranted on the basis of these criteria, and at this time, with limited collections, I prefer to include all the above cited material in *C. brasiliensis*.

10. *Chaetocalyx klugii* Rudd, sp. nov.

FIGURE 1

Herba volubilis; folia impari-pinnata, foliolis 5, ovatis, acuminatis subglabris; flores 15–20 mm. longi, in racemulos vel fasciculos axillares dispositi; vexillum pubescens; calyx campanulatus, 5–7 mm. longus tubo leviter gibboso, truncato, 4–5 mm. longo, 3–5 mm. in diametro glabro praeter ciliato, dentibus subulatis, 1–2 mm. longis; ovarium sessile, elongatum, compressum, glabrum praeter marginibus pubescentibus; legumen maturem tamen non vidi.

Stems, leaf rachis, and floral axis glabrous to sparsely sordidly pubescent, sometimes setose; stipules deltoid-attenuate, 2–3 mm. long, about 1.5 mm. broad at the base, entire or ciliate, subglabrous; leaves 5-foliolate, the rachis about 5–12.5 cm. long; leaflets 30–80 mm. long, 15–35 mm. wide, ovate, acuminate, mucronulate, the base rounded to cuneate, ciliate but otherwise the surfaces glabrous or nearly so; inflorescences axillary, many-flowered, fasciculate or short racemose, the bracts stipule-like but smaller, the pedicels 5–10 mm. long; flowers 15–20 mm. long; standard petal pubescent on the outer face; calyx 5–7 mm. long, campanulate, somewhat gibbous, the tube 4–5 mm. long, 3–3.5 mm. in diameter, truncate, pubescent along the margin, otherwise glabrous, the teeth subulate, 1–2 mm. long; stamens with glabrous filaments; ovary sessile, elongate, compressed, pubescent along the margins but otherwise glabrous, about 7-ovulate; mature fruit and seed not seen.

TYPE: In the U. S. National Herbarium, No. 1457495, collected at Balsapuerto, Loreto, Peru, June 1933, by G. Klug (No. 3114). (Duplicates at A, F, GH, and NY.)

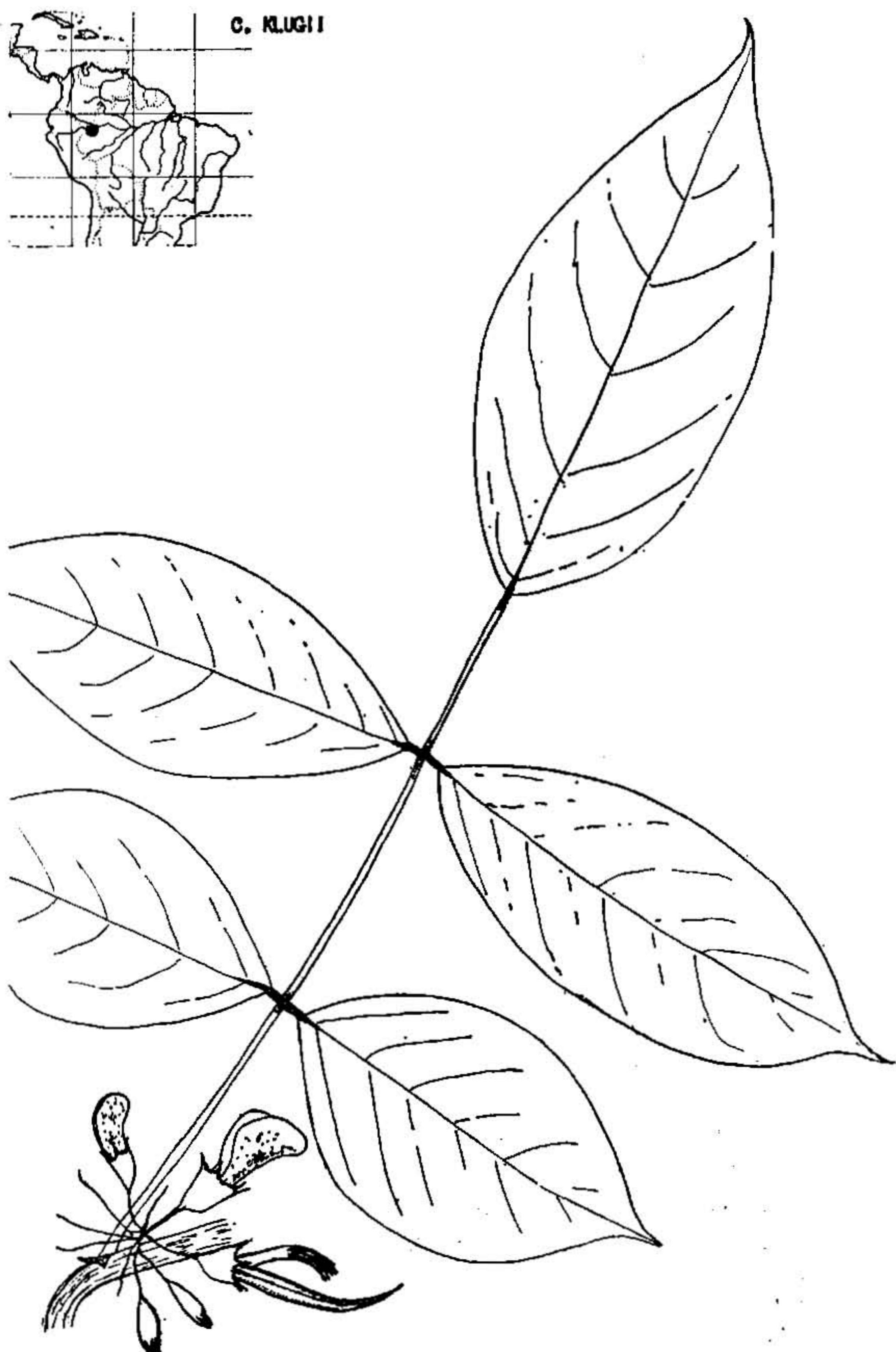


FIGURE 11.—*Chaetocalyx klugii*. Natural size.

DISTRIBUTION: Known only from the type locality.

This collection has been annotated as *Nissolia* and as *Chaetocalyx*. Mature fruits are lacking, so that the presence of a terminal wing as in *Nissolia*, or absence as in *Chaetocalyx*, cannot positively be determined. On the basis of flower and vegetative characters the two genera are not separable. The ovary and very young fruits suggest relationship to *Chaetocalyx latisiliqua* and *C. weberbaueri*, the calyx to *C. brasiliensis* and *Nissolia* spp., and the leaves to *C. acutifolia* and certain collections of *Nissolia fruticosa*, especially from Costa Rica. There seem to be no other collections or published taxa that exactly match this material. The addition of a new species of *Chaetocalyx* named for the collector, G. Klug, is believed to be justifiable.

11. *Chaetocalyx scandens* (L.) Urb. Symb. Antill. 2:292. 1900.

Stems, leaf rachis, and floral axis glabrous to densely pubescent, and usually beset with glandular setae; stipules deltoid to lanceate, 2–5 mm. long, 1–2 mm. wide at the base, acute to attenuate, entire to glandular-denticulate or laciniate, glabrous to pubescent; leaves 5-foliolate, the rachis 2–10 cm. long; leaflets 10–50 mm. long, 5–25 mm. wide, elliptical to obovate, obtuse or retuse, mucronulate, rounded to cuneate at the base, glabrous to densely pubescent; inflorescences axillary, racemose, often fasciculate, or the flowers solitary, the bracts stipule-like but usually slightly smaller, the pedicels 8–30 mm. long; flowers 12–22 mm. long; standard petal pubescent on the outer face; calyx campanulate, essentially symmetrical, 6–10 mm. long, glabrous to pubescent, usually beset with a few glandular setae, the tube 3–8 mm. long, 3–4 mm. in diameter, the teeth lanceate or deltoid-acute, sometimes subulate, rarely obtuse, usually unequal in length, the two teeth opposite the standard 3–7 mm. long, the others 2–5 mm. long; filaments glabrous; fruit subterete, attenuate, sessile, about 7–12-articulate, longitudinally striate, pubescent to subglabrous, sometimes glandular-setose, the articles about 8–10 mm. long, 1–2 mm. in diameter; seeds dark reddish brown, 5–6 mm. long and about 1 mm. in diameter.

11a. *Chaetocalyx scandens* var. *scandens*.

FIGURE 12

Coronilla scandens L. Sp. Pl. 2:743. 1753.

Glycine vincentina Ker. Bot. Reg. Pl. 799. 1824

Glycine andersoni Hort. ex Ker. nomen in synonym. l. c.

Chaetocalyx vincentina DC. Prodr. 2:243. 1825.

Bönninghausia vincentina Spreng. Syst. 3:245. 1826.

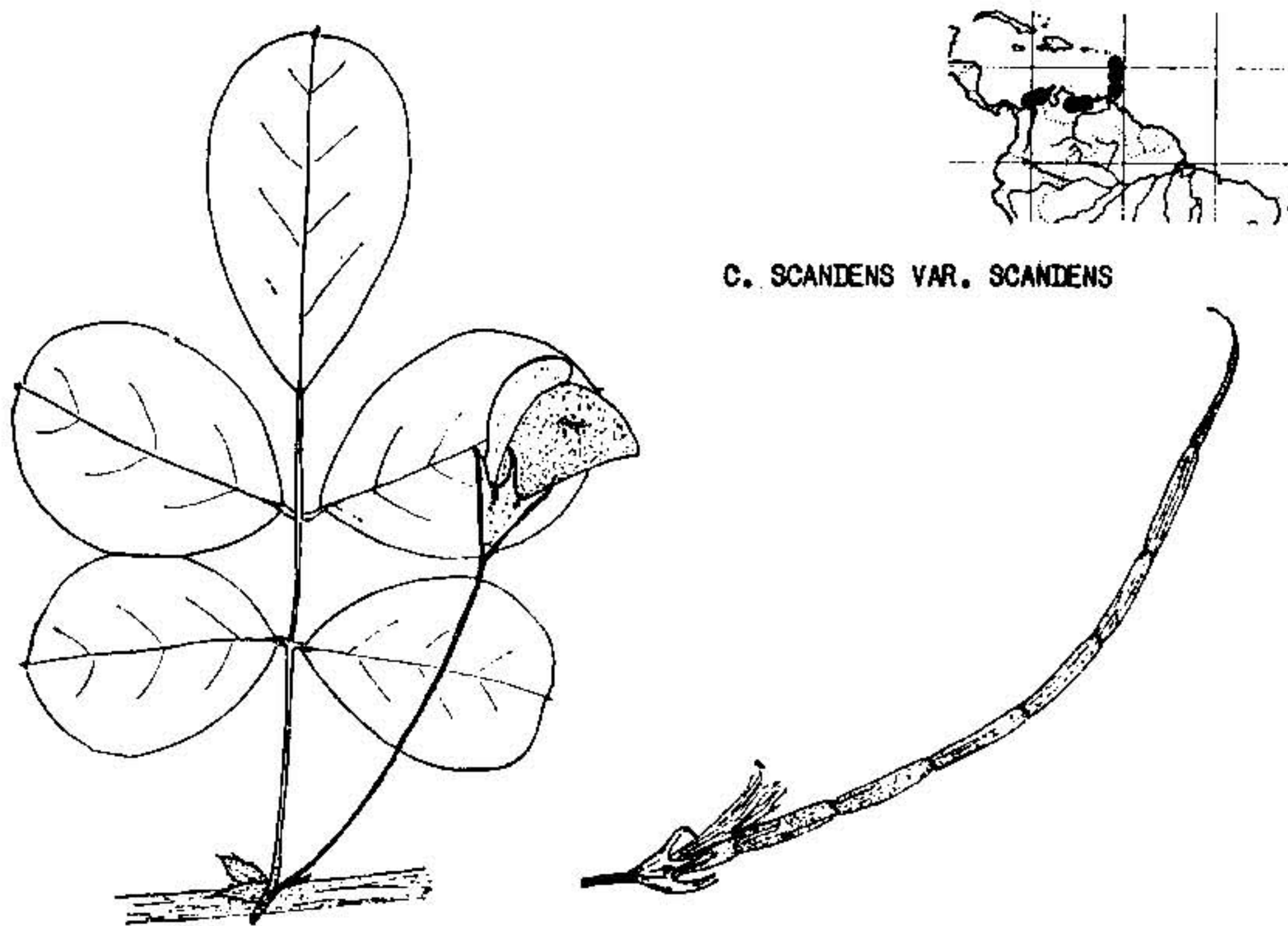
Chaetocalyx scandens (L.) Urb. Symb. Antill. 2:292. 1900.

Chaetocalyx retusa Blake, Contr. U. S. Nat. Herb. 20:523. 1924.

Chaetocalyx tenuipedicellata Pittier, Bol. Soc. Venez. Cienc. Nat. 6:190. 1940.

Plant generally glabrous to moderately pubescent; leaflets glabrous or nearly so, obovate to elliptical, obtuse to retuse; calyx glabrous except for glandular setae and marginal cilia.

TYPE LOCALITY: Presumably the Antilles, no exact locality specified, the type represented by pl. 107, fig. 3 in Plumier, *Plantarum Americanarum*, ed. Burm. 1755–1760.



C. SCANDENS VAR. SCANDENS

FIGURE 12.—*Chaetocalyx scandens* var. *scandens*.

DISTRIBUTION: Antilles, northern Venezuela, and northern Colombia.

LESSER ANTILLES

GUADELOUPE: *Duss* 2660 (NY, US), 3003 (NY, US); *Stehlé* 624 (US).

DOMINICA: *Imray* 21^a (K), 367 (K).

MARTINIQUE: *Hahn* 1191 (BM, GH); *Duss* 1067 (NY), 4461 (NY); *Stehlé & Stehlé* 4583 (F).

ST. LUCIA: *Box* 1985 (BM).

ST. VINCENT: *Guilding* (K); *H. H. & G. W. Smith* 1176 (K, NY).

BEQUIA: *Eggers* 7041 (US). *H. H. Smith (Joseph)* B262 (GH).

GRENADA: *Eggers* 6423 (US); *Vélez* 3209 (US); *Broadway* 414 (K), Dec. 22, 1904 (NY), Mar. 20, 1905 (GH), Mar. 27, 1905 (F), Dec. 1, 1905 (F).

VENEZUELA

DISTRITO FEDERAL: Between La Guaira and Caracas, *Fendler* 291a (K).

ARAGUA: Colonia Tovar, *Fendler* 292 in part (GH, K). Carmen, *Ll. Williams* 10398 (F, Ven TYPE of *C. tenuipedicellata*).

CARABOBO: Guaremales, *Pittier* 8879 (GH, NY, US TYPE of *C. retusa*).

COLOMBIA

MAGDALENA: Bonda, *H. H. Smith* 679 (A, BM, F, GH, US).

ATLANTICO: Between Baranoa and Polonuevo, *Dugand & Jaramillo* 2818 (US).

The extremely slender, subterete fruits, 1–2 mm. in diameter, characterize this species. Specimens with essentially glabrous leaves and calyx are referable to the typical variety.

Urban apparently was the first to relate *Chaetocalyx vincentina* to *Coronilla scandens* and to publish the combination *Chaetocalyx scandens*. On his authority and with no contrary evidence, I am accepting *Chaetocalyx scandens* as the correct name for this taxon.

11b. *Chaetocalyx scandens* var. *pubescens* (DC.) Rudd, comb. et stat. nov. FIGURE 13

Chaetocalyx pubescens DC. Prodr. 2:243. 1825; Mem. Leg. 6:262. 1825.

Glycine pubescens Bert. ex DC. Prodr. 2:243. 1825, nomen in synonym.

Rhadinocarpus multiflorus Vog. Linnaea 12:108. 1838.

Chaetocalyx parviflora Benth. in Mart. Fl. Bras. 15(1):74. 1859.

Chaetocalyx vestita Standl. Field Mus. Pub. Bot. 8:14. 1930.

Chaetocalyx paucifolia Pittier, Bol. Soc. Venez. Cienc. Nat. 6:185. 1940.

Chaetocalyx magniflora Pittier, Bol. Soc. Venez. Cienc. Nat. 6:186. 1940.

Chaetocalyx perglandulosa Pittier, Bol. Soc. Venez. Cienc. Nat. 6:187. 1940.

Chaetocalyx nigrescens Pittier, Bol. Soc. Venez. Cienc. Nat. 6:188. 1940.

Chaetocalyx fissa Pittier, Bol. Soc. Venez. Cienc. Nat. 6:189. 1940.

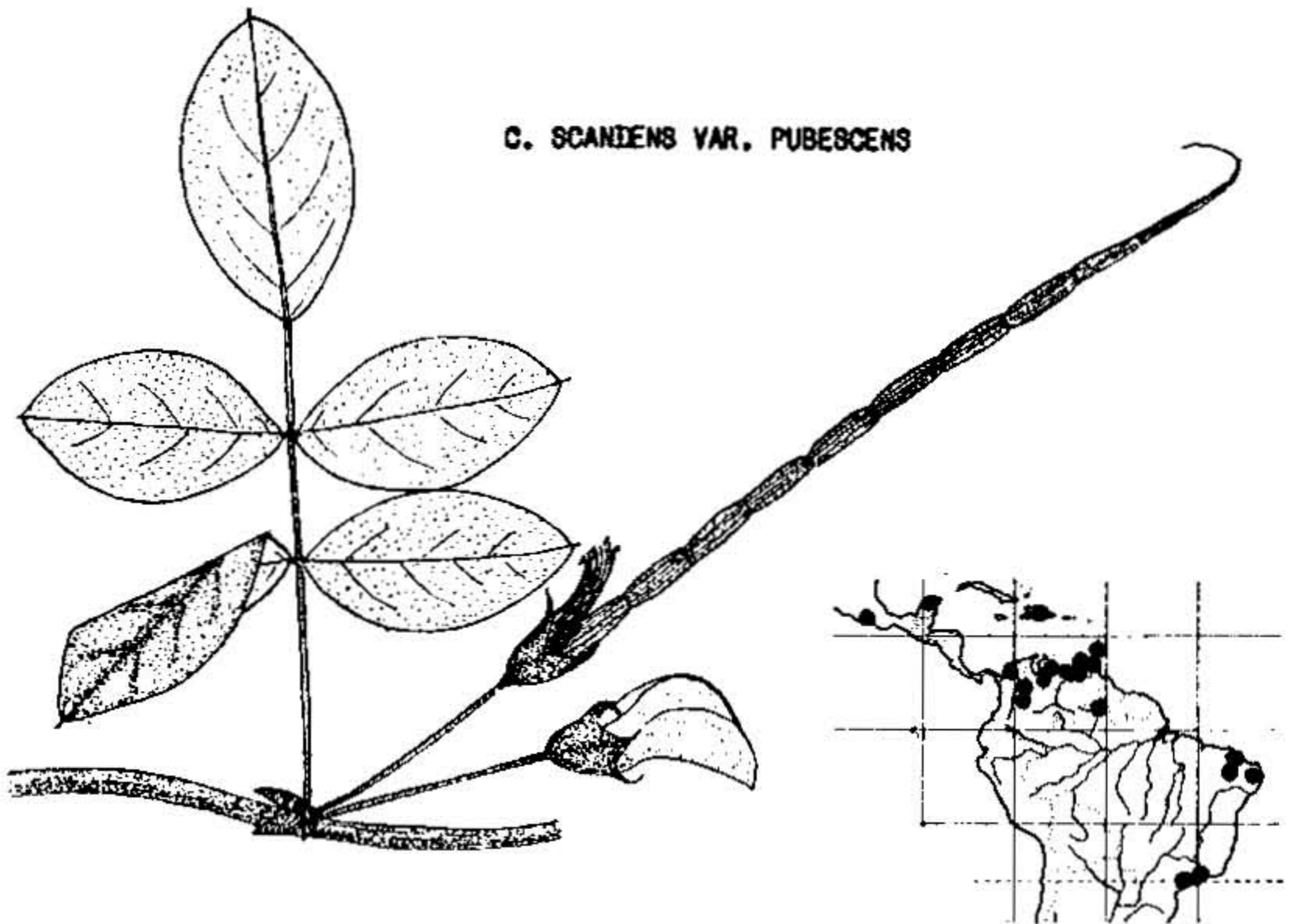


FIGURE 13.—*Chaetocalyx scandens* var. *pubescens*.

Plant generally pubescent; leaflets densely pubescent to subglabrous on one or both surfaces, elliptical to obovate, obtuse or occasionally retuse; calyx pubescent.

TYPE LOCALITY: "Santo-Domingo." Type collected by Bertero, cited below.

DISTRIBUTION: Southern Mexico, Antilles, Venezuela, Colombia, and eastern Brazil.

MEXICO

GUERRERO: Acapulco, *Palmer* 280 in 1894 (US).

YUCATAN: *Gaumer* 24117 (F, US). Buena Vista Xbac, *Gaumer* 1077 (F, GH, Mich, NY, US). Xnocac, *Gaumer* 23509 (F TYPE of *C. vestita*, GH, NY, US). Yot Tzonot, *Gaumer* 1336 (F). San Anselmo, *Gaumer* 2165 (F, GH).

DOMINICAN REPUBLIC

NO EXACT LOCALITY: *Bertero* (F. M. Neg. 33425 of TYPE of *C. pubescens* ex G).

SANTIAGO: Valle de Cibao, *Ekman* 15968 (US).

LESSER ANTILLES

ST. VINCENTS: *H. H. & G. W. Smith*, March 1890 (NY).

MUSTIQUE: *G. W. Smith* G. 91 (K).

CANNOUAN: *H. H. & G. W. Smith* C. 27 (BM).

VENEZUELA

NUEVA ESPARTA: El Valle, *Miller & Johnston* 259 (BM, F, GH, K, NY, US).

Tacarigua, *Ginés* 2555 (US). Guayamurí, *Ginés* (US), 2534 (US).

SUCRE: Cristóbal Colón, *Broadway* 252 (GH, NY, US).

ANZOÁTEGUI: Santa Rosa, *Pittier* 14606 (US, Ven).

MIRANDA: Guarenas, *Pittier* 11264 (US, Ven). Los Mariches, *Pittier* 11960 (NY, US, Ven).

MIRANDA OF DISTRITO FEDERAL: Between Antímano and Los Teques, *Arteaga* 2 (Ven).

MIRANDA, DISTRITO FEDERAL, OF ARAGUA: "Caracas; La Victoria," *Fendler* 292a (K).

DISTRITO FEDERAL: Galipán, *Moritz* 14 (K). San José del Avila, *Vogl* (Ven), Caracas, *Pittier* 6152 (US). Cerros de Camurí Grande, *Pittier* 13037 (NY, US, Ven [TYPE of *C. fissa*]). Between Antímano and Las Adjuntas, *Pittier* 12255 (NY, US, Ven TYPE of *C. nigrescens*). Antímano, *Pittier* 12457 (NY, US, Ven TYPE of *C. paucifolia*, erroneously cited as No. 12357); *Archer* 2992 (NA, US), 3043 (NA, US). Hacienda Sosa, *Tamayo* 486 (Ven), 704 (Ven). Catia de la Mar, *Tamayo* 625 (Ven TYPE of *C. per glandulosa*). Las Barrancas, *Tamayo* 1312 (F, US, Ven). Caraballeda, *Steyermark* 62938 (F). Between Sabana Grande and Baruta, *Ll. Williams* 10594 (F).

ARAGUA: Colonia Tovar, *Fendler* 291 (K), 292 in part (K).

CARABOBO: El Palito, near Puerto Cabello, *Pittier* 9080 (GH, NY, US).

LARA: Between Humocaro Bajo and Los Aposentos, *Steyermark* 55207 (F).

TRUJILLO: Valera, *Pittier* 10773 (GH, NY, US, Ven TYPE of *C. magniflora*). Between Valera and Monte Carmelo, *Bellard*, Aug. 1923 (US).

COLOMBIA

ATLÁNTICO: Barranquilla, *Elias* 1592 (F); *Torregroza, Araque-Molina, & Barkley* 18. At. 507 (US). Los Pendales, *Dugand & Jaramillo* 4146 (US).

SANTANDER: Bucaramanga, *Killip & Smith* 16301 (GH, NY, US).

CUNDINAMARCA: Nariño, *Pérez-Arbeláez* 404 (US). Tocaima, *Triana* in 1851-1857 (BM).

BRAZIL

RIO BRANCO: Rio Cotínga, *Maguire & Maguire* 40242 (US).

CEARÁ: Crato, *Gardner* 1560 (BM, K LECTOTYPE of *C. parviflora*). Between Fortaleza and Crato, *Apparicio Duarte* 1263 (US). Baturité, *Ducke*, MG Herb. No. 1174 (RB).

PARAIBA: Areia, Moraes [*Vasconcellos*] 908 (NY, US).

PERNAMBUCO: Gravatá, Campos Porto 945 (RB). Campo do Criação do Rio Branco, Ramalho 34 (RB).

RIO DE JANEIRO: Sellow (BM, F fragm. F. M. neg. 2136 ex B, K SYNTYPE of *C. parviflora*); Riedel 135 (BM, US).

SÃO PAULO: Serra da Bocaina, Glaziou 10507 (K), 10508 (K).

LOCAL NAMES: Cipó babão, (Pernambuco, Brazil); rama amarela (Paraíba, Brazil).

This variety is dubiously separable from the typical material solely on the basis of pubescence of the plant in general, and especially the calyx and leaves. The flowers and fruits otherwise are essentially indistinguishable in all specimens examined. There may be variation from glabrous to pubescent joints on the same fruit, so that particular character has no diagnostic value.

The type of *C. pubescens*, on which this variety is based, is an extremely pubescent specimen, and it is not difficult to appreciate de Candolle's opinion that it was specifically distinct from the glabrous *C. vincentina* (= *C. scandens* var. *scandens*). Most of the material originally cited as *C. vestita* likewise is densely pubescent. *Chaetocalyx parviflora* has slightly longer, more patent hairs than most specimens. The remaining species, described from Venezuela and Colombia, represent all the intermediate degrees of pubescence. The arbitrary distinction of pubescent from glabrous material is chiefly a matter of convenience; no other line of separation seems to be practicable.

Excluded taxa

Chaetocalyx wislizeni A. Gray = *Nissolia wislizenii* (A. Gray) A. Gray.

Chaetocalyx schottii Torr. = *Nissolia schottii* (Torr.) A. Gray.

New taxa and new combinations

Chaetocalyx blanchetiana (Benth) Rudd, comb. nov.

Chaetocalyx klugii Rudd, sp. nov.

Chaetocalyx platycarpa (Harms) Rudd, comb. nov.

Chaetocalyx scandens var. *pubescens* (DC.) Rudd, comb. et stat. nov.

Chaetocalyx tomentosa (Gardn.) Rudd, comb. nov.

Collections of *Chaetocalyx* cited

ANDRÉ, E. F.	ARTEAGA, O.
452. brasiliensis	2. scandens var. pubescens
4038. latisiliqua	
4223. latisiliqua	ASPLUND, E.
APPARICIO (SEE DUARTE)	7682. latisiliqua
ARCHER, W. A.	BALANSA, B.
2992. scandens var. pubescens	1555. brasiliensis
3043. scandens var. pubescens	1555a. brasiliensis

- BANG, M.
1348. brasiliensis
- BARCLAY, G.
746. latisiliqua
- BARROS, W. D.
679. tomentosa
- BELLARD, E. P. DE
s. n. scandens var. pubescens
- BLANCHET, J. S.
2892. blanchetiana
- BOX, H. E.
1985. scandens var. scandens
- BROADWAY, W. E.
252. scandens var. pubescens
414. scandens var. scandens
s. n. scandens var. scandens
- BUCHTIEN, O.
1782. brasiliensis
- BURKART, A.
8197. nigricans
- CAMP, W. H.
E-3618. brasiliensis
- CAMPOS PORTO, P.
945. scandens var. pubescens
- CÁRDENAS, M.
4703. brasiliensis
- CLAUSSEN, P.
196. longiflora
- COOPER, G. P.
88. latisiliqua
- CRÜGER, H.
171. brasiliensis
- CUATRECASAS, J.
4720. brasiliensis
- DUARTE, APPARICIO PEREIRA
1263. scandens var. pubescens
- [DUARTE], APPARICIO P., AND RIZZINI,
C. T.
27. acutifolia
- DUCKE, A.
(MG Herb. No.)
1174. scandens var. pubescens
17128. brasiliensis
- DUGAND, A., AND JARAMILLO, R.
2818. scandens var. scandens
4146. scandens var. pubescens
- DUNLAP, V. C.
369. latisiliqua
400. latisiliqua
- DUSÉN, P.
11272. nigricans
16821. longiflora
16881. longiflora
- DUSS, PÈRE
1067. scandens var. scandens
2660. scandens var. scandens
3003. scandens var. scandens
4461. scandens var. scandens
- EGGERS, H. F.
6423. scandens var. scandens
7041. scandens var. scandens
15050. latisiliqua
- EKMAN, E. L.
15968. scandens var. pubescens
- ELIAS, BRO.
1592. scandens var. pubescens
- EUGENIO, BRO. JOSÉ
638. scandens var. pubescens
- FENDLER, A.
291. scandens var. pubescens
291a. scandens var. scandens
292. scandens var. scandens
292a. scandens var. pubescens
- FERREYRA, R.
10901. weberbaueri

- FIEBRIG, K.
946. brasiliensis
6147. brasiliensis
- FROES, R. L.
30228. brasiliensis
- GARDNER, G.
350. tomentosa
1560. scandens var. pubescens
3671. brasiliensis
- GAUMER, G. F.
1077. scandens var. pubescens
1336. scandens var. pubescens
2165. scandens var. pubescens
23509. scandens var. pubescens
24117. scandens var. pubescens
- GINÉS, BRO.
2530. scandens var. pubescens
2534. scandens var. pubescens
2555. scandens var. pubescens
- GLAZIOU, A. F. M.
5813. tomentosa
10507. scandens var. pubescens
10508. scandens var. pubescens
13702. blanchetiana
13703. longiflora
13704. blanchetiana
- GOUVEA, J. M. S. DE
- s. n. longiflora
- GUILDING, L.
- s. n. scandens var. scandens
- HARN, M.
1191. scandens var. scandens
- HASSLER, E.
6201. brasiliensis
7564. brasiliensis
11538. brasiliensis
12613. brasiliensis
- HAUGHT, O.
3398. latisiliqua
- HAYES, S.
513. latisiliqua
s. n. latisiliqua
- HITCHCOCK, A. S.
20247. latisiliqua
20509. latisiliqua
- HOEHNE, F. C.
- S. P. 3307. longiflora
- HOLMGREN, I.
23. latisiliqua
- HOSTMANN, F. W.
165. brasiliensis
- HUNTER, A. A., AND ALLEN, P. H.
435. latisiliqua
- IMRAY, J.
- 21². scandens var. scandens
367. scandens var. scandens
- JELSKI, C. DE
216. platycarpa
- JÖRGENSEN, P.
3108. brasiliensis
4194. brasiliensis
4194a. brasiliensis
- JOSEPH, D. (SEE H. H. SMITH)
- KILLIP, E. P., AND SMITH, A. C.
16301. scandens var. pubescens
23581. brasiliensis
27336. brasiliensis
- KLUG, G.
3114. klugii
4361. brasiliensis
- KUHLMANN, J. G.
(RB Herb. No.)
852. acutifolia
- KUNTZE, O.
- s. n. brasiliensis
s. n. longiflora
- LINDEN, J. J.
737. brasiliensis
- LUSCHNATH, B.
- s. n. acutifolia

MACEDO, A.

1783. brasiliensis
1799. brasiliensis

MAGALHÃES, M.

3255. longiflora

MAGUIRE, B., AND MAGUIRE, C. K.

40242. scandens var. pubescens

MALME, G. O.

- Regnell II.1894. brasiliensis

MARTÍNEZ-CALDERÓN, G.

256. brasiliensis

MARTIUS, K. F. P. VON
(Herb. No.)

1175. longiflora

MATUDA, E.

834. brasiliensis

MELLO-BARRETO, F.

5703. longiflora
5704. longiflora

MEXIA, Y.

5835. longiflora
8463. latisiliqua

MEYER, T.

2125. brasiliensis

MILLER, O. O., AND JOHNSTON, J. O.

259. scandens var. pubescens

MONTES, J. E.

2199. brasiliensis

MORAES [VASCONCELLOS], J. C. DE

908. scandens var. pubescens

MORITZ, J.

14. scandens var. pubescens

MÜLLER, F.

216. nigricans

NOVAES, J. DE C.

258. longiflora

PALMER, E.

- 280 in 1894. scandens var. pubescens

PENNELL, F. W.

4242. latisiliqua

PÉREZ-ARBELÁEZ, E., ET AL

404. scandens var. pubescens
18. Vi. 104. brasiliensis

PEDERSEN, T. M.

2769. brasiliensis

PIPER, C. V.

5155. latisiliqua
5165. latisiliqua

PIRES, J. M., AND BLACK, G. A.

2068. brasiliensis
2072. brasiliensis

PITTIER, H.

2212. latisiliqua
6152. scandens var. pubescens
6898. latisiliqua
8879. scandens var. scandens
9080. scandens var. pubescens
10773. scandens var. pubescens
11264. scandens var. pubescens
11960. scandens var. pubescens
12086. latisiliqua
12255. scandens var. pubescens
12457. scandens var. pubescens
13037. scandens var. pubescens
14606. scandens var. pubescens
16069. [Herb. No.] latisiliqua

PLAUMANN, F.

363. brasiliensis

POHL, J. E.

- s. n. acutifolia

PURDIE, W.

- s. n. latisiliqua

RAIMONDI, A.

4096. platycarpa
6714. platycarpa

RAMALHO, L.

34. scandens var. pubescens

- RAMBO, B.
1400. nigricans
- REGNELL, A. F.
III.417. longiflora
- RIEDEL, L.
135. scandens var. pubescens
139. acutifolia
252. brasiliensis
- ROMERO C., R.
1241. brasiliensis
1242. brasiliensis
- ROVIROSA, J. N.
(Herb. No.)
115. brasiliensis
- RUIZ, H., AND PAVON, J.
2137. brasiliensis
- RUSBY, H. H.
2398. brasiliensis
- SAINT-HILAIRE, A. DE
B', No. 1071. tomentosa
- SCHIMPP, H. J. F.
1097. latisiliqua
- SCHIPP, W. A.
1330. brasiliensis
- SCHOTT, A. C. V.
s. n. acutifolia
- SCHREITER, R.
11060. brasiliensis
11061. brasiliensis
- SEEMANN, B. C.
457. latisiliqua
- SELLOW, F.
s. n. scandens var. pubescens
s. n. acutifolia
- SKUTCH, A. F.
2424. latisiliqua
- SMITH, D.
50. brasiliensis
- SMITH, G. W.
G. 91. scandens var. pubescens
SMITH, H. H., AND WITH SMITH, G. W.
C. 27. scandens var. pubescens
B. 262. (Joseph). scandens var. scandens
679. scandens var. scandens
1176. scandens var. scandens
s. n. scandens var. pubescens
- SPRAGUE, T. A.
399. brasiliensis
- SPRENGER, C.
69. brasiliensis
- SPRUCE, R.
1638. brasiliensis
3897. brasiliensis
5968. latisiliqua
- STANDLEY, P. C.
24590. brasiliensis
25812. latisiliqua
27158. latisiliqua
28322. latisiliqua
28452. latisiliqua
29540. latisiliqua
31592. latisiliqua
32153. latisiliqua
68869. brasiliensis
- STEHLÉ, H., AND WITH STEHLÉ, M.
624. scandens var. scandens
4583. scandens var. scandens
- STEINBACH, I.
7330. brasiliensis
- STEYERMARK, J.
44359. brasiliensis
44746. brasiliensis
55207. scandens var. pubescens
62938. scandens var. pubescens
- TAMAYO, F.
486. scandens var. pubescens
625. scandens var. pubescens
704. scandens var. pubescens
1312. scandens var. pubescens
- TESSMANN, G.
6079. brasiliensis

TONDUZ, A.

9350. latisiliqua

TORREGROZA, M., ET AL.

18. At. 507. scandens var. pubescens

TRAILL, J. W. H.

131. brasiliensis

TRIANA, J.

s. n. scandens var. pubescens

TÜRCKHEIM, H. VON

7741. brasiliensis

ULE, E.

9452. brasiliensis

VASCONCELLOS (SEE MORAES)

VELEZ, I.

3209. scandens var. scandens

VOGL, C. (PADRE CORNELIO)

s. n. scandens var. pubescens

WEBERBAUER, A.

6020. weberbaueri

WILKES EXPEDITION

s. n. longiflora

WILLIAMS, LL.

8890. brasiliensis

10398. scandens var. scandens

10594. scandens var. pubescens

WILLIAMS, L. O., AND ASSIS, V.

6161. longiflora

7129. longiflora

WILLIAMS, R. S.

254. brasiliensis

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