

A REVISION OF *SIPHONEUGENA* BERG

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Siphoneugena Berg (Myrtaceae, Myrteae) is a small eugenioid genus with eight species ranging from Puerto Rico to Northern Argentina with the centre of diversity in South-eastern Brazil. Keys to the species and varieties are provided, as well as synonyms, descriptions, illustrations and a map of geographical occurrence. Two new taxa are described from Brazil: *Siphoneugena guilfoyleiana* C. Proença, the only species to occur in sandy maritime vegetation on the Ilha do Cardoso, state of São Paulo and *S. densiflora* Berg var. *cipoensis* C. Proença, an endemic of the Serra do Cipó mountain range in the state of Minas Gerais. A new combination *S. dussii* (Krug & Urban) C. Proença based on *Marlierea dussii*, is made for a species that grows in Venezuela, Guyana, Surinam and the West Indies. This study confirms current opinions as to the low taxonomic value of open versus closed calyces in establishing natural genera within the Myrtaceae.

Revisão de *Siphoneugena* Berg

Siphoneugena Berg (Myrtaceae, Myrteae) é um pequeno gênero eugenióide que se distribui de Porto Rico ao Norte da Argentina com centro de diversidade no Sudeste do Brasil. São fornecidas chaves para o gênero e para as oito espécies e duas variedades, bem como sinonímia completa, descrições, ilustrações, e mapa de distribuição geográfica. Dois novos taxons brasileiros são descritos: *Siphoneugena guilfoyleiana* C. Proença, que ocorre nas restingas da Ilha do Cardoso (São Paulo) e *S. densiflora* Berg var. *cipoensis* C. Proença, endêmica da Serra do Cipó (Minas Gerais). A nova combinação *S. dussii* (Krug & Urban) C. Proença, baseada em *Marlierea dussii* é feita para uma espécie da Venezuela, Guiana, Suriname e Antilhas. Este trabalho confirma o baixo valor taxonômico da forma de antese (botões florais fechados ou abertos) na delimitação de gêneros naturais em Myrtaceae.

Keywords: Myrtaceae, Myrteae, *Siphoneugena*, *Neomitranthes*, 'cerradão', 'restinga', gallery forest.

Siphoneugena is a genus of eight species that occurs from Puerto Rico to Northern Argentina. It belongs to the subtribe Eugeniinae and is one of the specialized genera segregated from *Eugenia* by Berg (1856). Generic delimitation is a severe problem in the Eugeniinae and to delimit *Siphoneugena* material of several allied genera was studied. Observations on this subject will be presented in a future paper.

This study is based primarily on herbarium material, although *Siphoneugena densiflora* and *S. kuhlmannii* were also studied in the field. I examined material from the following herbaria: BM, BR, COL, E, F, GUA, IBGE, ICN, K, L, LIL, M, MBM, MICH, NY, R, RB, SP, ST, UB, UEC, US and W. The E, GUA, IBGE, K, MBM, R, RB, SP, UB and UEC herbaria were visited personally and their undetermined material of Myrtaceae and *Eugenia* searched for specimens of *Siphoneugena*.

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FIG. 1. Distribution of *Siphoneugena* species. Contour is 1000m. *S. densiflora* (■), *S. dusii* (▲), *S. guilfoyleiana* (★), *S. kiaerskoviana* (△), *S. kuhlmannii* (○), *S. occidentalis* (☆), *S. reitzii* (●) and *S. widgreniana* (□).

ECOLOGY

On the basis of the few species known to him, McVaugh (1963) envisaged *Siphoneugena* as a genus adapted to wet montane forest and compared it to *Myrciaria*, a nearby lowland forest genus. My results tend to support this idea. Five *Siphoneugena* species are exclusively montane and probably do not occur below the 900m line, two grow in the mountains and at lower altitudes, and one is adapted to a sandy maritime habitat (Fig. 1). A recent phytosociological study along an altitudinal gradient in eastern São Paulo showed *S. densiflora* to be the dominant species at 960m, 1040m and 1120m, second dominant at 1170m, third dominant at 920m and fifth dominant at 1080m (Rodrigues et al., 1989).

As altitude is closely correlated with temperature, it is probable that the altitudinal preferences of some of the species actually reflect a temperature selection. *S. reitzii*, for example, is a common species throughout Paraná and Santa Catarina but only grows on the highest mountains of the warmer state of São Paulo.

Virtually nothing is known about the biology of *Siphoneugena* (Proença, 1986). The floral syndrome suggests pollination by bees and current investigations of the reproductive biology of *S. densiflora* has revealed that the pollinator is a crepuscular bee, *Ptiloglossa* sp., Colletidae (Proença, unpublished data). The round, dark-purple berries appear adapted to bird dispersal. A migrant fly-catcher (*Miyarchus swansonii*, Tyrannidae) eats the ripe berries of *S. densiflora* (Antas, pers. comm.).

TAXONOMY

The description of the genus first appeared in *Linnaea* (Berg, 1856) but the author was under the misconception that his *Flora Brasiliensis* account (1857) would be published before *Linnaea* and therefore cited 'Flora Brasiliensis volume 17' as the place of publication. This can be ignored as his *Flora Brasiliensis* Monograph did not appear until 1857 and was in volume 14, not 17 (McVaugh, 1956). The generic description in *Linnaea* was followed by three species, but since no diagnoses were provided these names must be considered *nomina nuda* and were not validly published until 1857.

Berg's new genus was not well accepted by later botanists and has a somewhat tortuous history.

Kiaerskou (1893) described a new species but reduced *Siphoneugena* to a subgenus of *Eugenia*. Niedenzu (1893), unaware of Kiaerskou's work, divided the three original species between *Blepharocalyx* and *Calycorectes*. The next species to be described was first placed in *Marlierea* by the authors Krug & Urban (Urban, 1894) and later transferred to *Plinia* (Urban, 1919).

Burret (1941a) described several new species and lectotypified *Siphoneugena* (choosing *S. widgreniana*), but only to reduce it to a synonym of *Mitranthes*. His concept of *Mitranthes* was of a calyptrate-flowered genus of subtribe Eugeniinae, and he accordingly transferred all the calyptrate-flowered species of *Siphoneugena* (including

the lectotype) to *Mitrantes*. What Burret did not know is that *Mitrantes* does not belong to Eugeniinae. Fruiting specimens of the generic type of *Mitrantes* itself, *M. ottonis*, were unknown at the time; they have since been collected and found to have a 'myrcioid' embryo (McVaugh, 1968). *Mitrantes* clearly belongs in the Myrciinae (Landrum, 1984) and has no close relationship to *Siphoneugena*.

The non-calyptrate-flowered species of *Siphoneugena* were considered by Burret to form a new genus, *Paramitrantes* (1941a). *Paramitrantes kiaerskoviana*, the type of *Paramitrantes*, fits perfectly within *Siphoneugena* and no other author has, as far as I know, accepted this genus (Kausel, 1967; McVaugh, 1968; Mattos, 1969).

McVaugh (1956) proposed another species (*S. densiflora*) as the generic type of *Siphoneugena* and, upon finding out about the earlier choice, dismissed it on grounds of Burret's complete misunderstanding of the genus (McVaugh, 1968). I do not see any reason to disqualify Burret's lectotypification. Even if the latter's concept of *Siphoneugena* was partially based on a misunderstanding (see McVaugh, 1968) the species chosen as a lectotype is nevertheless: 1) within Berg's original concept of his genus; 2) chosen in a discriminating way; 3) based on a single, original specimen, and so must be accepted. The acceptance of either species as the generic type does not alter the circumscription of the genus as hereby interpreted.

The first botanists to re-establish *Siphoneugena*, 100 years after its proposal, were Legrand (1957) and Steyermark (1957). They published a new species and a new variety respectively. McVaugh (1963) also accepted the genus and published a new variety. Kausel (1967) published several new combinations in *Siphoneugena* based on Burret's *Paramitrantes* species. Mattos (1964, 1967, 1977) and Mattos & Silveira (1985) have published several taxa in the genus.

In 1968, McVaugh informally proposed that the circumscription of *Siphoneugena* be expanded to include a group of species with glomerulate inflorescences, persistent hypanthial cups and calyptrate flowers. Legrand (Legrand & Klein, 1977) took an opposite viewpoint and, although admitting these species might eventually be united to *Siphoneugena*, erected a new genus for them—*Neomitranthes*.

In the present paper, *Siphoneugena* is delimited in the sense of Berg (1856, 1857) and Legrand (Legrand & Klein, 1977). Several species of *Siphoneugena* proposed by Kausel (1967, 1969) and Mattos (1967) have been excluded as their inclusion makes the genus completely artificial. I agree with McVaugh (1968) about the proximity of *Neomitranthes* but feel a formal merger would be premature when the latter genus is still so poorly known. Additional collections, especially of fruiting material, are necessary.

Many of the taxonomic tribulations of *Siphoneugena* are linked to the mode of anthesis: the calyx can open normally, tear into lobes, or detach as a calyptra. This convenient character has been traditionally used as a generic marker in the family (Willdenow, 1799; Berg, 1856, 1857, 1859; Legrand, 1977) but *Blepharocalyx* (Landrum, 1986), *Campomanesia* (Landrum, 1986, 1987), *Myrceugenia* (Landrum, 1984) and *Psidium* (McVaugh, 1968) have all recently been found to have species with open and closed calyces. Landrum has argued convincingly that in *Campomanesia* and *Myrceugenia*, which are normally open-flowered, a closed calyx has evolved not

only once but twice, perhaps under evolutionary pressure of staminal predation by insects.

My studies in *Siphoneugena* support the low taxonomic value of mode of anthesis at the generic level. In this genus, in fact, it should be used with some caution even at the specific level (see *S. densiflora*, *S. kiaerskoviana* and *S. guilfoyleiana*). *Siphoneugena* is an example of a genus showing continuous variation for this character.

Since the genus is not well known, the following simplified key to separate *Siphoneugena* from other neotropical Myrtaceae is provided.

FLOWERING MATERIAL

1. Inflorescence an axillary (rarely terminal) raceme with a somewhat elongated to very reduced rachis, flowers (1–)2–9(–14); hypanthium prolonged into a cup above the apex of the ovary, elevating the petals and staminal disk above the level of stylar insertion and this cup later abscised leaving a circular scar on the ovary; ovary bilocular with (2–)3–5(–7) ovules per loculus, loculi never consistently 2-ovulate _____ **Siphoneugena**
- + Inflorescence various; hypanthial cup usually absent, if present then either persistent in the fruit or loculi consistently 2-ovulate _____ All other neotropical genera

FRUITING MATERIAL

1. Berry round, dark red to purplish black, crowned by a small circular scar left by the abscission of the hypanthial cup; seeds 1(–4); embryo with 2 free, plano-convex cotyledons and a minute hypocotyl _____ **Siphoneugena**
- + Berry of various shapes and colours, usually crowned by the dry or green calyx-lobes or by the dry remnants of the hypanthial cup, if by a small circular scar then embryo homogeneous (cotyledons and hypocotyl undifferentiated); seeds 1-many; embryos various _____ All other neotropical genera

Siphoneugena Berg, *Linnaea* 27: 345 (1856). Lectotype: *S. widgreniana* Berg, (Burret, 1941a: 536).

Syn.: *Eugenia* subgen. *Siphoneugena* (Berg) Kiaerskou in Warming, *Symb. Fl. Bras. Centr.* 39: 174 (1893).

Calycorectes subgen. *Siphoneugenia* (Berg) Niedenzu in Engl. & Prantl, *Naturl. Pflanzenfam.* 3(7): 82 (1893).

Calycorectes sect. *Eusiphoneugenia* Niedenzu, *loc. cit.* Type: *C. widgrenianus* (Berg) Niedenzu.

Calycorectes sect. *Prosiphoneugenia* Niedenzu, *loc. cit.* Type: *C. densiflorus* (Berg) Niedenzu.

Paramitranthes Burret, *Notizbl. Bot. Gart. Berlin-Dahlem* 15: 537 (1941). Type: *P. kiaerskoviana* Burret.

Trees to c. 15m. *Twigs* somewhat flattened when young becoming cylindrical with age. *Petiole* canaliculate, except in older leaves. *Leaves* with translucent glands but these sometimes imperceptible in the older leaves; lower leaf surface almost always with raised or flush subepidermal glands; midvein somewhat raised or rarely flush with the upper surface, never sunken; lateral veins many, ascending, delicate, equalling the marginal vein in breadth; marginal vein parallel to and running 1–2mm distant from the leaf margin. *Racemes* axillary, at leafless nodes and sometimes also terminal; inflorescence stalk usually absent, very rarely present through abortion of the proximal pair of flowers; rachis normally elongated to very reduced; bracts and bracteoles non-foliaceous, usually persistent in fruit but sometimes early deciduous, the bracts grouped at the base of the inflorescence and one at the base of each pedicel, the bracteoles in pairs at the base of each flower-bud. *Flowers* (1–)2–9(–14), opposite, decussate, but frequently appearing to arise from the same point by the extreme reduction of the rachis. *Buds* open to completely closed, with raised subepidermal glands. *Anthesis* by opening of the 4 calyx-lobes, or by regular or irregular tearing of the closed calyx into 4 lobes or by a partially detaching calyptra. *Hypanthium* prolonged into a cup above the ovary; apex of hypanthial cup strongly revolute at anthesis, curving the pubescent staminal disk; hypanthial cup cleanly deciduous leaving a circular scar on the ovary; calyx-lobes, when present, valvate to obscurely imbricate, with a smaller outer pair and a larger inner pair, or subequal, reflexed at anthesis, ciliate, internally pubescent; calyptra, when present, pendulous, internally pubescent. *Petals* 4, white, imbricate, reflexed and deciduous unless adnate to the calyptra, densely pubescent on both surfaces. *Stamens* c. 50–200, the inner whorls shorter than the outer; anthers oblong 0.3–0.5mm. *Ovary* bilocular, exceptionally trilocular; ovules (2–)3–5(–7) per locus, axile or almost basal; style linear; stigma minute. *Berry* purplish black when mature, round, crowned by a circular scar; pericarp thin. *Seeds* 1(–4); testa membranaceous. *Embryo* round to oblong with 2 free, plano-convex cotyledons, hypocotyl c. 1mm, strap-shaped.

KEY TO THE SPECIES

1. Bud totally closed or with an apical pore; anthesis by a calyptra or by tearing; SE Brazil _____ 2
- + Bud open, anthesis by 4 discernible calyx-lobes (some tearing may occur); South America and West Indies _____ 5
2. Rachis of inflorescence usually absent; ovary spindle shaped _____ **3. *S. guilfoyleiana***
- + Rachis of inflorescence short but distinct; ovary funnel-shaped _____ 3
3. Bracts and bracteoles caducous (at young bud stage); ovary densely covered with white hairs _____ **4. *S. kiaerskoviana***
- + At least some bracts and bracteoles persistent (to fruiting stage); ovary glabrous or very sparsely puberulous _____ 4

4. Twigs not peeling; leaf apex usually lanceolate; bud with a sinuous apical pore _____ **1. *S. densiflora***
 + Twigs usually peeling; leaf apex usually round; bud closed or with a minute round apical pore _____ **8. *S. widgreniana***
5. Stamens more than 170; mature buds club-shaped; rachis of the raceme usually absent _____ **5. *S. kuhlmannii***
 + Stamens less than 140; at least some of the mature buds constricted between the ovary and the hypanthial cup; rachis of the raceme usually short but distinct _____ 6
6. Bracteoles deciduous after flowering; Argentina, Bolivia, Central Brazil (Mato Grosso) _____ **6. *S. occidentalis***
 + At least some bracteoles persistent in the fruit; Central and Southern Brazil, Venezuela, Guyanas, Surinam, West Indies ____ 7
7. Petioles normally 3–14mm; bark rough and fissured _____ **1. *S. densiflora***
 + Petioles normally 1–6mm; bark smooth _____ 8
8. Leaf-apex usually somewhat acuminate; stamens c. 100; Central Brazil, Venezuela, Surinam, Guyanas, West Indies ____ **2. *S. dussii***
 + Leaf-apex usually acute; stamens c. 70–85; Southern Brazil _____ **7. *S. reitzii***

1. *Siphoneugena densiflora* Berg in Martius, Fl. Bras. 14(1): 379 (1857); Linnaea 27: 345 (1856), *nom. nud.*; *Calycorectes densiflorus* (Berg) Niedenzu in Engl. & Prantl, Natürl. Pflanzenfam. 3(7): 8 (1893); *P. densiflora* (Berg.) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 543 (1941). Type: Brazil, Schüch s.n. (holo. W). **Fig. 2.**

(Synonyms under varieties)

Tree. *Young twigs* smooth, glabrous or puberulous, becoming lightly striated with age, not peeling. *Leaves* with translucent glands; midvein \pm equally raised on both surfaces; lateral veins equally raised on both surfaces; marginal vein almost straight. *Racemes* with (1–)2–7(–14) flowers; bracts and bracteoles c. 1mm, broadly triangular to lanceolate, usually persistent in the fruit. *Hypanthium* usually strongly constricted between the cup and the ovary; hypanthial cup c. 2 \times 3mm. *Petals* 1.5–2.5 \times 1.5–2mm, irregularly oval to orbicular. *Stamens* 1.5–5mm. *Ovary* bilocular or rarely trilocular, c. 1 \times 1–2mm, round to spindle-shaped.

S. densiflora was based on a single collection by Schüch who did not cite the exact locality. Urban (1906) states that Schüch collected only near Rio de Janeiro but several Schüch collections from Minas Gerais have since been found and I believe that the type of *S. densiflora* was probably also collected there. This species has been generally known as *S. chnoosepala* Kiaerskou, a later synonym, and the name *S. densiflora* used for another species (see discussion of *S. dussii*).

The first collections of *S. densiflora* were made on the fringes of its area of distribution where greater variability is often found (Davis & Heywood, 1963). In *S. densiflora* this seems to be especially true of the degree of elongation of the inflo-

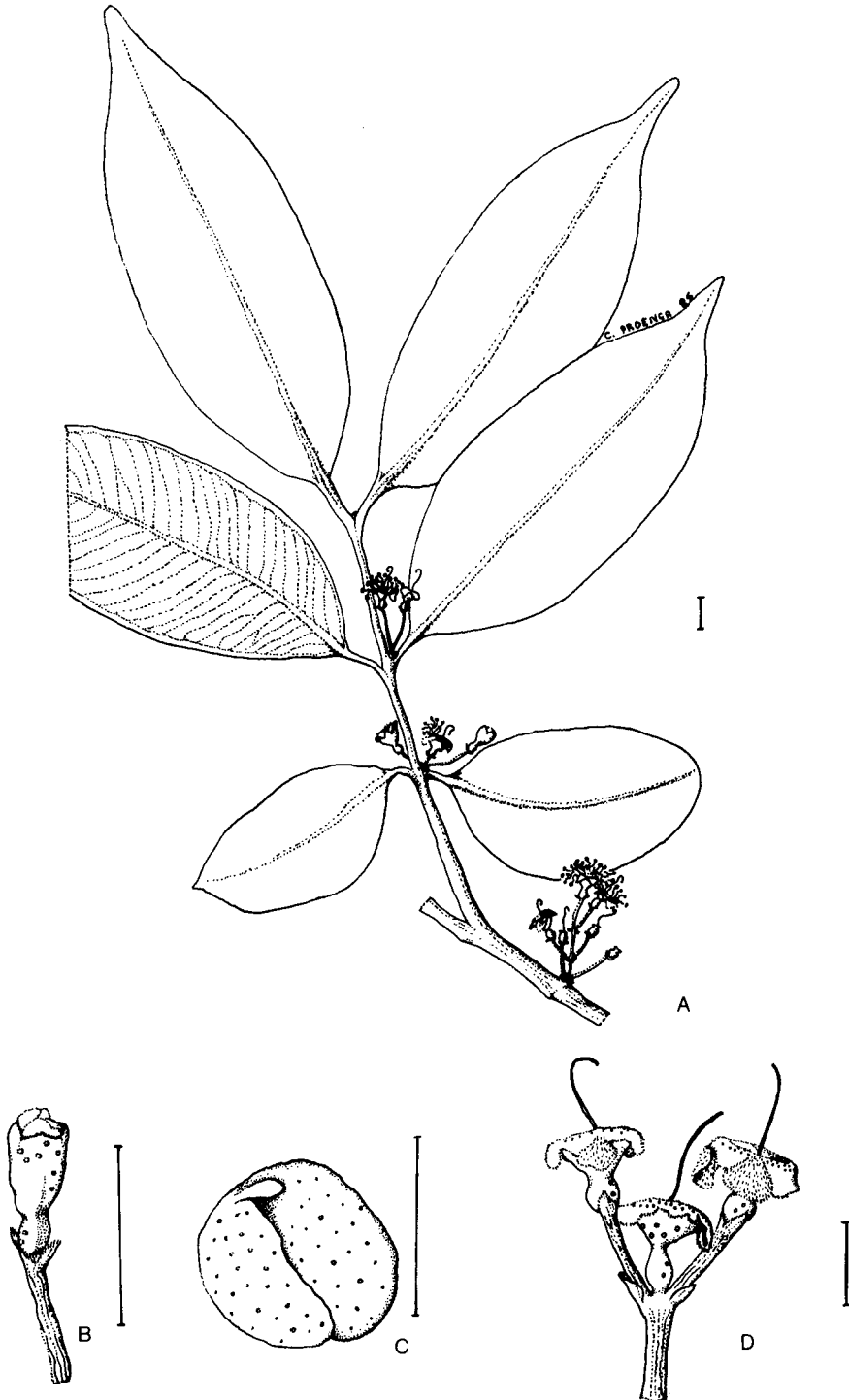


FIG. 2. *Siphoneugena densiflora* var. *densiflora*. A, habit (Irwin *et al.* 5318); B, mature flower-bud (Heringer 10473); C, embryo (Irwin *et al.* 10516); D, apex of inflorescence (Duarte 2872). [scales = 5mm]

escence rachis. Such variability is taxonomically unfortunate as it led to a proliferation of names; *Eugenia chnoosepala* Kiaerskou var. *chnoosepala* and *Paramitranthes bracteata* Burret are examples.

I have also observed that trees growing in open, drier habitats such as 'campos rupestres' and 'cerradões' have wider, thicker leaves than those of gallery forest trees. In a sampling of leaf ratios of two trees, one from a gallery forest and one from 'cerradão', 75% of the leaves from the gallery forest tree were between 1:3 and 1:4 while 61% of the leaves of the 'cerradão' tree were broader than 1:3 (Proença, 1986). Thus, *Eugenia chnoosepala* var. *regnelliana* Kiaerskou corresponds to what I would call the gallery forest form and *Paramitranthes macrophylla* Burret to the 'cerradão' form.

Paramitranthes macrophylla was transferred to *Siphoneugena* by Kausel (1967) but has been reduced to varietal status, as *S. chnoosepala* var. *macrophylla*, by Mattos & Silveira (1985). Mattos (1977) had previously accepted *S. macrophylla* and published a new variety of that species, *S. macrophylla* var. *brasiliae*, and he does not explain in his more recent paper (Mattos & Silveira, 1985) what status is to be attributed to var. *brasiliae* if *S. macrophylla* is itself a variety. The other new taxon proposed by the same authors, *S. chnoosepala* var. *pilosa*, based on a slightly more pubescent than usual specimen, does not merit taxonomic recognition in my opinion.

A new taxon, *S. densiflora* var. *cipoensis*, is described (p. 250). It is somewhat intermediate between *S. densiflora* var. *densiflora* and *S. widgreniana*, both of which also occur in the Serra do Cipó. I initially thought they might be hybridizing but careful examination showed that the intermediate characters are constant and well-correlated. Kawasaki (1985), in a floristic study of the Myrtaceae of the Serra do Cipó, has treated some of these specimens as *S. widgreniana*, which they superficially resemble. The differences between the three taxa are contrasted in Table 1. Also, on the basis of herbarium material, the flowering periods of *S. densiflora* var. *densiflora* and var. *cipoensis* seem to coincide and differ from that of *S. widgreniana*, although there is some overlap (Fig. 3).

Table 1. Diagnostic characters of *Siphoneugena* taxa occurring in the Serra do Cipó

<i>S. densiflora</i> var. <i>densiflora</i>	<i>S. densiflora</i> var. <i>cipoensis</i>	<i>S. widgreniana</i>
twigs not peeling	twigs not peeling	twigs \pm peeling
petioles 3–14.5mm	petioles 3–8mm	petioles 3–8mm
leaves more frequently ovate	leaves more frequently oblanceolate	leaves more frequently oblanceolate
leaf apex usually acuminate	leaf apex usually abruptly acuminate	leaf apex usually round
leaves glabrous	leaves glabrous	leaves sparsely puberulous to pubescent
raceme reduced or not, 0.8–2.7cm	raceme reduced or not, 0.8–1.4cm	raceme reduced, 0.6–1.5cm
calyx-lobes well-defined in bud	calyx-lobes rudimentary in bud	buds closed
open flowers sometimes torn between calyx-lobes	open flowers always torn between calyx-lobes	open flowers with pendulous calyptra
stamens 65–110	stamens 105–135	stamens 100–105
style 4.5–7mm	style 7–8mm	style 4–6mm

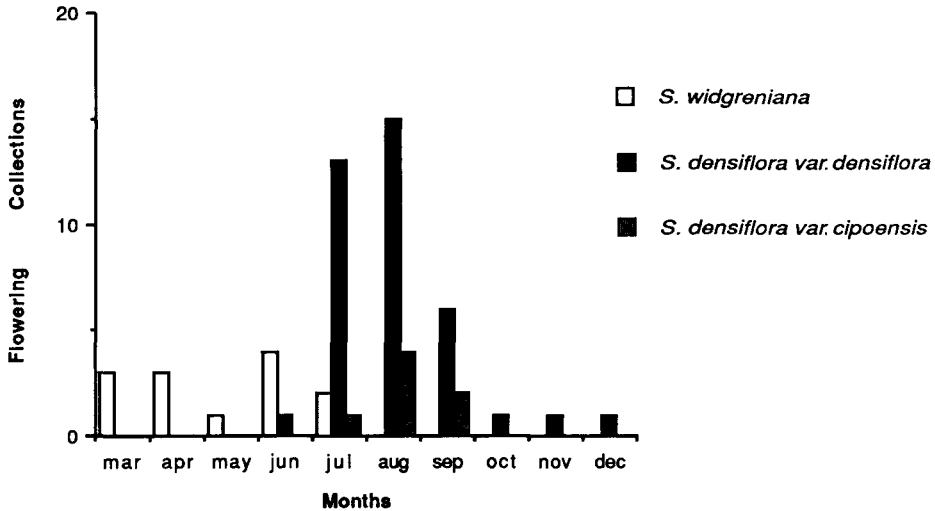


FIG. 3. Monthly distribution of flowering collections of the Serra do Cipó *Siphoneugena* taxa.

KEY TO THE VARIETIES

1. Petiole usually 7–13mm; leaf broadest closer to the base _____ **1a. var. densiflora**
- x Petiole usually 3–8mm; leaf broadest closer to the apex _____ **1b. var. cipoensis**

1a. *S. densiflora* var. *densiflora*.

Syn.: *Eugenia chnoosepala* Kiaerskou var. *chnoosepala* in Warming, Symb. Fl. Bras. Centr. 39: 174, tab. 23-h (1893) p.p., *syn. nov.*; *P. chnoosepala* (Kiaerskou) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 543 (1941); *S. chnoosepala* (Kiaerskou) Kausel, Lilloa 32: 367 (1967). Type: Brazil, Minas Gerais, Lagoa Santa, Warming s.n. (holo. C).

E. chnoosepala var. *regnelliana* Kiaerskou in Warming, Symb. Fl. Bras. Centr. 39: 174 (1893) *syn. nov.*; *P. regnelliana* (Kiaerskou) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 543 (1941); *S. regnelliana* (Kiaerskou) Kausel, Lilloa 32: 367 (1967). Type: Brazil, Minas Gerais, 3 Sep. 1864, *Regnell* III 580 (holo. C; iso. R, ST).

Paramitranthes bracteata Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 544 (1941) *syn. nov.*; *Siphoneugena bracteata* (Burret) Kausel, Lilloa 32: 367 (1967). Type: Brazil, Minas Gerais, Caldas, 1 Aug. 1846, *Regnell* III 582 (holo. B—destroyed, iso. ST).

- P. macrophylla* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 543 (based on *E. chnoosepala* var. *latifolia* Glaziou, *nom. nud.*), *syn. nov.*; *S. macrophylla* (Burret) Kausel, Lilloa 32: 367 (1967); *S. chnoosepala* var. *macrophylla* (Burret) Mattos & Silveira, Loefgrenia 87: 1 (1985). Type: Brazil, Minas Gerais, Paiol, Glaziou 21183 (holo. B—destroyed; iso. C, R).
- S. macrophylla* var. *brasiliae* Mattos, Loefgrenia 71: 1 (1977) *syn. nov.* Type: Brazil, Distrito Federal, Brasília, Irwin *et al.* 8464 (holo. UB).
- S. chnoosepala* var. *pilosa* Mattos & Silveira, Loefgrenia 87: 1 (1985) *syn. nov.* Type: Brazil, Distrito Federal, Chapada da Contagem, Irwin & Soderstrom 5318 (holo. UB; iso. F, MICH, NY).
- Eugenia chnoosepala* var. *latifolia* Glaziou, Bull. Soc. Bot. France 54(3): 236 (1908) *nom. nud.*

Tree to 12m. *Bark* in mature tree light brown, flaky, with longitudinal fissures. *Petiole* 3–14.5 × 1–2mm, glabrous or puberulous; leaf blades 4–13.7 × (1–)1.4–5cm, ovate to elliptic, glabrous or with a few sparse hairs near base; apex with an abrupt or long-tapering acumen; base acute; upper surface with flush or slightly sunken subepidermal glands; new growth sometimes sparsely pubescent. *Racemes* 0.8–2.7cm, puberulous to glabrous; rachis 0–1(–1.7)cm; bracts and bracteoles glabrous to puberulous; pedicels 0–15mm but the terminal flower sometimes sessile. *Buds* c. 3.5 × 2–3mm, open, glabrous to puberulous. *Anthesis* by opening of the calyx-lobes, rarely with some tearing between lobes, calyx-lobes after anthesis 1 × 1–1.5mm. *Stamens* 65–110. *Style* 4.5–7mm; ovules 3–6(–7) per locus. *Berry* 9–12mm in diameter; epicarp shiny; mesocarp fleshy with sweet, astringent taste. *Seeds* 1(–4). *Embryo* 6–7 × 4–6mm, spheroid to ellipsoid; cotyledons with sunken glands on the intercotyledonary surfaces. Common names: Maria-preta, Murta (Distrito Federal); Uvatinga (São Paulo).

Distribution: In montane grasslands ('campos rupestres'), deciduous forests ('ceradões') and gallery forests in southern Goiás State, Distrito Federal, Minas Gerais State and São Paulo State, Brazil.

BRAZIL. Distrito Federal: Parque Nacional de Brasília, Barragem Santa Maria, fl, 16 vi 1970, *Fonsêca* 1609 (UB); Horto do Guarã, fl, 19 viii 1961, *Heringer* 8600 (NY, RB, UB); *ibid.*, fl, 8 viii 1962, *Heringer* 8960 (UB); Mata do Catetinho, fl, 26 ix 1973, *Heringer* 12855 (UB, UEC); *ibid.*, fr, 5 v 1976, *Heringer* 15515 (UB); *ibid.*, fl, 4 xi 1979, *Heringer* 15610 (IBGE); *ibid.*, fl, 3 ix 1980, *Heringer et al.* 5433 (IBGE, NY); Estação Florestal Cabeça do Veado, fl, 1 viii 1975, *Heringer* 14789 (UB, UEC); Reserva Biológica das Aguas Emendadas, fl, 2 viii 1975, *Heringer* 14792 (UB, UEC); *ibid.*, fl, 2 viii 1975, *Heringer* 14801 (UB); *ibid.*, fl, 3 viii 1975, *Heringer* 14820 (UEC, NY); *ibid.*, fl, 17 vii 1979 '1980', *Heringer et al.* 1861 (IBGE, NY); Bacia do Rio São Bartolomeu, fl, 24 vii 1979, *Heringer et al.* 1903 (IBGE, NY); *ibid.*, fl, 8 viii 1979, *Heringer et al.* 1923 (IBGE, NY); *ibid.*, fr, 26 ix 1979, *Heringer et al.* 2067 (IBGE); *ibid.*, fl, 17 vii 1980, *Heringer et al.* 5249 (IBGE, NY); *ibid.*, fl, 17 vii 1980, *Heringer et al.* 5250 (IBGE, NY, UEC); Taguatinga, Mata vizinha ao Estádio Serejão, fl, 27 viii 1980, *Heringer et al.* 5363 (IBGE, NY); Chapada da Contagem, fl, 15 viii 1964, Irwin & Soderstrom 5150 (UB); *ibid.*, fr, 19 ix 1965, Irwin *et al.* 8464 (MICH, NY); *ibid.*, c. de 20km E of Brasília, fl, 19 viii 1964,

Irwin & Soderstrom 5318 (holotype of *Siphoneugena chnoosepala* var. *pilosa*, UB; isotypes F, K, MICH, NY); Catetinho, fl, 12 ix 1964, *Irwin & Soderstrom* 6142 (F, K, MICH, NY, RB, UB); 10km N of Planaltina, fr, 2 x 1965, *Irwin et al.* 8882 (MBM, MICH, NY, UB); Parque Nacional de Brasília, fl, 22 vii 1965, *Martin* 413 (UB); *ibid.*, fl, 26 vii 1965, *Martin* 457 (UB); Reserva Ecológica do IBGE, fl, 8 ix 1983, *Pereira* 745 (IBGE); Jardim Botânico de Brasília, st, 13 ix 1984, *Proença* 407 (UB); Fazenda Agua Limpa, fl, 31 vii 1984, *Ratter & Rocha* 5011 (E, K); near Cabeça do Veado, st, 23 x 1980, *Rivera* s.n. **Goiás:** Cristalina, fl, 14 viii 1980, *Hatschbach* 43123 (MBM); Saia Velha, fl, 1 viii 1965, *Heringer* 10473 (IBGE); Luziânia, fl, 15 vii 1979, *Heringer* 17369 (NY, UEC); *ibid.*, Rio Vermelho a 15km ao sul da cidade, fl, 30 ix 1980, *Heringer* 17915A (IBGE); *ibid.*, fl, 20 viii 1980, *Heringer* 18068 (IBGE, UB). **Minas Gerais:** Patos de Minas, 800m da Olaria, fl, 24 viii 1950, *Duarte* 2872 (F, K, NY, UB); Lagoa do Cercado, fl, 22 x 1895, *Glaziou* 21183 (isotype of *Paramitranthes macrophylla*, K, R); Estação Experimental Coronel Pacheco, fl, 20 vii 1945, *Heringer* 1955 (SP); Serra do Rio Preto, c. 4km E of Goiás-Minas Gerais border, fr, 19 xi 1965, *Irwin et al.* 10516 (MBM, MICH, NY, UB); Perto de Poços de Caldas, fr, 7 xii 1971, *Mattos* 15640 & *Mattos* (SP); *ibid.*, fr, 7 xii 1971, *Mattos* 16382 & *Mattos* (SP); Serra de Caldas, fr, 18 x 1847, *Regnell* III-580 (ST); *ibid.*, fl, 1847, *Regnell* III-580 (R); *ibid.*, fl, 3 ix 1864, *Regnell* III-580 (holotype of *Eugenia chnoosepala* var. *regnelliana*, C; iso. ST); *ibid.*, fr, 18 xi 1864, *Regnell* III-580 (ST); Caldas, fr, 26 xi 1867, *Regnell* III-580 (ST); *ibid.*, fl, 1 viii 1846, *Regnell* III-582 (isotype of *Paramitranthes bracteata*, ST); Lagoa Santa, fl, 21 vii 1864, *Warming* s.n. (holotype of *Eugenia chnoosepala*, C). **São Paulo:** Paulínia, Fazenda Saltinho, fl, 29 vii 1977, *Gibbs & Leitão* 5521 (UEC); Caminho entre Ybiraci e Franca, fl, 29 vii 1966, *Mello 'Luiz Emygdio'* 2340, *Andrade* 2243 et al. (R); São Simão, Fazenda Bocaina, fl, 26 vii 1962, *Pinho* 7 (SP); *ibid.*, fl, 23 xii 1964, *Pinho* 55 (SP); Inter Casa Branca et São Simão, fl, vii 1855, *Regnell* III-581 (ST); Cubatão, Itatinga, fl, 10 viii 1899, *Collector illegible* 19 (SP). **State unknown:** fl, *Schüch* s.n. (isotype of *Siphoneugena densiflora*, W).

1b. *Siphoneugena densiflora* var. *cipoensis* C. Proença, var. nov.

A Siphoneugena densiflora var. *densiflora* petiolo brevi, 3–8mm folio oblanceolato sensim in petiolo attenuato, apice acuminato, breviter acuminato vel rarius acuto, basi cuneata, inflorescentia contracta c. 1cm, floribus plerumque ob rachem abbreviatam falso in eodem loco nascentibus, alabastro obscure 4-lobato vel fere clauso, calycis lobis minutissimis autem post anthesin c. 1mm per hypanthium rumpentibus, staminibus 105–135, stylo 7–8mm differt.

Small tree to c. 4m. *Petirole* 3–8 × 1–2mm, glabrous, leaf blades 3.5–10.5 × 0.8–2.8cm, oblanceolate or obovate, glabrous; apex abruptly acuminate, acuminate or rarely acute; base cuneate; upper surface with flush or rarely hidden subepidermal glands. *Raceme* 0.8–1.4cm, glabrous; rachis 0–5mm; bracts and bracteoles c. 1mm, broadly triangular to lanceolate, ciliate; pedicels 0–5mm. *Bud* 5–6 × 2–3mm, open to nearly closed with a mere suggestion of the calyx-lobes, glabrous. *Anthesis* by opening of the calyx-lobes accompanied by pronounced tearing between the lobes or virtually by tearing alone; calyx-lobes after anthesis c. 1mm, roundish. *Stamens* 105–135. *Style* 7–8mm; ovules 3–4 per locus. *Fruit* unknown.

Type: Brazil, Minas Gerais, Município Santana do Riacho, Km 123 da Rodovia Belo Horizonte—Conceição do Mato Dentro, *Furlan, Cordeiro & Pirani* s.n.—Coleção Flora da Serra do Cipó 6456 (holo. RB 208408; iso. SP 19519, n.v.).

Distribution: Apparently endemic to the Serra do Cipó mountain chain, Minas Gerais, Brazil.

BRAZIL. **Minas Gerais:** Serra do Cipó, Santana do Riacho, fl, 23 viii 1980, *Furlan et al.* s.n. (holo. RB); *ibid.*, fl, 6 ix 1980, *Forero et al.* 7710 (SP); Diamantina, fl, 17 ix 1985, *Hatschbach* 49780 (MBM); Serra do Cipó, Santana do Riacho, fl, 14 viii 1979, *Henrique et al.* s.n. (SP); *ibid.*, Jaboticatubas, fl, 7 vii 1974, *Semir & Sazima* 5063 (E, UEC); *ibid.*, Santana do Riacho, fl, 14 viii 1979, *Wanderley* s.n. (SP).

2. *Siphoneugena dussii* (Krug & Urban) C. Proença, **comb. nov.** Fig. 4.

Syn.: *Marlierea dussii* Krug & Urban in Urban, in Bot. Jahrb. Syst. 19: 590 (1894); *Plinia dussii* (Krug & Urban) Urban, Repert. Spec. Nov. Regni Veg. 15: 413 (1919). Type: Guadaloupe, *Duss* 2750 (holo. B—destroyed; iso. reported at K but not located; phototype examined).

(Additional synonyms under varieties)

Tree. *Young twigs* usually somewhat peeling. *Leaves* always with translucent glands; petiole 2–6 × 0.5–2.5mm; leaf blade (1.5–)2–8.3(–10) × (0.8–)1–4.4(–5)cm; upper surface with raised subepidermal glands on the younger leaves and flush or sunken glands on the older leaves; midvein equally raised on both surfaces or raised slightly more above; lateral veins equally raised on both surfaces or raised slightly more below; marginal vein almost straight. *Raceme* glabrous with 1–7 flowers; rachis 0–1mm; bracts and bracteoles c. 0.5mm, triangular, ciliate, glabrous; pedicels 0–6mm. *Bud* open, glabrous. *Anthesis* by opening of the calyx-lobes accompanied by some tearing between the lobes. *Hypanthium* nearly always constricted between the cup and the ovary; calyx-lobes triangular or roundish. *Petals* c. 1.5 × 1–1.5mm sometimes pendulous from the margins of the calyx-lobes by irregular tearing between lobes, irregularly oval to suborbicular. *Ovary* bilocular, 1–2mm in diameter; ovules (2–)3–4(–5) per loculus. *Berry* up to 1cm in diameter. *Seeds* 1(–2).

This species was initially described by Krug & Urban (Urban, 1894) in *Marlierea* (Subtribe Myrciinae) and later transferred by Urban (1919) to *Plinia* (Subtribe Eugeniinae) when new fruiting material revealed a 'eugenioid' embryo.

When Steyermark (1957) collected it in Venezuela, where it is extremely variable, he described it in the same paper as *Plinia fruticosa* and as *Siphoneugena densiflora* var. *tepuiensis*. *Plinia fruticosa* was compared to *Plinia dussii* in the discussion and regarded as separable from the latter by the larger flowers and pedicels and glabrous leaves and twigs.

Abundant later collections showed no constant correlation of size of floral parts and pubescence and McVaugh (1963) realized that *Plinia dussii*, *P. fruticosa* and *S. densiflora* var. *tepuiensis* were all the same species. McVaugh had seen a phototype of *S. densiflora* and, although remarking that this was 'larger in most of its parts' and came from 'somewhere in Southeastern Brazil', he still postulated that it belonged to the same 'very variable, wide-ranging species'.

I have examined the type of *S. densiflora* and many Brazilian collections not seen by McVaugh and in my opinion there is no doubt that it is different from the taxon treated here which represents a quite distinct species of rather limited range—a new combination in *Siphoneugena* is therefore necessary.

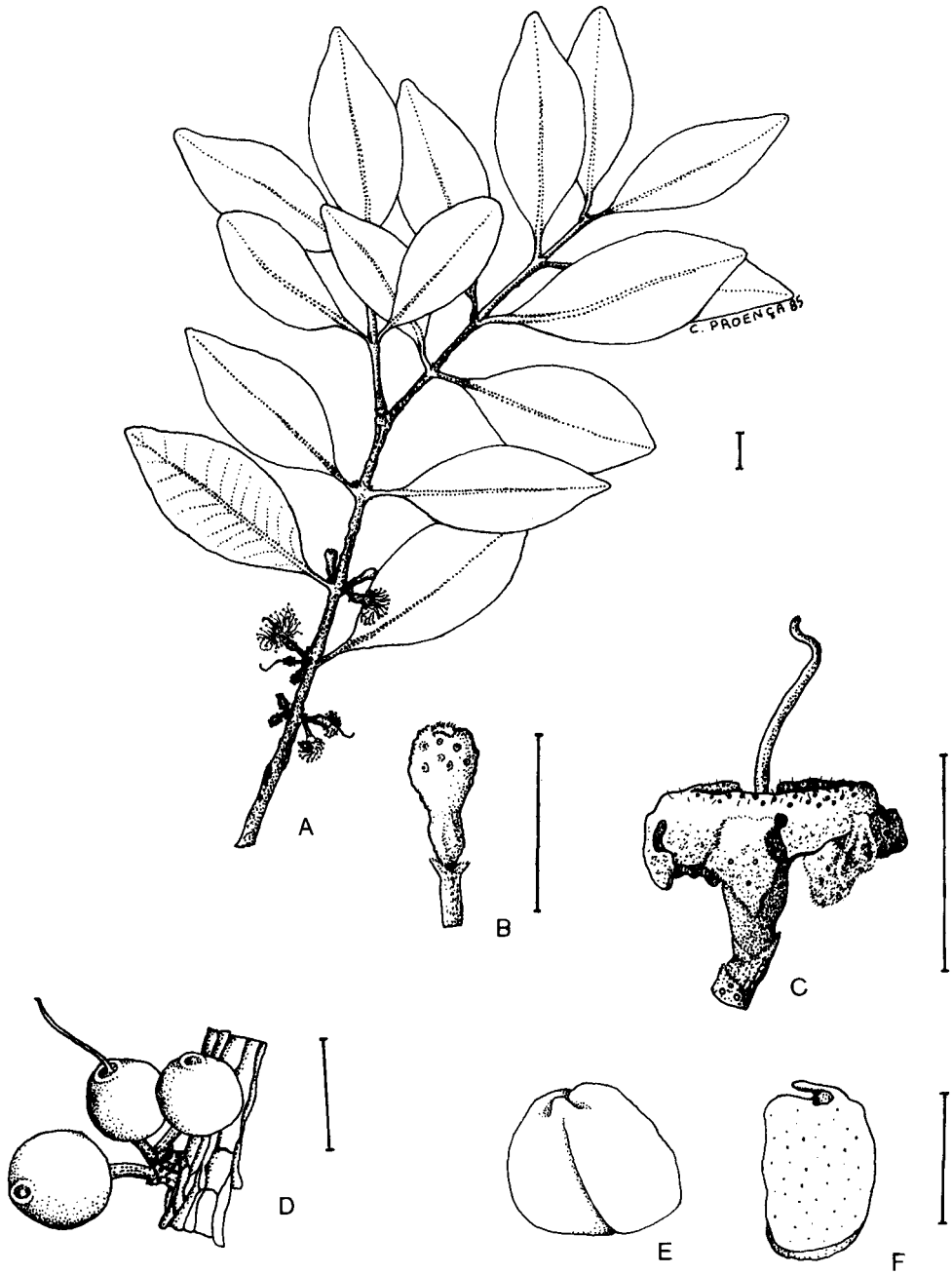


FIG. 4. *Siphoneugena dussii* var. *dussii*. A, habit (Woodbury s.n.); B, mature flower-bud (Maguire 24425); C, flower after petals and stamens have fallen (Cardona 2941); D, fruit (Little 13361); E, embryo (Little & Woodbury 25727); F, detached cotyledon (Little & Woodbury 25727). [scales = 5mm]

S. densiflora var. *salicifolia* McVaugh (1969) seems to grow along waterways and could be just an ecotype, but since the few collections are quite distinct and limited to Bolivar Province, Venezuela, I have likewise transferred this variety to *S. dussii*. Further collections would be most welcome.

KEY TO THE VARIETIES

1. Leaf usually oval with a somewhat acuminate apex; mature bud 3–5mm; style 4–6mm; Central Brazil, Venezuela, Surinam, Guyana, West Indies _____ **2a. var. dussii**
- + Leaf usually lanceolate with an evenly tapering apex; mature bud c. 6mm; style 7–8mm; Southern Venezuela _ **2b. var. salicifolia**

2a. *Siphoneugena dussii* var. *dussii*. Fig. 4.

Syn.: *P. fruticosa* Steyermark, Fieldiana, Bot. 28: 1023 (1957). Type: Venezuela, Sucre, Cerro Turumiquire, *Steyermark* 62611 (holo. F, iso. NY).

Siphoneugena densiflora var. *tepuiensis* Steyermark, op. cit., 1024. Type: Venezuela, Bolivar, Ptari-tepui, *Steyermark* 59711 (holo. F, iso. K).

Tree to 15m. *Young twigs* puberulous, becoming glabrous and sometimes slightly striate with age. *Petioles* glabrous or rarely puberulous; leaf blade ovate or rarely somewhat obovate or elliptic, glabrous; apex acute to broadly acuminate; base acute or rarely obtuse to round; upper surface with raised subepidermal glands on the younger leaves and flush or sunken glands on the older leaves; new growth sometimes sparsely pubescent. *Raceme* 0.8–1.2cm; rachis 0–5mm; bracts and bracteoles sometimes with subepidermal glands, sometimes persistent in the fruit. *Bud* 3–5 × 1.5–3mm. *Hypanthial cup* c. 2 × 2cm, calyx-lobes 0.5–1 × 0.5–1mm. *Stamens* 100–115, 1–4mm. *Ovary* spindle- or funnel-shaped. *Embryo* c. 8 × 5mm, oblong; cotyledons with raised glands on the intercotyledonary surfaces.

Common name: Hoja-menuda (Puerto Rico).

Distribution: West Indies from Puerto Rico southwards and also in Guyana, Surinam, Venezuela and Central Brazil, probably always at relatively high altitudes up to 2500m on 'páramos', 'tepuis' and 'chapadas'.

PUERTO RICO. Cerro Roncador, Utuado, st, 25 viii 1981, *Alain et al.* 32145 (NY); Lago Guineo, fr, 26 iii 1980, *Liogier et al.* 30574 (NY); Bosque Insular de Maricao, fr, 13 vii 1950, *Little Jr* 13361 (NY); Cerro Punta, Toro Negro, fr, 16 viii 1950, *Little Jr* 13684 (NY); Bosque Insular Guilarte, fr, 5 viii 1952, *Little Jr* 14848 (NY); Maricao Forest, Monte del Estado, fr, 4 viii 1966, *Little Jr* 21710 (NY); Carite Forest, 10 miles S of Caguas, Sierra de Cayey, fr, 8 ix 1971, *Little Jr & Woodbury* 25727 (NY); Maricao Forest, Rosario Trail, fl, 23 v 1960, *Woodbury* s.n. (NY); *ibid.*, st, 12 viii 1980, *Collector unknown*, Herbario Jardín Botánico de la Universidad de Puerto Rico 30905 (NY).
 GUADALOUPE. Bresillef Montagne, fl, 15 iv 1903, *Duss* 4208 (NY); Chemin de la Cascade du Galeon, fl, 7 iv 1936, *Rodriguez* 4543 (MICH).
 GRANADA. Grand Etang Forest Reserve, fr, 8–9 viii 1959, *Webster et al.* 9522 (MICH).

VENEZUELA. **Amazonas:** Orillas del Rio Parucito, Cerro Ualipano, fl, ii 1962, *Cardona* 2941 (MICH); Cerro Sipapo, fr, 8 i 1949, *Maguire & Politi* 28228 (COL, F, K, MICH, NY, ST). **Anzoategui:** Montaña de las Palomas, NE of Bergantin, entre Carmelita y Natalia, fl, 9 iii 1945, *Steyermark* 61460 (MICH); Cerro de los Pajaritos, E of Bergantin, headwaters of Rio Manantiales, fl, 20 iii 1945, *Steyermark* 61620 (paratype of *Plinia fruticosa*, F); *ibid.*, fl, 21 iii 1945, *Steyermark* 61658 (paratype of *Plinia fruticosa*, F). **Bolívar:** Angel Falls, fr, 5 iv 1950, *Kunhardt* 23 (NY); Ptari-tepui, fl, 1 xi 1944, *Steyermark* 59711 (holotype of *Siphoneugena densiflora* var. *tepuiensis*, F; iso. K); Soropán-tepui, fl, 14 xi 1944, *Steyermark* 60157 (paratype of *Siphoneugena densiflora* var. *tepuiensis*, F; isoparatype, NY); Chimantá Massif, NE of Abacapa-tepui, fr, 18 iv 1953, *Steyermark* 75128 (MICH, NY); Cerro El Picacho, 45km N of Tumeremo, fl & fr, 3 ii 1961, *Steyermark* 89009 (COL, F, MICH, NY, ST); Chimantá Massif, just E of west branch of headwaters of Rio Tirica, fl, 11 ii 1955, *Steyermark & Wurdack* 729 (F, MICH); *ibid.*, east branch of headwaters of Rio Tirica, fl, 13 ii 1955, *Steyermark & Wurdack* 857 (MICH); *ibid.*, Torono-tepui, fl, 23 ii 1955, *Steyermark & Wurdack* 1061 (MICH, US). **Distrito Federal:** Cordillera del Avila, fl, 27–28 ii 1944, *Steyermark* 55604 (F, NY). **Sucre:** Cerro Turumquire, fl, 6 v 1945, *Steyermark* 62611 (holotype of *Plinia fruticosa*, F; iso. K, NY). **Trujillo:** Páramo de la Cristalina, fl, 3 xii 1958, *Lamprecht* s.n. (NY). **Province unknown:** fl, iii 1859, *Cruger* s.n. (K).

GUYANA. **Amazonas:** Serrania Yutaje, Cerro Yutaje, fl, 23 ii 1953, *Maguire & Maguire* 35397 (MICH, NY); *ibid.*, Cerro Coro-coro, fl, 2 iii 1953, *Maguire & Maguire* 35477 (MICH, NY).

SURINAM. **Saramacca:** Tafelberg, fl, 9 viii 1944, *Maguire* 24263 (F, G, K); *ibid.*, fl, 21 viii 1944, *Maguire* 24425 (F, G, K, US).

BRAZIL. **Mato Grosso:** Chapada dos Guimarães, Rio da Casca, fl, 15 xi 1975, *Hatschbach* 37618 (MBM). **Pará:** Serra do Cachimbo, fl, 15 x 1977, *Prance et al.* 25051 (K).

2b. *Siphoneugena dussii* var. *salicifolia* (McVaugh) C. Proença, **comb. nov.**

Syn.: *S. densiflora* var. *salicifolia* McVaugh, Mem. New York Bot. Gard. 18(2): 231 (1969). Type: Venezuela, Cerro La Danta, *Steyermark & Nilsson* 21 (holo. MICH, iso. F).

Small tree to c. 4m. *Young twigs* smooth, glabrous. *Petiole* glabrous; leaf blade lanceolate or elliptic, glabrous; apex acuminate; base acute. *Raceme* c. 1.5cm. *Bud* 5–6 × 3mm. *Hypanthial* cup c. 4 × 3mm; calyx-lobes c. 1 × 1mm. *Stamens* not seen. *Ovary* roundish; style 7–8mm. *Embryo* not seen.

Distribution: In Bolivar Province, Venezuela.

VENEZUELA. **Bolívar:** Cerro La Danta, Headwaters of Rio Venamo, fl, 13 iv 1960, *Steyermark & Nilsson* 21 (holotype of *Siphoneugena densiflora* var. *salicifolia*, MICH, iso. F); Cerro Venamo, cerca de los limites con la Guyana Inglesa, fr, 29–30 xii 1963, *Steyermark et al.* 92365 (paratype of *S. densiflora* var. *salicifolia*, MICH).

3. *Siphoneugena guilfoyleiana* C. Proença, **sp. nov. Fig. 5.**

Ab aliis speciebus cognatis combinatione foliorum glabrorum petiolorum brevium, bracteolarum post anthesin persistium, alabastris obscure 4-lobati vel fere clausi, calycis irregulariter 4-lobati vel calyptrati, ovarii fusiformis extus glabri vel puberuli et habitationis maritimae, arenosae differt.

Tree to c. 12m. *Twigs* smooth, not peeling, glabrous. *Leaves* with sparse, inconspicuous translucent glands; petiole 2–3 × c. 1.5mm, glabrescent; leaf blade 3–5.2 × 1.4–2.6cm, ovate to obovate, glabrous; apex abruptly acuminate or less frequently

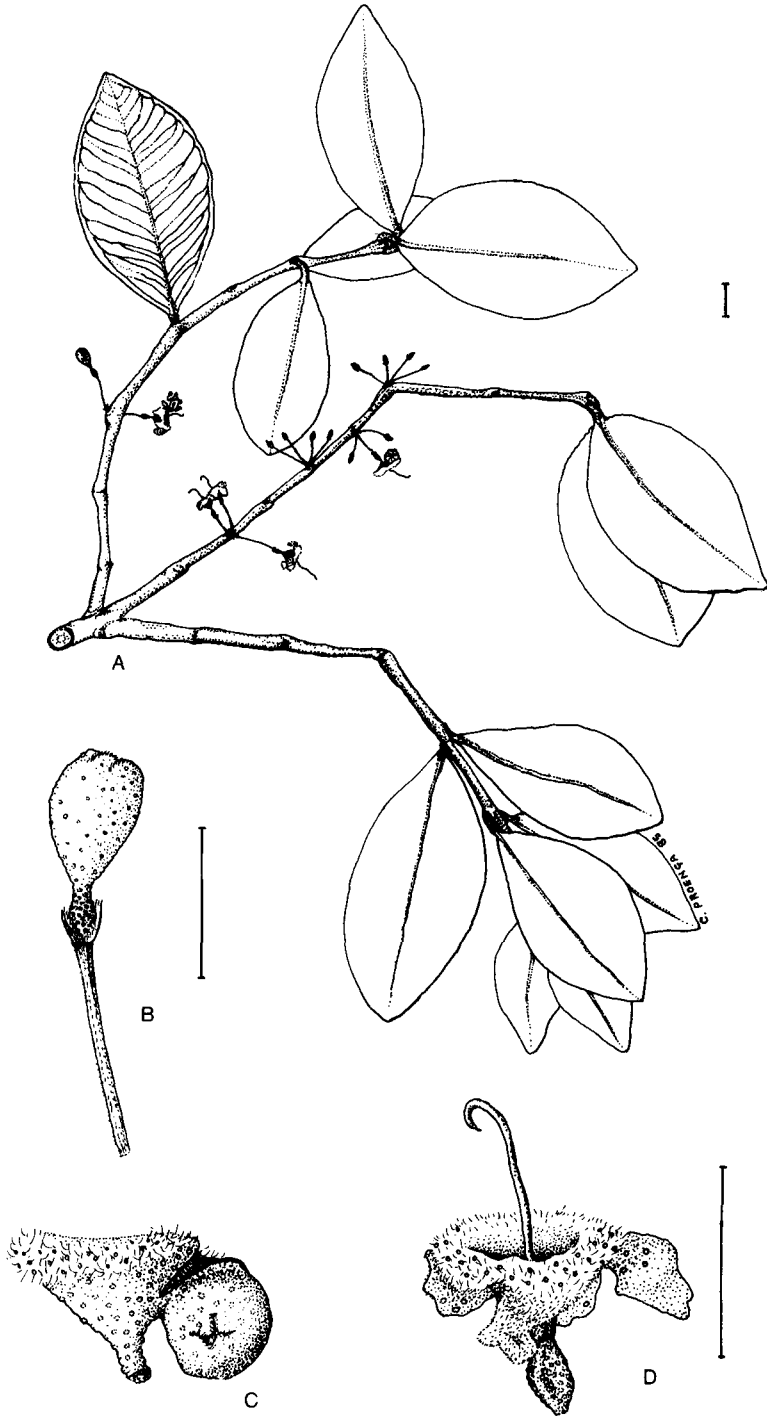


FIG. 5. *Siphoneugena guilfoyleiana*. A, habit; B, mature flower-bud; C, dehiscent hypanthial cup of a flower which has opened by a calyptra; D, flower which has opened by irregular tearing. (Davis *et al.* D60599—holotype). [scales = 5mm]

acute; base acute or rarely obtuse; upper surface with sparse slightly raised or flush subepidermal glands; midvein \pm equally raised on both surfaces; lateral veins more raised below; marginal vein almost straight. *Raceme* with 1–5 flowers; glabrous or sparsely puberulous; rachis 0–5mm; bracts and bracteoles c. 1mm, glabrous, persistent, the bracts widely triangular, the bracteoles navicular; pedicels 2–8mm. *Bud* c. 5.5 \times 2.5–3mm, almost closed with a small apical pore, glabrous or puberulous. *Anthesis* by irregular tearing of the hypanthium or sometimes by a calyptra. *Hypanthium* very strongly constricted between the cup and the ovary; hypanthial cup c. 2 \times 4mm; calyx-lobes rudimentary in bud, irregular if present after anthesis; calyptra, if present, c. 3mm in diameter, round, with a 4-lobed apical pore. *Petals* 1.5–2 \times 1.5–3mm, irregularly orbicular to oblate. *Stamens* c. 140, 1–4.5mm. *Ovary* bilocular c. 1.5 \times 1mm, spindle-shaped; ovules c. 5 per locus. *Style* 5.5–8.5mm. *Fruit* unknown. Type: Brazil, São Paulo, Ilha do Cardoso, *Davis*, *Shepherd*, *Sakane et al.* D60599 (holo. UEC, iso. E).

Distribution: In sandy, maritime scrub vegetation ('restinga') on the Ilha do Cardoso, an island just off the coast of the state of São Paulo, Brazil.

BRAZIL. São Paulo: Ilha do Cardoso, fl, 7 ix 1976, *Davis et al.* D60599 (holo. UEC, iso. E); *ibid.*, fl, 12 ix 1983, *Romanic Neto* 72 (para. SP).

The specific epithet honours William Robert Guilfoyle. Guilfoyle was director of the Melbourne Botanical Gardens from 1874 to 1910 during which period he showed a strong interest in Myrtaceae.

4. *Siphoneugena kiaerskoviana* (Burret) Kausel, *Lilloa* 32: 367 (1967); *Paramitranthes kiaerskoviana* Burret, *Notizbl. Bot. Gart. Berlin-Dahlem* 15: 542 (1941), based on *Eugenia chnoosepala* var. *angustifolia* Kiaerskou. Lectotype (designated here): Brazil, Rio de Janeiro, Alto Macahé de Nova Friburgo, *Glaziou* 19351 (C; iso. R, RB). **Fig. 6.**

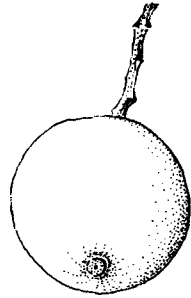
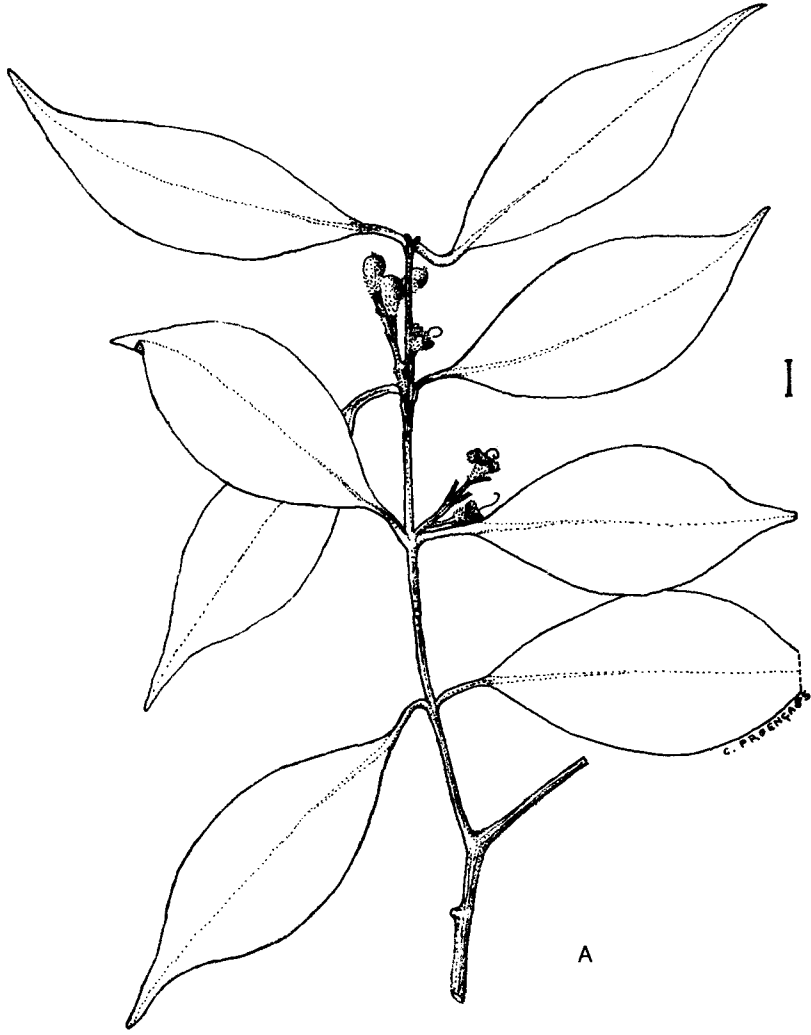
Syn.: *Eugenia chnoosepala* Berg var. *angustifolia* Kiaerskou in Warming, *Symb. Fl. Bras. Centr.* 39: 175 (1893); *Siphoneugena angustifolia* (Kiaerskou) Mattos & Silveira, *Loefgrenia* 87: 1 (1985), *nom. illeg.* Type: as for *S. kiaerskoviana*.

E. chnoosepala var. *elliptica* Kiaerskou in Warming, *Symb. Fl. Bras. Centr.* 39: 175 (1893) *syn. nov.*; *S. angustifolia* var. *elliptica* (Kiaerskou) Mattos & Silveira, *Loefgrenia* 87: 1 (1985), *comb. illeg.* Type: Brazil, Rio de Janeiro, Alto Macahé de Nova Friburgo, *Glaziou* 18246 (holo. C).

Mitranthes pilosa Burret, *Notizbl. Bot. Gart. Berlin-Dahlem* 15: 540 (1941) (based on *E. chnoosepala* var. *elliptica* Kiaerskou).

Tree to c. 5m. *Twigs* smooth or tenuously striate, not peeling, glabrous. *Leaves* usually with translucent glands; petiole 4–10mm, glabrous or sparsely puberulous along the

FIG. 6. *Siphoneugena kiaerskoviana*. A, habit (*Glaziou* 20319); B, very young flower-bud (*Glaziou* 18246); C, flower after petals and stamens have fallen (*Glaziou* 20319); D, mature flower-bud (*Glaziou* 20319); E, fruit (*Anderson et al.* 35816). [scales = 5mm]



canal; leaf blade 3.8–7.8 × 1–3.1cm, elliptic to obovate, glabrescent or sometimes with a very fine, sparse and closely appressed pubescence below; apex abruptly to narrowly acuminate, sometimes falcate in the narrower leaves; base acute to narrowly acute; young leaves with raised subepidermal glands on both surfaces which become flush to sunken with age; midvein much more strongly raised below; lateral veins more perceptible below; marginal vein almost straight; new growth densely pubescent. *Raceme* 0.8–2.9cm, with 2–6 flowers, pubescent; rachis 0–2cm; bracts and bracteoles 2.5–3mm, lanceolate, pubescent, deciduous when the inflorescence starts to elongate; pedicels 0–7mm. *Bud* 5–6.5 × c. 3mm, completely closed to inconspicuously 4-lobed, densely villous on the ovary and slightly above. *Anthesis* by tearing of the hypanthial cup into 4 regular lobes or sometimes by a partially detaching calyptra. *Hypanthium* very slightly to not constricted between the cup and the ovary; hypanthial cup 2–4.5mm; calyx-lobes if present, 1.5–2 × c. 2mm after anthesis, subequal, triangular; calyptra, if present, c. 2.5mm in diameter, round, with a minute tuft of hairs at the apex, usually glabrescent. *Petals* c. 2 × 1.5mm, irregularly ovate or suborbicular. *Stamens* 125–180, 1.5–6.5mm. *Ovary* bilocular c. 1.5mm, ovules c. 3 per loculus; style c. 5mm. *Berry* c. 2–3cm in diameter. *Seeds* 1(–3). *Embryo* c. 6 × 4.5mm, ± elliptic; cotyledons lacking glandular dots on the intercotyledonary surfaces.

Distribution: Mountainous regions of Rio de Janeiro State and on the Serra do Espinhaço mountain range in the state of Minas Gerais, SE Brazil.

BRAZIL. Minas Gerais: Serra do Espinhaço, Pico do Itambé, fr, 11 ii 1972, *Anderson et al.* 35816 (MBM, NY). **Rio de Janeiro:** Teresópolis, Parque Nacional da Serra dos Orgãos, fr, 23 x 1942, *Barros* 1094 (RB); Floresta da Tijuca, fl, 2 iv 1868, *Glaziou* 2592 (C, K); Alto Macahé de Nova Friburgo, fl, vii (fide Burret, 1941), *Glaziou* 18246 (holotype of *Eugenia chnoosepala* var. *elliptica*, C); *ibid.*, fl, 4 vi 1893, *Glaziou* 19351 (lectotype of *Eugenia chnoosepala* var. *angustifolia*, C; iso. K, R, RB); *ibid.*, fl, 20 vi 1893, *Glaziou* 20319 (C, F, R, RB).

This species was first described as *Eugenia chnoosepala* var. *angustifolia* and var. *elliptica* by Kiaerskov (1893). The type of *E. chnoosepala* itself, however, belongs to *Siphoneugena densiflora*.

Burret (1941a), used superficial differences in the mode of anthesis to raise varieties *angustifolia* and *elliptica* to species level in different genera, as *Paramitranthes kiaerskoviana* and *Mitranthes pilosa*, respectively. Actually this species opens by a calyptra if the bud is completely closed, and tears into four lobes starting from the minute apical pore when the closing is incomplete.

Kausel (1967) transferred *P. kiaerskoviana* to *Siphoneugena* but made no mention of *M. pilosa*. Mattos and Silveira erred in proposing the new combination, *S. angustifolia* (Kiaerskov) Mattos & Silveira based on the varietal epithet. The ICBN (Greuter et al., 1988) clearly states that no epithet has priority out of its status, so there is no reason to reject the epithet *kiaerskoviana* adopted by Burret when elevating var. *angustifolia* to species level.

5. *Siphoneugena kuhlmannii* Mattos, *Ciência e Cultura* 19(2): 334 (1967). Type: Brazil, Minas Gerais, Delfim Moreira, *Kuhlmann* 2447 (holo. SP). **Fig. 7.**

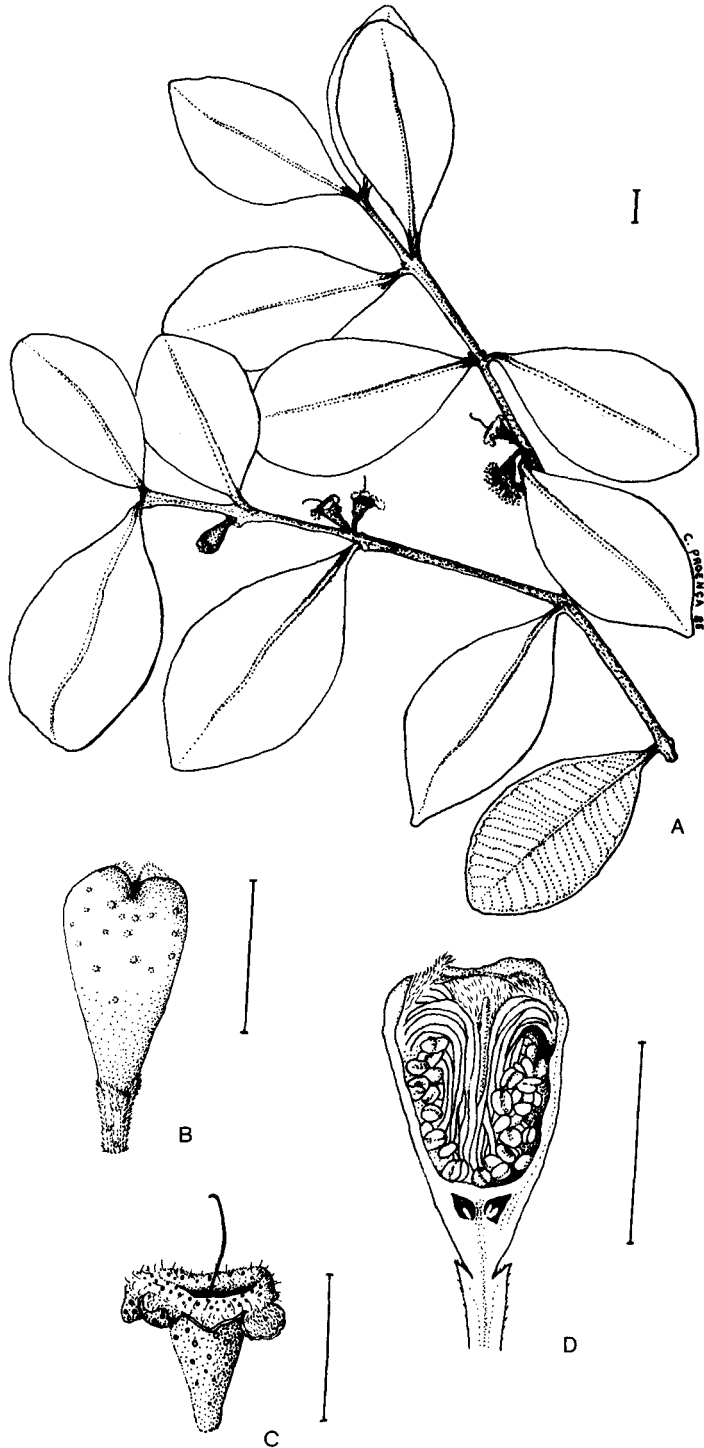


FIG. 7. *Siphoneugena kuhlmannii*. A, habit; B, mature flower-bud; C, flower after petals and stamens have fallen; D, longitudinal section of mature flower-bud (Mattos 16539). [scales = 5mm]

Syn.: *S. rubensiana* Mattos & Silveira, Loefgrenia 87: 2 (1985). Type: Brazil, São Paulo, Parque Estadual de Campos do Jordão, Mattos 16359 (holo. SP).

Tree to c. 10m. *Bark* grey, somewhat flaky, often hidden by lichens. *Leaves* always with translucent glands; petiole 1–6 × c. 1mm, glabrous; leaf blade 2.9–5.9 × 1.4–2.5cm, obovate to oblanceolate, glabrous; apex round to acute; base acute to cuneate; upper surface with hidden or sunken subepidermal glands; midvein more prominent below; lateral veins equally raised on both surfaces; marginal vein almost straight. *Raceme* with 1–4 flowers; rachis of the inflorescence 0–1mm; bracts and bracteoles c. 1mm, widely triangular to semicircular, glabrous, usually persistent; pedicels 0–5mm, glabrous. *Bud* 4.5–7 × 3–3.5mm, open, glabrous or puberulous. *Anthesis* by opening of the calyx-lobes accompanied by regular tearing which leaves a triangular area between each lobe. *Calyx lobes* 1–1.5 × 1–2mm, subequal, rounded or triangular. *Petals* c. 2mm, irregularly oval to orbicular. *Stamens* c. 190, 2–6mm. *Ovary* bilocular c. 2 × 2mm, funnel-shaped; ovules 3–4 per loculus; style c. 6.5mm. *Fruit* unknown. *Distribution*: Cold, humid forests at the summit of the Serra da Mantiqueira mountain range near Campos do Jordão, around the border between the states of São Paulo and Minas Gerais, Brazil.

BRAZIL. **São Paulo**: Parque Estadual de Campos do Jordão, young fl, 26 viii 1967, Mattos 15055 & Mattos (SP); *ibid.*, São José dos Alpes, fl, 15 ix 1973, Mattos 16359 (holotype of *S. rubensiana*, SP); *ibid.*, previous year's dry fl, 12 iii 1985; Proença 495 (UB); *ibid.*, fl buds, 16 viii 1980, Rubens B151 (RB).

This interesting endemic species combines the glomerulate *Neomitranthes* inflorescence with open buds which do not occur in that genus. As the fruit is unknown and flowering collections are chiefly in bud, I do not know if the hypanthial cup is deciduous. The few dry flowers (probably the previous year's) of Proença 495 had persistent hypanthial cups, but this may be due to lack of pollination. If the hypanthial cup should prove persistent, this species would be a connecting link between *Neomitranthes* and *Siphoneugena*.

6. *Siphoneugena occidentalis* Legrand, Bol. Soc. Argent. Bot. 10: 5 (1962). Type: Argentina, Salta, Rio Cañas, *Tortorelli s.n.* (holo. MVM—n.v.). **Fig. 8.**

Syn.: *S. parviflora* Kausel, Lilloa 33: 112, fig. (1972 '1971'), *syn. nov.*
Type: Bolivia, Departamento La Paz, Basin of Río Bopi, San Bartolomé, near Calisaya, Krukoff 10102 (holo. ST).

Tree to c. 8m. *Young twigs* smooth, peeling and puberulous, glabrous with age and sometimes also becoming slightly striate and not peeling. *Leaves* usually with translucent glands; petiole 3–12 × c. 1mm, puberulous or glabrescent; leaf blade 2.6–8 × 1.2–3.8cm, oval to rarely elliptic, glabrous or with sparse hairs near the base; apex lanceolate, acuminate or more rarely acute; base acute; upper surface with raised subepidermal glands on the young leaves and sunken subepidermal glands on the older ones; midvein ± equally raised on both surfaces; lateral veins equally raised on both surfaces or more so on the lower surface of older leaves; marginal vein crenulate.

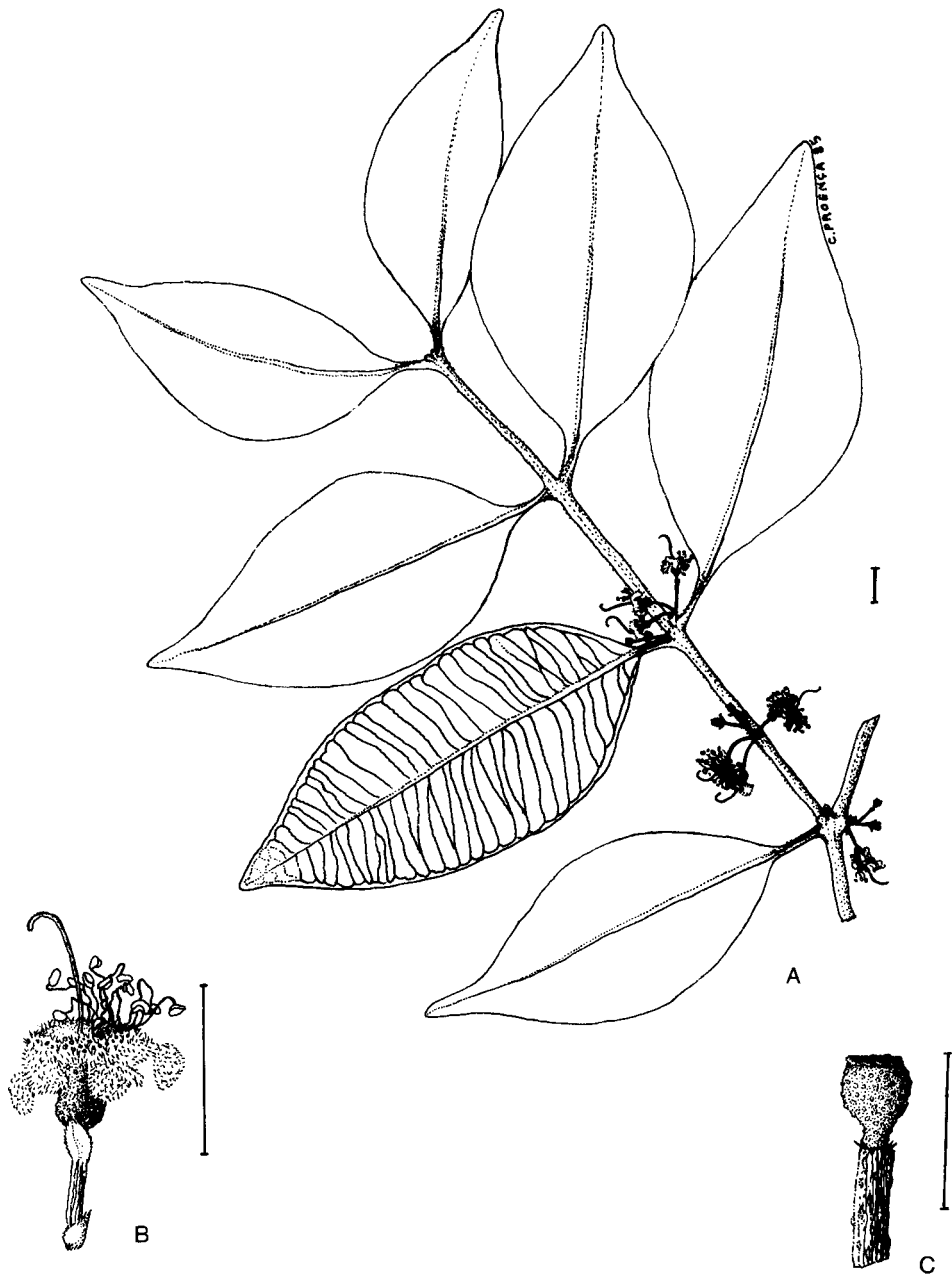


FIG. 8. *Siphoneugena occidentalis*. A, habit; B, flower after petals and some stamens have fallen; C, ovary after hypanthial cup and bracteoles have fallen (Silva & Maria 3288). [scales = 5mm]

Raceme 1.1–1.4cm, with 1–9 flowers; glabrescent; rachis 0–6mm; bracts and bracteoles 0.5–1.5mm, triangular, scarious, glabrous, deciduous at anthesis or falling with the hypanthial cups; pedicels 1–10mm. *Bud* glabrous or puberulous. *Anthesis* by opening of the calyx-lobes sometimes accompanied by some tearing between the lobes. *Hypanthium* constricted between the cup and the ovary; hypanthial cup c. 2 × 3mm; calyx-lobes 1–1.5 × c. 1.5mm, rounded, ciliate. *Petals* 1.5–2.5 × c. 1.5mm, irregularly suborbicular. *Stamens* c. 70, 2–7mm. *Ovary* bilocular c. 2 × 1.5mm, cup-shaped; ovules 2–5 per loculus. *Style* 5–10mm. *Fruit* unknown.

Common names: Arrayan-negro, Mato (Salta, Argentina).

Distribution: In the state of Mato Grosso, Brazil, and in a thin strip of forest ('yungas') that runs along the eastern foot of the Andes from Southern Bolivia to Northeastern Argentina.

BRAZIL. Mato Grosso: Beira do Rio Juruena, fl, 6 vii 1977, *Silva & Maria* 3288 (RB).

BOLIVIA. La Paz: Province of S Yungas, San Bartolomé, near Calisaya, fl, 1–22 vii 1939, *Krukoff* 10102 (holotype of *Siphoneugena parviflora*, ST).

The type specimen of *S. parviflora* is in very young bud but is clearly the same species as *S. occidentalis* as is shown by the similarity in leaf morphology: the lateral veins are very thin, well-defined and almost at right angles to the midvein, and the marginal vein is slightly crenulate.

The date of publication of Kausel's paper is given as 31 December 1971 so it can be safely assumed it was not available to botanists until 1972.

7. *Siphoneugena reitzii* Legrand, *Sellowia* 8: 78, tab. 5 (1957). Type: Brazil, Santa Catarina, *Reitz* C1513 (holo. MVM—n.v.). **Fig. 9.**

Syn.: *S. gomesiana* Mattos, *Loefgrenia* 19: 1 (1964), *syn. nov.* Type: Brazil, São Paulo, Estação Biológica de Paranapiacaba, *Gomes* s.n. (holo. SP 79373, iso. NY).

S. dusenii Kausel, *Lilloa* 33(6): 109, fig. p. 129 (1972 '1971'). Type: Brazil, Paraná, São João, *Dusén* 9343 (holo. ST).

S. boraceiensis Mattos & Silveira, *Loefgrenia* 87: 2 (1985), *syn. nov.* Type: Brazil, São Paulo, Salesópolis, Boracéia, Estação Biológica perto do Rio Coruja, *Mattos & Mattos* 14264 (holo. IPRN—n.v., iso. SP—n.v., paratypes examined).

Tree to c. 15m. *Bark* pale, smooth, peeling. *Young twigs* smooth, peeling, puberulous, becoming striate, not peeling and glabrous with age. *Leaves* usually with translucent glands; petiole 1–3(–4) × c. 0.5mm, puberulous or rarely glabrous; leaf blade 0.7–4.1 × 0.3–1.9cm, narrowly to widely elliptic, rarely somewhat obovate or rhombic, glabrous or with sparse hairs near the base, rarely somewhat puberulous on the midvein; apex acute or more rarely abruptly acuminate; base acute to tapering; upper surface with raised subepidermal glands on the young leaves and flush to sunken ones in the older leaves; midvein raised slightly more below or equally so on both surfaces; lateral veins equally raised on both surfaces; marginal vein almost straight; new growth sometimes sparsely pubescent. *Raceme* 0.5–1.2cm, with 1–7 flowers, puberulous or

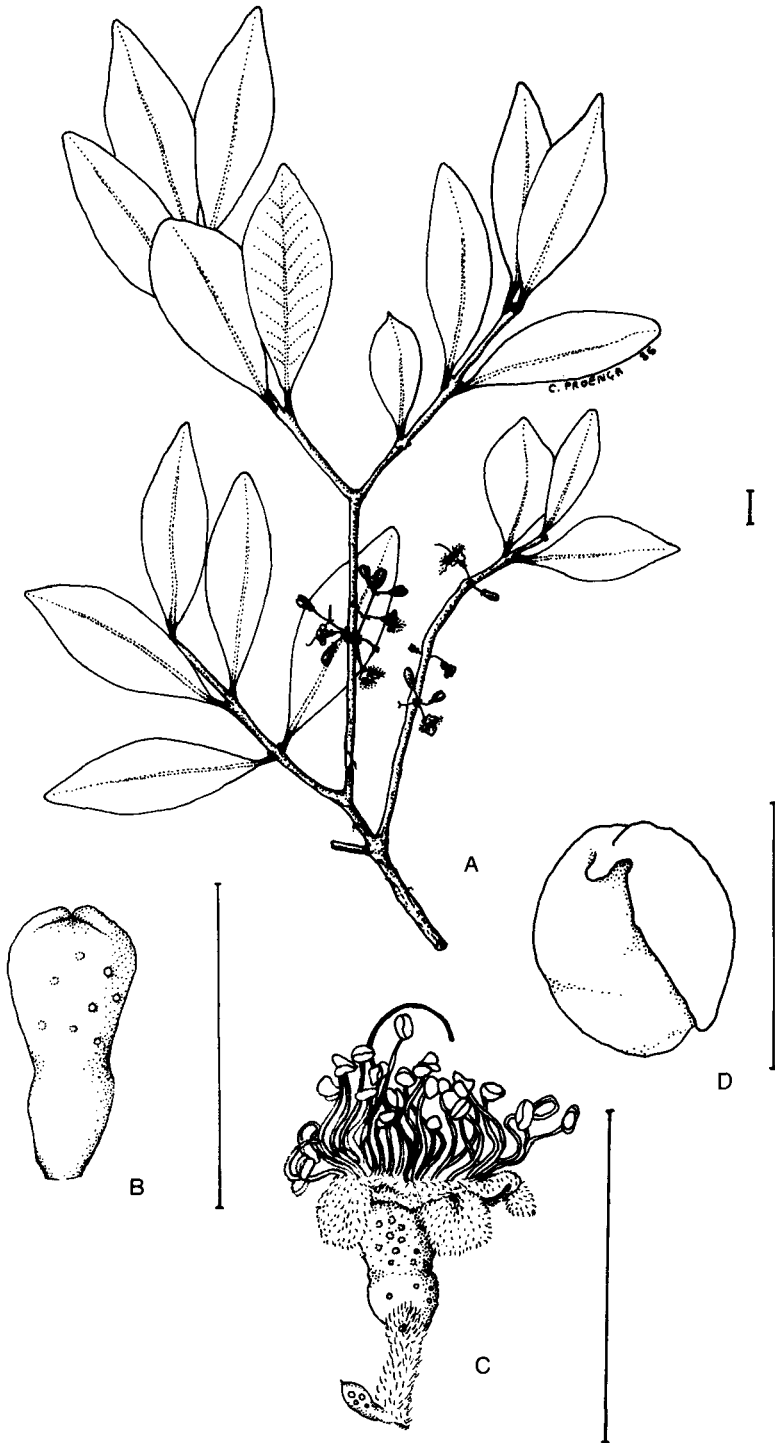


FIG. 9. *Siphoneugena reitzii*. A, habit (Hatschbach 18381); B, mature flower-bud (Rubens 263); C, flower (Castellanos 24619); D, embryo (Smith & Klein 13377). [scales = 5mm]

glabrous; rachis 0–7mm; bracts and bracteoles 0.5–1.5mm, widely triangular to lanceolate, glabrous, sometimes persistent in fruit; pedicels 0–3mm. *Bud* 2.5–4 × 1–2mm, open, glabrous or puberulous. *Anthesis* by opening of the calyx-lobes sometimes accompanied by some tearing between the lobes. *Hypanthium* constricted or not between the cup and the ovary; hypanthial cup 1–1.5mm; calyx-lobes 0.5–1 × 1–1.5mm, triangular or rounded. *Petals* c. 1 × 0.5–2mm, irregularly ovate to suborbicular. *Stamens* 70–85, 0.5–4.5mm. *Ovary* bilocular 1–1.5 × 1–1.5mm, roundish to funnel-shaped; ovules 3–6 per loculus; style 3–6mm. *Berry* 4–7mm in diameter. *Seeds* 1(–3). *Embryo* 3–4 × 2.5–3.5mm, round to elliptic; cotyledons with sunken glands on the intercotyledonary surfaces.

Common names: Camboim, Cambuí (Santa Catarina); Guamirim (Paraná).

Distribution: In the states of São Paulo, Paraná, Santa Catarina and northern Rio Grande do Sul, Brazil, as an understory element in cold, humid forests such as the *Araucaria angustifolia* forests ('pinhais').

BRAZIL. São Paulo: Estação Biológica de Paranapiacaba, fl, 24 ii 1964, *Gomes* s.n. (holotype of *Siphonuegena gomesiana*, SP 79373; iso. K, NY); Estação Biológica Campo Grande, fl, 8 iii 1962, *Handro* 1010 (MBM); Estação Biológica de Paranapiacaba, fl, 3 iii 1964, *Mattos* 11716 (C, MBM); Estação Biológica da Boracéia, perto do Rio Coruja, immature fr, 26 viii 1966, *Mattos* 13870 (paratype of *S. boraceiensis*, SP); *ibid.*, young fr, 26 viii 1966, *Mattos* 13877 (paratype of *S. boraceiensis*, SP); Parque Estadual de Campos do Jordão, fl, 23 iv 1981, *Rubens* 229 (RB); *ibid.*, fl, 24 vi 1981, *Rubens* 263 (RB). **Paraná:** São João, fl, 21 iii 1910, *Dusén* 9343 (holotype of *S. dusenii*, ST); Piraquara, Morro Anhangava, fl, 8 iv 1951, *Hatschbach* 2222 (MBM); Guaratuba, Serra de Araçatuba, fl, 10 ii 1959, *Hatschbach* 5549 (MBM); *ibid.*, fl, 24 v 1959, *Hatschbach* 5899 (MBM); General Carneiro, Cabeceiras do Rio Iratim, fl, 11 ii 1966, *Hatschbach*, *Haas & Lindeman* 13700 (F, MBM, MICH, NY); Campina Grande do Sul, Pico Caratuba, fl, 20 v 1967, *Hatschbach* 16444 (MBM); Quatro Barras, Morro Mãe Catira, fl, 25 v 1967, *Hatschbach* 16482 (C, F, MBM); *ibid.*, fr, 5 x 1967, *Hatschbach* 17331 (MBM); *ibid.*, fr, 15 xi 1967, *Hatschbach* 17838 (MBM); *ibid.*, Pico Paraná, fl, 17 vii 1968, *Hatschbach* 19509 (MBM); Laranjeiras do Sul, fl, 20 i 1968, *Hatschbach* 18381 (COL, F, MBM, MICH, NY); Guarapuava, Cachoeira dos Turcos, fl, 13 ii 1969, *Hatschbach* 21179 (MBM); Marmeleiro, Estrada Marmeleiro-Campo Erê, fl, 21 i 1971, *Hatschbach* 26441 (MBM); Balsa Nova, Serra São Luis, old fl, 9 v 1973, *Hatschbach* 31858 (MBM); Guarapuava, Paço do Jacú, fr, 12 xii 1973, *Hatschbach* 33475 (MBM, MICH); Balsa Nova, Serra do Puruna, fl, 18 v 1981, *Kummrow* 1502 (MBM); Guaratuba, Serra de Araçatuba, fl, 13 iv 1983, *Kummrow* 2277 (MBM); Pitanga, fl, 10 v 1967, *Lindeman & Haas* 5285 (F, K, MICH, NY); Clevelândia, Rodovia BR-280, fl, 15 i 1983, *Pirani et al.* 433 (SP). **Santa Catarina:** Palhoça, Morro da Cambirela, fl, 5 iv 1972, *Bresolin* 547 (MBM); Faxinal dos Guedes, fl, 27 ii 1964, *Castellanos* 24619 (F, GUA, K, NY, SP); *ibid.*, fl, 27 ii 1964, *Klein* 4812 (UEC); Morro do Iquererim, Campo Alegre, fr, 18 ii 1957, *Reitz & Klein* 5320 (MICH); *ibid.*, fl, ii 1958, *Reitz & Klein* 6432 (NY, St); *ibid.*, fl, 9 xii 1956, *Smith & Klein* 8251 (R); Curral Falso, São Joaquim, fr, 11 xii 1958, *Reitz & Klein* 7809 (MBM); *ibid.*, Bom Jardim, fl, 19 ii 1959, *Reitz & Klein* 8390 (BR, ICN, K, NY); Dionísio Cerqueira, 9km W of Rio Capetinga, fl, 22 ii 1957, *Reitz & Klein* 11671 (R); Blumenuau, Morro Spitzkopf, fl, 5 v 1968, *Reitz & Klein* 18112 (MBM, NY); 48km W of Caçador, fl, 6 ii 1957, *Smith & Klein* 10924 (R); Chapecó, 24km W of Campo Erê, fl, 20–21 ii 1957, *Smith & Klein* 11570 (MICH, R); 48km W of Caçador, fl, 2 xii 1964, *Smith & Klein* 13365 (R); *ibid.*, fr, 2 xii 1964, *Smith & Klein* 13372 (R); *ibid.*, fr, 2 xii 1964, *Smith & Klein* 13377 (C, R); 4–7km S of Rio Irani, fr, 9 xii 1964, *Smith & Klein* 13921 (NY, R); Urupema, fr, 15 xii 1964, *Smith & Klein* 14013 (MICH, R). **Rio Grande do Sul:** Aparados da Serra, Ad viam Bom Jesus–Araranguá, fl, *Rambo* 35241 (ST); São Francisco de Paula, Josafá, fl, iv 1984,

Sobral 2978 (F); Camará do Sul, fr, xii 1983, *Sobral & Stehman* 2680 (F, MBM, UB); Nova Prata, fl, viii 1984, *Sobral et al.* 3015 (MBM, UB).

Legrand (1973) has reduced *S. dusenii*, described by Kausel (1972) in a posthumous paper, to a synonym of his *S. reitzii*, with which I agree. The wider leaves found on the type of *S. dusenii* are typical of the lowland specimens of *S. reitzii*. The type of *S. gomesiana* Mattos and *S. boraceiensis* Mattos & Silveira also have rather large, atypical leaves but in my opinion are also referable to *S. reitzii*.

8. *Siphoneugena widgreniana* Berg in Martius, Fl. Bras. 14(1): 379 (1857); Linnaea 27: 345 (1856), *nom. nud.*; *Eugenia widgreniana* (Berg) Kiaerskou in Warming, Symb. Fl. Bras. Centr. 39: 175 (1893); *Calycorectes widgrenianus* (Berg) Niedenzu in Engl. & Prantl, Natürl. Pflanzenf. 3(7): 82 (1893); *Mitranthes widgreniana* (Berg) Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 540 (1941) Type: Brazil, Minas Gerais, *Widgren* 541 (holo. MEL—n.v., iso. BR). **Fig. 10.**

Syn.: *M. pubescens* Burret, Repert. Spec. Nov. Regni Veg. 50: 55 (1941). Type: Brazil, São Paulo, nativa no Jardim Botânico, *Hoehne* s.n. (holo. B—destroyed; iso. MICH, NY, SP).

Tree to c. 10m. *Twigs* usually somewhat peeling, glabrous or puberulous. *Leaves* lacking translucent glands; petiole 3–8 × 1mm, puberulous or rarely glabrous; leaf blade 2.7–7.2 × 0.8–2.9cm, narrowly elliptic to oblanceolate, rarely obovate to suborbicular; apex round to acute; base acute to narrowly acute; upper surface with many sunken glands, glabrous or with sparse hairs; lower surface with a pale brown pubescence or glabrescent with age but some hairs persisting at least on the midvein; midvein more raised below; lateral veins equally raised on both surfaces, marginal vein almost straight. *Raceme* 0.6–1.5cm, with (1–)2–6(–8) flowers, puberulous or glabrous; rachis 0–8mm; bracts and bracteoles c. 1mm, widely triangular to lanceolate, glabrous or puberulous, usually persisting in fruit; pedicels 0–5mm, the terminal flower sometimes sessile. *Bud* 4–5 × 2–3mm, completely closed or almost so, glabrous. *Hypanthium* constricted between the cup and the apex of the ovary; hypanthial cup 1–3 × 2–3mm; calyptre 2.5–3mm in diameter, round, apiculate. *Petals* rudimentary, appressed to the inner surface of the calyptre, up to 2 × 1mm, irregular. *Stamens* 100–105, 2–4mm. *Ovary* bilocular 1–1.5mm in diameter, round; ovules 3–6 per loculus; style 4–6mm. *Berry* to 7mm in diameter. *Seeds* 1(–2). *Embryo* to 5mm.

Distribution: In the mountainous regions of the states of Minas Gerais, São Paulo and Paraná.

BRAZIL. Minas Gerais: Baependi, São Tomé das Letras, fl, 20 vi 1964, *Mattos & Bicalho* 10275 (SP); Estação Coronel Carneiro, Três Corações, fl, 20 vi 1964, *Mattos & Bicalho* 10278 (SP); Caldas, Pedra Branca, fr, 16 x 1860–61, *Regnell* III-579 (C, ST); *ibid.*, fl, 13 iii 1867, *Regnell* III-579 (ST); *ibid.*, fl, 6 vi 1867, *Regnell* III-579 (BR, R); *ibid.*, fl, vii 1867, *Regnell* III-579 (ST); *ibid.*, fr, 26 xi 1869, *Regnell* III-579 (ST); Uncertain locality, fl, *Widgren* 541 (isotype of *Siphoneugena widgreniana*, BR); *ibid.*, fl, *Regnell* III-576c (C); Poços de Caldas, fl, 16 vii 1981, *Yamamoto et al.* 1074 (UB, UEC). **São Paulo:** Jardim Botânico de São Paulo (native), fl, 30 iii 1935, *Hoehne* s.n. (isotypes of *Mitranthes pubescens*, MICH, NY, SP 32836); Parque Estadual de Campos do Jordão, fl, 23 iv 1974, *Mattos* 15825 (SP); *ibid.*, fl, 23 iv 1974, *Mattos* 15826 (SP). **Paraná:** Jaguariaíva, Ribeirão

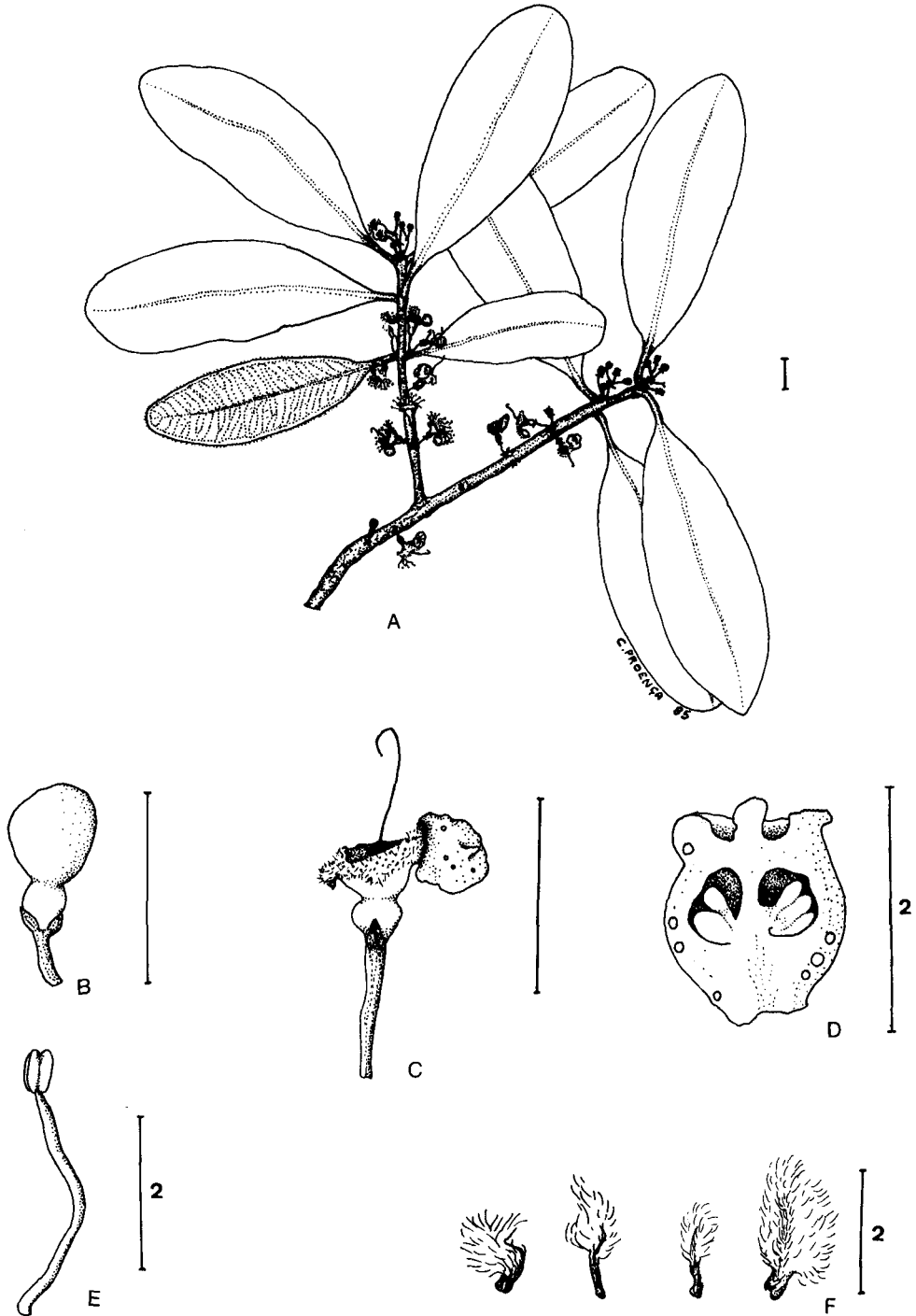


FIG. 10. *Siphoneugena widgreniana*. A, habit; B, mature flower-bud; C, flower after petals and stamens have fallen; D, longitudinal section of ovary after hypanthial cup has fallen; E, stamen; F, petals. A, Yamamoto *et al.* 1074; B-F, Regnell III-579. [scales = 5mm except D, E & F where scales = 2mm]

Grota Funda, fl, 14 iv 1962, *Hatschbach* 9095 (MBM); *ibid.*, Rio das Mortes, fl, 23 iii 1968, *Hatschbach* 18957 (C, MBM); *ibid.*, fl, 26 v 1977, *Hatschbach* 39936 (C, UEC, MBM, MICH); Arapotí, Rio das Cinzas, fr, 22 x 1968, *Hatschbach* 20033 (MBM); Pirai do Sul, Joaquim Murtinho, fl, 14 vi 1973, *Hatschbach* 32149 (MBM).

As proposed by Mattos (1969), *Mitranthes pubescens* Burret is a synonym of *S. widgreniana* Berg—the type material differs from the original collections of *Siphoneugena widgreniana* by its larger parts and more pubescent leaves but certainly belongs to the same species. *S. widgreniana* has a discontinuous distribution along low mountain ranges and the several populations seem to differ slightly from one another.

EXCLUDED SPECIES

1. *Siphoneugena aromatica* Berg in Martius, Fl. Bras. 14(1): 379 (1857); Linnaea 27: 345 (1856), *nom. nud.* Type: Brazil, *Collector unknown* s.n. (holo. MEL—n.v., phototype examined).

Burret (1941a) states that the type is a species of *Jambosa*. I have seen an excellent phototype and agree—it was probably a cultivated specimen.

2. *Siphoneugena baporetii* (Legrand) Kausel, Lilloa 32: 345 (1967); *Myrciaria baporetii* Legrand, Anales Mus. Hist. Nat. Montevideo ser. 2, 4: 63 (1936); *Plinia baporetii* (Legrand) Rotman, Darwiniana 24: 169 (1982). Type: Paraguai, *Osten & Rojas* 8933 (holo. Herbario Cornélio Osten—n.v.).

This species was described by Legrand (1936) before *Myrciaria* was properly understood. Studies by McVaugh (1963, 1968) have since shown that the genus is a very natural one to which this species definitely does not belong. In fact, in my opinion it belongs to none of the genera to which it has been assigned and to no known genus of Eugeniinae although it does seem to be a member of the subtribe.

3. *Siphoneugena cantareirae* Mattos, Ciência e Cultura 19(2): 332 (1967). Type: Brazil, São Paulo, Serra da Cantareira, *Mattos* 14128-a (holo. SP).

This is a *Myrciaria* sensu McVaugh.

4. *Siphoneugena krukoffiana* Kausel, Lilloa 33(6): 110 (1972). Type: Bolivia, Departamento La Paz, Provincia Yungas, Basin of Río Bopi, *Krukoff* 10176 (holo. ST).

This species seems to be a primitive *Eugenia*, apparently close to *Eugenia versicolor* McVaugh. It is noteworthy for the bracteoles which are connate and form a cup around the ovary and for the strictly 1-, 2- or 4-flowered inflorescences which, in the two latter, end in vegetative shoots. It would be desirable to see fruiting material before definitely assigning this species to *Eugenia*.

5. *Siphoneugena legrandii* Mattos & Silveira, Lofgrena 87: 2 (1985). Type: Brazil, Paraná, Guaratuba, *Hatschbach* 9192 (holo. MBM, iso. MVM).

This species resembles *Siphoneugena* in its inflorescence but differs markedly in other

ways. It seems to be a congener of *S. baporetii*, another excluded species cited above. These two species will be treated elsewhere.

6. *Siphoneugena micrantha* Kausel, Lilloa 36(6): 111 (1972). Type: Brazil, Paraná, Vila Velha, *Dusén* 7638 (holo. ST).

S. micrantha is a *Myrciaria* sensu McVaugh (1963, 1968), tentatively determined from the description in *Flora Brasiliensis* (Berg, 1857) as *M. ciliolata* (Cambess.) Berg.

7. *Siphoneugena sulcata* (Burret) Kausel, Lilloa 32: 367 (1967); *Paramitranthes sulcata* Burret, Notizbl. Bot. Gart. Berlin-Dahlem 15: 542 (1941). Type: Brazil, São Paulo, Cotia, *Gehrt* s.n. (holo. B—destroyed, iso. SP).

Burret (1941a), who described this species, observed that it differed considerably from other *Paramitranthes* species (here included in *Siphoneugena*) in the leaf venation, with which we agree. The sulcate midvein on the upper leaf surface is typical of *Plinia* and *Calycorectes*. It also resembles *Plinia* in its very short petioles and densely tomentose, subsessile flowers, but fruiting material is necessary before it can be definitely assigned to either genus.

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