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Studies in Neotropical Apocynaceae III: A revision of the genus Secondatia A. DC., with discussion of its generic classification

J. FRANCISCO MORALES

ABSTRACT

MORALES, J. F. (2003). Studies in Neotropical Apocynaceae III: A revision of the genus Secondatia A. DC., with discussion of its generic classification. *Candollea* 58: 305-319. In English, English and French abstracts.

A revision of the genus *Secondatia* A. DC. is provided, including keys, descriptions, illustrations, and collectors' index. Four species are accepted: *S. densiflora* A. DC., *S. duckei* Markgr., *S. floribunda* A. DC., and *S. schlimiana* Müll. Arg. After a discussion of its style head features, the genus is removed from tribe *Mesechiteae* and placed in tribe *Echiteae*, sensu Endress & Bruyns.

RÉSUMÉ

MORALES, J. F. (2003). Etudes des Apocynaceae tropicales III: révision du genre Secondatia A. DC., avec discussion de sa classification générique. *Candollea* 58: 305-319. En anglais, résumés anglais et français.

La révision du genre *Secondatia* A. DC. est présentée. Quatre espèces sont acceptées: *S. densiflora* A. DC., *S. duckei* Markgr., *S. floribunda* A. DC., and *S. schlimiana* Müll. Arg. Des clés de détermination, les descriptions et les illustrations de chaque espèce, ainsi que des index de collecteurs sont fournis. En se basant sur les caractéristiques de la tête du style, l'auteur discute la position du genre qui est retiré de la tribu *Mesechiteae* et placé dans la tribu *Echiteae*, sensu Endress & Bruyns.

KEY WORDS: APOCYNACEAE – Apocynoideae – Echiteae – Mesechiteae – Secondatia – South America.

Secondatia A. DC. is a small genus composed of lianas or rarely scandent shrubs, distributed from Colombia and Venezuela to southern Brazil, Bolivia, and Paraguay. The genus can be distinguished by its leaves without colleters along the midrib adaxially, conspicuous reticulate tertiary venation, terminal or subterminal inflorescences, calyx composed of two outer and three inner sepals, with alternisepalous calycine colleters, salverform corolla, without an annular corona or free corona lobes within, sessile anthers, annular disk, fusiform follicles, and truncate non-rostrate seeds. The genus was treated by WOODSON (1935), who recognized six species. Following the revision of genera without recent monographic studies (e. g. MORALES, 2002a, 2002b), a synopsis of *Secondatia* is given here. Four species are accepted: *S. densiflora* A. DC., *S. duckei* Markgr., *S. floribunda* A. DC., and *S. schlimiana* Müll. Arg.

Noteworthy morphological features

Tertiary venation

The leaf blades in *Secondatia* are characterized by having conspicuous reticulated tertiary veins (Fig. 1 B, Fig. 2 B, Fig. 3 B, Fig. 4 B).

In *S. duckei*, *S. floribunda* and *S. schlimiana* the tertiary veins are conspicuously impressed abaxially, while in *S. densiflora* the veinlets are slightly impressed, in all species, the reticulation is always obvious. This feature is very helpful to identify sterile or fruiting specimens. In the Neotropics, similar venation patterns in other genera of twining *Apocynaceae*, subfamily *Apocynoideae* are just found in *Odontadenia* and *Skytanthus*.

Calyx and sepals

The calyx is composed of two outer and three inner sepals. Although WOODSON (1935), characterized *Secondatia* in having sepals with one or two colleters, I have found that the colleters arrangement is quinquangular. Therefore, there is usually one sepal with 2 colleters, 1 sepal with no colleters, and 3 sepals with one colleter.

Fruits

The fruits of *Secondatia* are apocarpous fusiform follicles, which are one of the thickest in the Neotropics, similar in size to *Macropharynx* and *Peltastes*. In fruiting specimens, *Secondatia* is easily distinguished from these genera by its non-peltate and smaller leaves and truncate (vs. rostrate) seeds. Although a few species of *Odontadenia* also have similar fusiform follicles [e.g., *O. macrantha* (Roem. & Schult.) Markgr.], species of *Secondatia* are easily separated by the smaller corolla.

Tribal classification

The *Apocynaceae* s.l. are divided in five subfamilies (*Apocynoideae*, *Asclepiadoideae*, *Periplocoideae*, *Rauvolfioideae*, and *Secamonoideae*), based mostly in flower, fruit, and seed characters (ENDRESS & BRUYNS, 2000). Five tribes (*Apocyneae*, *Echiteae*, *Malouetiaeae*, *Mesechiteae*, and *Wrightieae*) were recognized in the subfamily *Apocynoideae*. The tribe *Mesechiteae* is characterized by its style head with five longitudinally or at least basally projecting ribs, and anthers attached to the style head ribs by short hairs or cellular fusion. The most striking feature to distinguish this group is the ribs of the style head. *Secondatia* was placed in this tribe, together with other genera, such as *Allomarkgrafia*, *Mandevilla*, *Mesechites*, and *Quiotania*. Nevertheless, a detailed examination of the style head features of all species of *Secondatia* suggests that this genus is incorrectly placed in the *Mesechiteae* and a new tribal placement must be made. The style head in *Secondatia* is spool-shaped, slender in the middle and widest at the base (Fig. 1 D, Fig. 2 D, Fig. 3 D), without longitudinal or basal ribs. Two tribes have spool-shaped style-heads: *Echiteae* and *Wrightieae*. However, following ENDRESS & BRUYNS (2000), *Secondatia* should be placed within the tribe *Echiteae*, as suggested by the agglutinated thecae, anthers strongly attached at two points to the spool-shaped style head, and ovary with an annular disk (Fig. 1 D, Fig. 2 D, Fig. 3 D).

Taxonomic treatment

Secondatia A. DC., Prodr. 8: 445. 1844.

Type: *Secondatia densiflora* A. DC. (designated by WOODSON, 1935)

Fruticose lianas, more rarely scandent shrubs. Branchlets terete, subterete, or somewhat angulate when young, glabrous to glabrate, usually somewhat lenticellate at maturity, usually with milky sap, interpetiolar colleters inconspicuous. Leaves opposite, petiolate, mostly with several inconspicuous conical colleter in the axils; blade glabrous, firmly membranaceous,

without colleters along the midrib adaxially. Inflorescence a thyrsiform panicle, terminal, sub-terminal to more uncommonly axillary, few- to many-flowered, glabrous to glabrate, short pedunculate or sessile, bracts scarious; sepals five, essentially equal, usually imbricate, with two, one, or lacking basal colleters within, these entire, subentire, or inconspicuously lacerate apically; corolla salverform, glabrous to glabrate without; tube straight, not twisted around the stamens, without a corona, the limb 5-parted, actinomorphic, dextrorsely convolute, the corolla lobes somewhat spreading; stamens five, included and inserted in the lower part of the corolla tube; anthers connivent and strongly attached at two points to the style head, formed by two parallel thecae, the filaments shorts; auricles short, very inconspicuous, acute to shortly acuminate; carpels two, united at the apex; style head spool shaped, sessile or the style very short; ovules numerous, several-seriate, borne on an axile, biseriate placenta; disk 5-lobed or irregularly lobed or lacerate. Follicles 2, apocarpous, continuous, fusiform, glabrous or glabrate, dehiscing along the ventral suture; seeds numerous, dry, truncate, comose apically, smooth, minutely puberulent.

Four species are known, distributed from Colombia and Venezuela to Brazil, Bolivia, and Paraguay.

Key to the species of Secondatia

1. Corolla lobes more than 1.5 cm long; ovary very sparsely and minutely puberulent *S. duckei*
- 1a. Corolla lobes less than 1.2 cm long; ovary glabrous 2
2. Leaves 3-4.7(-9) × 1.1-2.3(-3.4) cm; corolla lobes 8-12 × 2.5-4.5 mm; bracts 1-1.5 × 0.5 mm, relatively inconspicuous; style head sessile *S. floribunda*
- 2a. Leaves 5-12 × 2.5-6.5 cm; corolla lobes 3-5 × 3-4 mm; bracts 1-3 × 1 mm, conspicuous; style head supported by a short style, 1.5-2 mm long 3
3. Corolla lobes 3-5 × 3-4 mm; anthers glabrous, glabrate or apically puberulent *S. densiflora*
- 3a. Corolla lobes 9-12 × 6-8 mm; anthers minutely puberulent dorsally *S. schlimiana*

1. *Secondatia densiflora* A. DC., Prodr. 8: 445. 1844 (Fig. 1).

= *Secondatia densiflora* var. *genuina* Hassl. in Repert. Spec. Nov. Regni Veg. 12: 264. 1913 [nom. inval.].

Type: BRAZIL. S. loc., s. d. (fl, fr), *M. Martius* 967 (lecto-, designated by WOODSON (1935); G-DC!; isolecto-: B [destroyed], photo F neg. 4472, BM!, G!, K!, M!, NY!, P!, W).

= *Secondatia peruviana* Poepp., Nov. Gen. Sp. Pl. 3: 71, tab. 281. 1845, **syn. nov.** **Type:** PERU. Loreto: Cuchero, Pampayaro, XII.1829 (fl), E. Poeppig 1582 (holo-: W!; iso-: B [destroyed], photo F neg. 4480, BM!, F!, photo F neg. 56570, G-BOIS [2 sheets]!, G-DC!, GH!, L!, MO!, NY!, P [3 sheets]!).

= *Secondatia densiflora* var. *parviflora* Müll. Arg. in Mart., Fl. Bras. 6(1): 108. 1860. **Type:** BRAZIL. Goiás: S. loc., s. d. (fl), C. Gardner 3325 (lecto-, here designated: G-DC!; isolecto-: BM!, photo at INB, CGE [2 sheets!], E!, F!, G [2 sheets]!, K [2 sheets]!, NY [3 sheets]!, P [3 sheets]!).

= *Secondatia densiflora* var. *paraguariensis* Hassl. in Repert. Spec. Nov. Regni Veg. 12: 363. 1913. **Type:** PARAGUAY. Amambay: Sierra de Amambay, XI.1912 (fl), E. Hessler 11420 (holo-: G!; iso-: BAF, BM!, photo at INB, G [5 sheets]!, K!, MO!, NY!, P!).

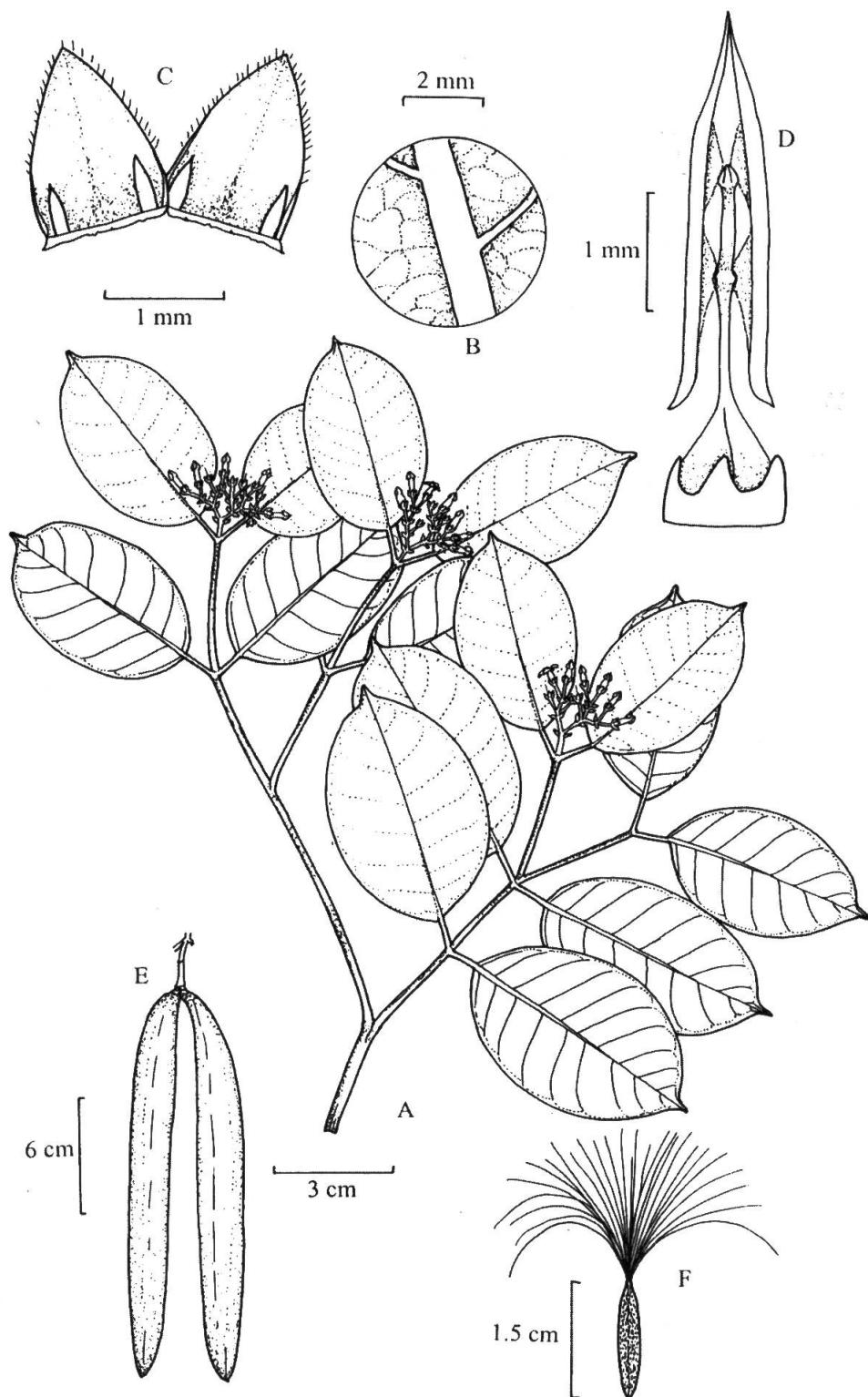


Fig. 1. – *Secondatia densiflora* A. DC. A. Flowering shoot. B. Close-up of the abaxially surface of the leaf blade. C. Sepal and colleters, adaxial view. D. Ovary, disk, style head, and anthers. E. Fruits. F. Seeds. [A-D, Hatschbach & al. 56001, HUA; E-F, Young 166, INB] [Drawing by the author]

= *Angadenia elliptica* Miers, Apocyn. S. Amer.: 180. 1878, **syn. nov.** Type: **BRAZIL**. **Piauhy**: Paranagua, VIII.1839 (fl), C. Gardner 2663 (holo-: BM!, photo at INB; iso-: CGE!, K!).

Liana, rarely scandent shrub; branchlets terete to subterete, glabrous to glabrate. Leaves: blade 5-12 × 2.5-6.5 cm, elliptic, firmly membranaceous, cuspidate or shortly acuminate apically, obtuse to acute basally, glabrous, tertiary veins slightly impressed, petiole 7-15 mm. Inflorescence terminal, subterminal, or axillary, densely agglomerate, glabrous to glabrate, conspicuously bracteate, peduncle 2-12 mm long, sometimes the inflorescence sessile, pedicels 2-6 mm, bracts 1-3 × 1 mm, scarious; sepals 1-1.5 × 1 mm, narrowly ovate, acute, glabrate and ciliolate; corolla salverform, the tube pale green to greenish white, the lobes white to cream, glabrous to glabrate; tube 5-8 × 2 mm, very minutely and moderately to densely puberulent within, lobes 3-5 × 3-4 mm, narrowly obovate, densely pubescent basally, near the corolla mouth; stamens inserted near the base of the tube, anthers 3-4 mm, glabrous, glabrate, or apically puberulent, style head 1.5-2 mm, with a short style, 1.5-2 mm; ovary ca. 1 mm long, glabrous, disk shorter than the ovary, 5-lobed. Follicles 17-22 × 1.7-2.1 cm, continuous, glabrous; seeds 15-17 mm long, very minutely and densely puberulent, coma 35-50 mm long, cream.

Distribution, habitat, and ecology. – Widespread in South America, ranging from northern Colombia and eastern Venezuela through Brazil, Bolivia, and Paraguay, in caatingas, disturbed dry forest, gallery forest, dry savannas, sandy cerrados, and granitic outcrops at elevations of 0-1350 m.

Phenology. – Flowering specimens have been collected in nearly every month of the year; fruiting collections have been made from February through November.

Local names and uses. – Bellaco Huasca (Perú, San Martín, Chazuta); Candinha (Brazil, Ceará, Brazil); Cipó Jananba (Brazil, Maranhão, San Luiz). This species has been used in curare mixed together with seed of Ashipa (undetermined legume) and Ampihuasca (root of Cordoncillo [*Piper* spp.]) (Peru, San Martín, Schunke 6338).

Secondatia densiflora is the most widespread and common species in the genus. It is characterized by its conspicuous inflorescence bracts, 3-5 mm long obovate corolla lobes, and relatively inconspicuous tertiary veins. This species is closely related to *S. floribunda*, but it is easily separated by its shorter corolla lobes (3-5 mm vs. 8-12 mm) and style head with a short style, not sessile.

Secondatia peruviana is relegated to the synonymy of *S. densiflora*. Its type in no way differs from that of *S. densiflora*. There are only weak differences in the anther pubescence. This feature is very variable in many genera of Neotropical *Apocynaceae* and glabrous, glabrate, or pubescent anthers are found sometimes even in the same inflorescence.

Gardner 3325 is selected as the lectotype of *Secondatia peruviana* var. *parviflora*, since this collection is better preserved than the other syntypes and is also represented in many herbaria.

Additional specimens examined. – **VENEZUELA.** Anzoátegui: Libertad, road from El Vigía to Buenos Aires, 27.XI.1981, Davidse & González 19721 (F, INB, MO, NY, WAG). Amazonas: Atabapo Río Ocamo, near Cerro Mawedi, I.1990, Fernández 6912 (MO); Atures, Limón de Parhueña, 1.VI.1992, Gröger & Meier 460 (BON, MO, VEN). **Apure**: Pedro Camejo, between the Río Cinaruco and the souther part of the Galerías de Cinaruco, 29.IV.1977, Davidse & González 12356a (MO). **Bolívar**: Gran Sabana – Santa Ana road, 8.V.1995, Benítez & D'Arcy 5201 (MO); Río Caroni, Tirika, V.1945, Cardona 1154 (US); Raul Leoni, E of San Francisco, VI.1989, Delgado 240 (MO, NY, PORT); Heres, Cerro Arimagua, I.1984, Fernández 829 (MO, PORT); Raul Leoni, E of Pijiguaos, VI.1989, Fernández & Delgado 5832 (MO, NY, PORT); around El Araguaney, 1987, Stergios 11012 (MO, NY, PORT); between San Felix and Puerto Ordaz, VI.1964, Steyermark 94270 (NY, US, VEN); Roscio, along Río Uairén, NE of Santa Elena de Uairém, I.XII.1982, Steyermark & Liesner 127420 (MO, VEN); Morichal de Guayapo, Bajo Caura, 19.IV.1939, Williams 11893 (F); Cerro La Puerta, 26.I.1956, Wurdack & Monachino 41371 (NY, US). **Sucre**: S of Santa Fé, Sucre, 19.XI.1981, Davidse & González 19081 (MO); Sucre, W of Mochima, Cumana – Santa Fe road, 3.III.1979, Plowman 7803 (F, K, MO, NY); Mochima mountain, S of Mochima, 16.XI.1973, Steyermark & al. 108466 (MO, NY, VEN). **Zulia**: Colón, campo Rosario, 2.V.1979, Bunting & al. 7549 (NY).

GUYANA. Turuk Wan, 6.XII.1957, Cook 246 (K); Shuurutiuui, 7.XI.1952, Forest Department 558 (G, K); Takutu Essequibo region, S of Rupununi, 27.IV.1994, Henkel & James 3790 (INB, NY, P, US); Savanna, VI.1871, Pollard 108

(K); Pirara, 1841 – 1842, *Schomburgk* 421 (CGE, G, NY, P). S. loc., 1839, *Schomburgk* 599 (BM [2 sheets], G-DC, K, P). S. loc., s. d., *Schomburgk* 665 (G, K).

FRENCH GUIANA. Bassin du Hâ, 28.VIII.1987, *Granville & al.* 9810 (CAY, P, U, US).

ECUADOR. Napo: Orellana, Huashito, N of Coca, 3-21.XI.1989, *Espinosa* 107 (INB, MO, NY, USF); Jatun Sacha Biological Station, E of Misahuali, 30.XII.1987 (st), *Gentry & al.* 60120 (MO, USF). Pastaza: S of Coca, near Río Tigüino, 7.I.1989, *Palacios & al.* 3414 (MO, NY, USF).

PERU. Junín: near Herrera bridge, 12.V.1961, *Schunke* 5633 (F, MO, UC), 3.XI.1962 (st), *Schunke* 6198 (F, INB, K, MO, UC); E of La Merced, 4.XI.1962, *Schunke* 6207 (F, K, MO [2 sheets], UC, US), *Schunke* 6208 (F, K, MO, UC), *Schunke* 6209 (F [4 sheets], MO, NY, UC); road to Quimire, S of Junín, 5.XI.1962, *Schunke* 6221 (MO, UC, US). Loreto: Quistococha, Maynas, 20.IX.1979, *Ayala* 1969 (AMAZ, MO); SW of Iquitos, 9.IX.1972, *Croat* 20030 (MO, NY, US); Requena, Jeraro Herrera, Río Ucayali, XI.1981, *Poulain* 88b (INB, MO, P); Maynas, Río Nanay, near Caserio Santa Clara, 25.X.1976, *Revilla* 1651 (MO); Pucallpa, Río Ucayali, IX.1942, *Sandeman* 3322 (K [2 sheets]); Iquitos, Marañón, 1924, *Tessmann* 4359 (G, NY); Previsto, 11.X.1962, *Woytkowski* 7572 (F, K, MO, NY, US). Madre de Dios: Tambopata, Río La Torre and Río Tambopata, 23.III.1981, *Young* 166 (INB, MO). San Martín: Chazuta, 4.X.1963 (st), *Schunke* 6338 (F, MO, UC). S. loc., 1839 – 1840, *Gay s. n.* (P).

BRAZIL. Acre: Sena Madureira, basin of Rio Purus, Rio Iaco, 26.X.1993, *Daly & al.* 7942 (NY, WAG); Rio Branco – Sena Madureira road, 23.X.1980, *Nelson* 791 (MO, NY, US). Amazonas: Cruzeiro do Sul, road Treza de Maio, 20.X.1984, *Ferreira & al.* 5165 (INPA, K, NY); Manaus, Cachoeira Grande, 30.XII.1943, *Ducke* 1480 (F, NY); WNW of Itacoatiara, 10.VI.1981, *Lowe* 4273 (K, INPA); Manaus, 26.X.1956, *Luiz s. n.* (INPA, MO); Manaus, 21.X.1971, *Maas & Maas* 505 (NY, U); Rio Ituxi, W of Bôca de Curuquetê, 11.VII.1971, *Prance & al.* 14114 (F, INPA, K [2 sheets], M, NY, P, S, U, US, Z); Rio Curuquetê, Cachoeira Santo Antonio, 16.VII.1971, *Prance & al.* 14293 (NY); Nova Esperança, 31.VII.1941 (st), *Smith & Carter* 619 (G, K, MO, NY, US); Rio Branco, Serra do Parauá, I.1909, *Ule* 7940 (K). Bahia: Serra do Aeroporto, região de Barreiras, 5.I.1955, *Black* 18094 (IAN, MO); Riachão das Neves, 13.V.1997, *França & al.* 2286 (E, HUEFS); Serra do Rio de Contas, waterfall of Rio Brumado, 20.I.1974, *Harley & al.* 15341a (K); Chadapa Occidental da Bahia, SE of Correntina, road to Jaborandi, 27.IV.1980, *Harley* 21842 (K, NY, Z); Rio de Contas, road to Livramento do Brumado, 23.XI.1988, *Harley & al.* 26982 (K); Córrego Serra Negra, Oliveira dos Brejinhos, 12.X.1981, *Hatschbach* 44180 (F, MBM, NY, US, Z); Corretina, Rio Corrente, Sete Ihlas, 9.VIII.1996, *G. Jardim* 875 (CEPEC, NY). Brasília: Distrito Federal, Fercal, 10.XI.1986, *Dagoberto s. n.* (UB); Bacia do Rio São Bartolomeu, 26.IV.1979, *Heringer & al.* 2073 (K, UB, US), 19.V.1980, *Heringer & al.* 4809 (K, MO, UB, US, USF), 4.XI.1980, *Heringer & al.* 5626 (K, MO, NY, UB, US, USF). Ceará: Piracuruca road, 29.II.1980, *Castro & Graça s. n.* (MO). Goiás: Formosa, 7.X.1976, *Hatschbach* 39003 (MBM, MO, NY, P, US); Campo Belos, 17.X.1990, *Hatschbach & Guimarães* 54715 (MBM, NY, Z); Campos Belos, road to Teresinha de Goiás, 9.XI.1991, *Hatschbach & al.* 56001 (HUA, MBM, MO); Caldas Novas, Rio Quente, 21.XII.1974, *Heringer & Eiten* 14151 (K, MO, NY, US); S de Caiaponia, road to Jataí, 26.X.1964, *Irwin & Soderstrom* 7413 (NY, US); E of Cabeceiras, 17.XI.1965, *Irwin & al.* 10431 (K, MO, NY, US); NW of Piranhas, 24.VI.1966, *Irwin & al.* 17710 (F, K, MO, NY, US); S of Cavalcante, Chapada dos Veadeiros, 10.III.1969, *Irwin & al.* 24196 (MO, NY); between Gama and Rio Corumba, 19.X.1963, *Maguire & al.* 57137 (F, K, NY, UB); Fazenda Maracaná, N of Caiapônia, 13.XI.1993, *Ratter & al.* 7147 (E, K); Padre Bernardo, Fazenda Lagoa Santa, 18.XI.1993, *Silva* 47 (INB, UB); Catalão, 8.IX.1998, *Souza & al.* 21276 (ESA, INB); NE of Uruacu, Fazenda Pindaiba, 5.X.1992, *Walter & al.* 2011 (CEN, INB). Maranhão: N of São Mateus, 27.IX.1980, *Daly & al.* 291 (F, INPA, K, MG, NY); Siland of São Luiz, 1940, *Froes* 11899 (F, NY, US). Mato Grosso: Base Camp, 2.X.1967, *Argent & al.* 6605 (E, K, NY, P); Rio Aripuanã, 20.X.1973, *Berg & al.* 18695 (F, NY, P, Z); Pantanal, Rio Pixaim, Poconé, 26.X.1991, *Dubs* 1231 (E, NY, Z); between Pontes and Lacerda and Vila Bela da Santíssima Trindade, 27.XII.1995, *Dubs* 2011 (E, K, MBM, NY, S, U, Z); Chapada dos Guimarães, road to Agua Fria, 17.X.1996, *Dubs* 2234 (E, K, NY, S, Z); S. loc., 1833, *Gaudichaud* 138 (P [3 sheets]); Rio Brilhante, 22.XI.1970, *Hatschbach* 25015 (K, MBM, MO, NY, Z); Fazenda Progresso, Rio Brilhante, 28.X.1970, *Hatschbach* 25301 (K, MBM, MO, NY, P, US, Z); Serra da Pimenteira, Rio Verde, 12.XI.1973, *Hatschbach* 33126 (MBM, MO, Z); Barra do Bugres, 23.X.1995, *Hatschbach & al.* 63757 (NY); between Buriti and Cuiabá, 22.X.1973, *Prance & al.* 19297 (NY); Cuyabá, 21.XI.1893, *Malme* 1118 (BM, G, S); S. loc., 1891 – 1892, *Moore* 368 (BM, NY), *Moore* 734 (BM, K, NY); Xavantina – Cachimbo road, 18.XII.1967, *Philcox & al.* 3558 (K, NY, P); road Buriti to Cuiabá, 22.X.1973, *Prance & al.* 19297 (INPA, K, NY, US). Mato Grosso do Sul: Anastácio, W of Trevo, 17.X.1995, *Hatschbach & al.* 63443 (MBM, MO, WAG); Coxim, Reserva do Exército, 19.IX.1996, *Simón & al.* 26 (NY, UB). Minas Gerais: E of Rio Pandeiros, road to Januária, 18.III.1973, *Anderson* 9107 (F, K, NY); S. loc., 1838, *Claussen* 396 (P), 1839, *Claussen s. n.* (BM, G [3 sheets], G-DC, K [2 sheets]), 1840, *Claussen s. n.* (P [3 sheets]); Babilônia, Uberlândia, 27.IX.1987, *Deguchi & Tsugaru* 1603 (MO); Barbacina, 12.XI.1884, *Glaziou* 15222 (K, P [3 sheets]); Jiquitiba, 24.XI.1893, *Glaziou* 20408 (K, P); Bacia de Tres Marias, Felixlândia, 24.X.1959, *Heringer* 18151 (F, HB); Ituiutaba, 20.IX.1945, *Macedo* 500 (NY, US); Ituiutaba, 15.IX.1948, *Macedo* 1225 (BM, MO, NY); Aqua Limpia, Calciolândia, Arcos, 7.X.1940, *Oliveira* 191 (BM, MO); Paracatu, Fazenda Acangaú, 5.III.1989 (fr), *Pereira Neto & al.* 280 (MO); Caratinga, APA Lagoa Silvana, 19.V.2002, *Soares & Cortate* 46 (CESJ, MO); S. loc., 1816 – 1821, *St. Hilaire* 1962 (P [2 sheets]), *St. Hilaire* 1970 (P [3 sheets]); Perdizes, 27.X.1994, *Tameirao & Werneck* 1175 (BHCN, INB). Pará: between Ilha do Anana and Igarapé, Santarém, 28.X.1950, *Black & Ledoux* 10390 (IAN, MO); Marabá, Serra dos Carajás, 22.VIII.1984, *Rosa & Santos* 4669 (INB, MG); Santarém, IX.1850, *Spruce* 1082 (K); Santarém, front Alter do Chão, 11.VII.1991, *T.M.S.* 147 (E, INPA); Portel, 8.X.1955, *Williams & Silva* 18205 (IAN, MO). Rio de Janeiro: near Rio de Janeiro, 1878 – 1879, *Glaziou* 11179 (K, P). Rondônia: Alvorada do Oeste, road to Costa Marques, 1.V.1987, *Ferreira* 8998 (NY); between Riozinho and Rio Barao de Melgaco, 22.IX.1963, *Maguire & al.* 56790 (NY); Tutumparaná – Porto Velho road, 24.XI.1968, *Prance & al.* 8809 (A, F, INPA, K, MG, NY, S, U, US). Roraima: Ilha de Maracá, SEMA ecological reserve, 10.II.1988, *Ratter & al.* 6268 (E, K, NY); falls of Madeira, X.1886, *Rusby* 2392 (BM, F, G-BOIS, K, MO, NY, US). São Paulo: Mogi-Guaçú, 27.X.1989, *Buzato &*

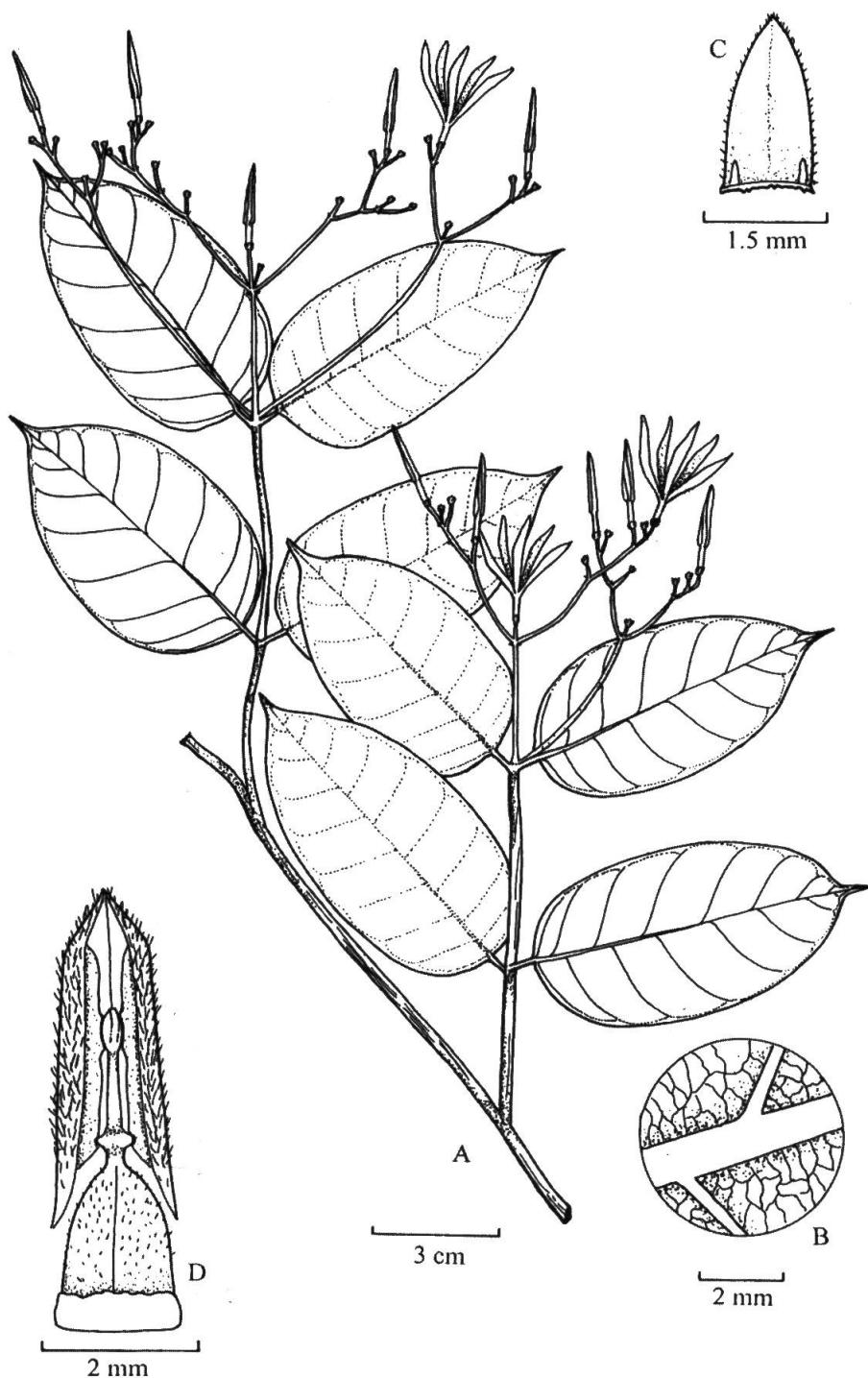


Fig. 2. – *Secondatia duckei* Markgr. A. Flowering shoot. B. Close-up of the abaxially surface of the leaf blade. C. Sepal and colleters, adaxial view. D. Ovary, disk, style head, and anthers. [Vicentini & al. 692, INB] [Drawing by the author]

Franco 22095 (ESA, INB, UEC); S. loc., 1838, *Claussen* 336 (NY [3 sheets], P [2 sheets]); Jaboticabal, Fazenda Santa Izabel, Rio Mogi-Guaçú, 15.IX.1995, *Rodriguez* 342 (F, NY, SP), *Rodriguez* 352 (NY, SP); Paulo de Faria, Fazenda Filgueira, road to Riolândia, 13.X.1994, *Souza & al.* 83 (ESA, INB). **State unknown:** Semidouro, 1845, *Pohl* s. n. (NY, P, W). **S. loc., s. d.:** (fl), *Allemão* 979 (P); (fl), *Baillon* s. n. (P-BA); (fl), *Burchell* 8028 (K, P); (fl), *Burchell* 8103 (K); (fl), *Gardner* 2662 (K); (fl), *Newman* s. n. (G); (fl), *Pinel* s. n. (CGE); (fl), *Riedel* s. n. (G-BOIS, LE, NY, P); (fl), *Sello* s. n. (K); (fl), *Sello* 1654 (P).

BOLIVIA. La Paz: Nor Yungas, Valle de Huarinilla, Río Coroico, 5.XII.1994, *Beck* 21627 (LPB); Nord Yungas, Milluguaya, XII.1917, *Buchtien* 4371 (HBG, LPB, NY, US); Inquisivi, below Cajuata, near Puente Alegre, 27.XII.1989, *Dorr & Barnett* 6849 (LPB, NY, USF); Sud Yungas, Rio Phuri, entre Chulumani e Irupana, 14.III.1999, *Pendry & al.* 604 (E, LPB); Sud Yungas, entre Chulumani y La Asunta, 3.VIII.1991, *Rea & al.* 22 (LPB); Nor Yungas, N of Yolosa, road to Coroico, 21.III.1984, *Solomon & al.* 11999 (INB, LPB, MO, USZ); Sud Yungas, entre Puente Villa y Chulumani, 16.XII.1999, *Wood & Goyder* 15470 (K, LPB). **Santa Cruz:** Chiquitos, Serranía de Santiago, 23.XI.1989, *Daly & Echeverre* 6344 (LPB, NY, USZ, WAG); San Javier – San Ramón road, 4.XI.1977, *Evrard* 8494 (BR, MO, G); S of San José de Chiquitas, Serranía de San José, 1.XI.1991, *Gentry & Foster* 75431 (INB, MO, USZ); Velasco, El Refugio camp, 9.VII.1994, *Guillén & Coria* 2145 (INB, MO); German Busch, El Carmen, Estancia Campo en Medio, 30.IV.1997, *Gutiérrez & Rojas* 2027 (USZ); Noel Kempff National Park, Las Torres, 29.XI.1993, *Jardim & al.* 223 (F, K, LPB, MO, USZ); Chiquitos, E of Roboré, road to Santiago de Chiquitos, 12.XI.1996, *Jardim & Mamani* 3665 (INB, LPB, MO, USZ); Noel Kempff National Park, Flor de Oro, 18.XI.1993, *Killeen* 6127 (F, MO, NY, USZ); Velasco, Noel Kempff National Park, La Torre Camp, 21.XI.1983, *Killeen & al.* 6186 (INB, MO, USZ); Noel Kempff National Park, 14.I.1997, *Killeen & al.* 8141 (G, LPB, MO, USZ); Chiquitos, Roboré – San José road, NW of Roboré, *Mostacedo & Abboutt* 2864 (INB, MO, USZ); Andrés Ibáñez, vicinity of El Hondo, 29.XI.1988, *Nee* 36982 (LPB, MO, NY); Andrés Ibáñez, along Río Pantano, SE of Palmar del Oratorio, 9.XII.1988, *Nee* 37106 (LPB, MO, NY, USF, USZ); Ichilo, N of Buena Vista, near Laguna Candelaria, 31.X.1990, *Nee* 39631 (LPB, MO, NY, US, USF, USZ); Andrés Ibáñez, N of Pedro Lorenzo, 22.XII.1994, *Nee* 46064 (MO, NY, USZ); Velasco, Serranía Huanchaca, SE de estación Flor de Oro, 8.III.1992, *Perry & Cuellar* 660 (LPB); Noel Kempff National Park, Huanchaca I, road to Río Pauserna, 5.XI.1995, *Rodríguez & Surubi* 687 (INB, MO, USZ); Sara, 30.X.1916, *Steinbach* 3113 (G, K); Río Moreno, 28.X.1925, *Steinbach* 7301 (BM, E, F, G, G-DC, K, MO, NY, U); Noel Kempff National Park, Flor de Oro, 18.IX.1995, *Vargas & al.* 3799 (INB, USZ); Chiquitos, S of San José de Chiquitos, 2.XI.1998, *Wood & Mamani* 14124 (LPB); Ñuflo de Chávez, S de Concepción, road to Lomerio, 30.X.1999, *Wood* 15091 (LPB).

PARAGUAY. Amambay: Estancia Carmen de la Sierra, Potrero Lili, 22.X.1991, *Soria* 4711 (FCQ, MO); Cerro Corá National Park, Cerro Trébol, 13.VI.1996, *Zardini & Cardozo* 45000 (AS, INB, MO). **Canendiyú:** Aguara Nu, 8.X.1996, *Jiménez & Marín* 1578 (BM, CTES, PY), *Jiménez & Marín* 1578b (BM, CTES, PY); Mbaracayú National Reserve, 31.X.1998, *Zardini & Chaparro* 49497 (AS, INB, MO).

2. *Secondatia duckei* Markgr. in Notizbl. Bot. Gart. Berlin-Dahlem 11: 338. 1932 (Fig. 2).

Type: BRAZIL. Amazonas: Rio Negro, Curicuriary, 24.XI.1929 (fl), *A. Ducke* 22432 (lecto-, here designated: K!; isolecto-: B [destroyed], photo F neg. 38744, G-BOIS!, P!, US!).

= *Secondatia adolphii* Azambuja in Ann. Missouri Bot. Gard. 36: 543. 1949, **syn. nov.**

Type: BRAZIL. Amazonas: Manaus, 14.IX.1945 (fl), *A. Ducke* 1758 (lecto-, here designated: F!; isolecto-: RB, NY!, US!).

Liana, branchlets terete to subterete, somewhat flattened in young stems, glabrous. Leaves: blade 5.8-10.8 × 2.7-5.6 cm, elliptic, broadly elliptic, ovate, or ovate-elliptic, firmly membranaceous, the apex acuminate or cuspidate, the base rounded to broadly obtuse, glabrous, tertiary veins conspicuously impressed, petioles 4-7 mm. Inflorescence terminal, lax, many-flowered, glabrous to glabrate, inconspicuously bracteate, peduncle (2-)28-48 mm, pedicels 3-7 mm, bracts 1-2 × 0.5-1 mm, scarious; sepals 1.5-2 × 1 mm, ovate to narrowly ovate, acute, glabrate and ciliolate; corolla salverform, white to creamish white, glabrate or inconspicuously puberulent without; tube 5.5-7 × 2 mm, very minutely and densely puberulent within, lobes 15-21 × 2.5-3.5 mm, very narrowly elliptic to very narrowly ovate, puberulent basally; stamens inserted near the base of the tube; anthers 4-4.5 mm long, densely hispidulous dorsally, style head 1.5-2 mm long, sessile; ovary 1-1.5 mm long, very sparsely and minutely puberulent, disk conspicuously shorter than the ovary, irregularly lobed. “Follicles 19-20 × 3.5 cm, continuous”.

Distribution, habitat, and ecology. – This rare species is restricted to northwestern Brazil and southeastern Colombia, in wet primary forest and similar related areas at elevations of 150-300 m.

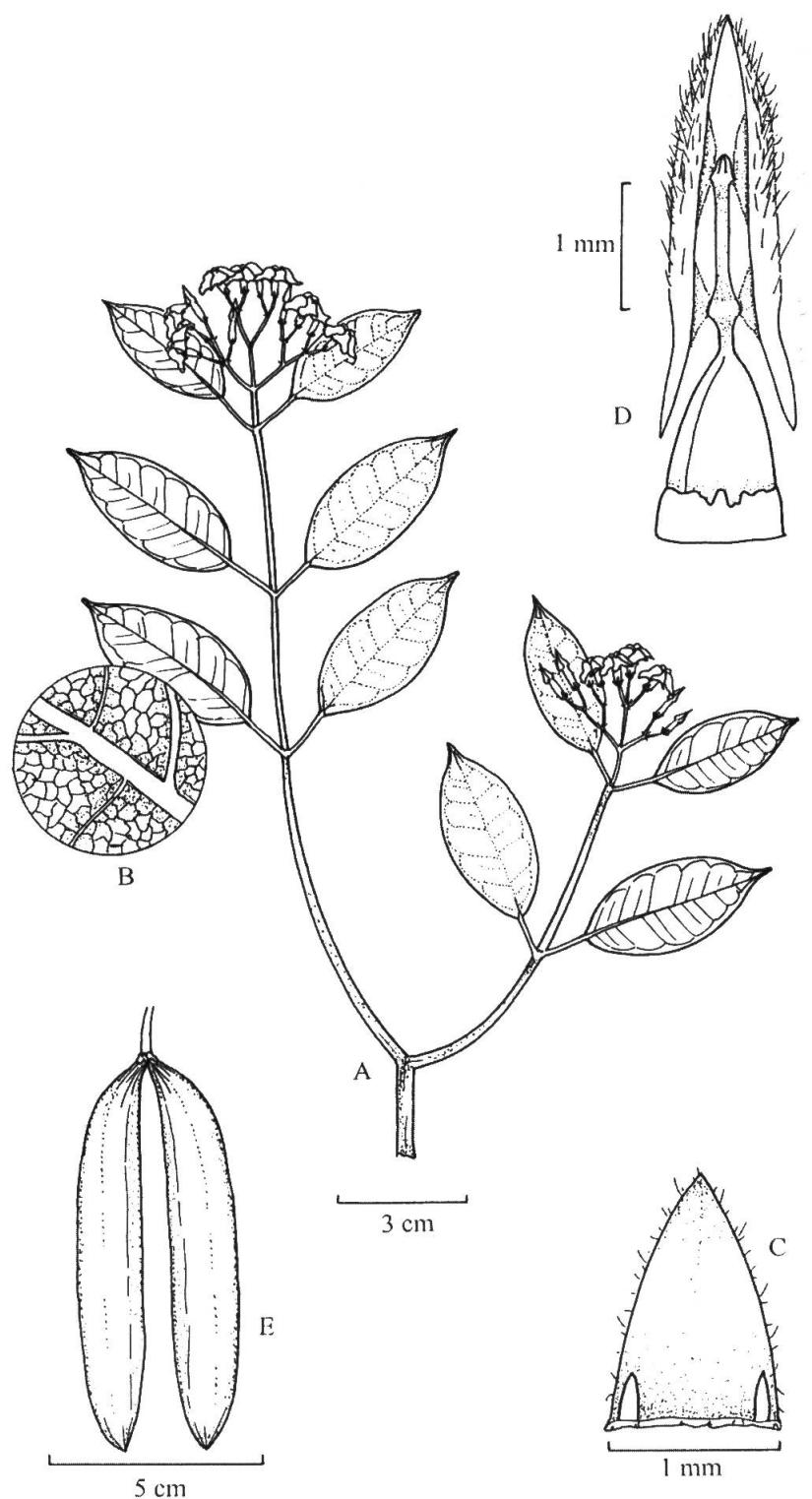


Fig. 3. – *Secondatia floribunda* A. DC. **A.** Flowering shoot. **B.** Close-up of the abaxially surface of the leaf blade. **C.** Sepal and colleters, adaxial view. **D.** Ovary, disk, style head, and anthers. **E.** Fruits. [A-D, Blanchet 3370, BM; E, Gardner 2232, BM]. [Drawing by the author]

Phenology. – Flowering specimens have been collected in September, October, and November.

Secondatia duckei is the most distinctive species in the genus and is unique and noteworthy in having elongate corolla lobes, 15-21 mm long and laxly-flowered inflorescences. The description of the follicles given here, was taken from the original protologue of *S. adolphii*; otherwise, no fruiting collections are known.

Secondatia adolphii is lectotypified here and *Ducke 1758* selected as the lectotype. The other syntype (*Ducke 2105*) was not located.

Additional specimens examined. – COLOMBIA. Amazonas: Araracuara, Río Caquetá, near Isla Sumaeta, 20.X.1990, Alvarez & al. 1181 (HUA, JAUM).

BRAZIL. Amazonas: Manaus, 14.IX.1945, *Ducke 1758* (F); Reserva Florestal Ducke, Manaus, Itacoatiara, 15.IX.1994, Vicentini & al. 692 (IAN, INB, INPA, K, MO, NY, SP, SPF, UB, WAG).

3. *Secondatia floribunda* A. DC., Prodr. 8: 446. 1844 (Fig. 3).

Type: BRAZIL. Bahia: Serra Jacobina, 1841 (fl), *M. Blanchet* 3370 (holo-: G-DC!; iso-: B [destroyed], photo F neg. 4479, BM [2 sheets]!, G [2 sheets]!, G-BOIS!, NY!, P!).

- = *Secondatia foliosa* A. DC., Prodr. 8: 446. 1844. **Type:** BRAZIL. Bahia: Serra Jacobina, s. d. (fl), *M. Blanchet* 3635 (holotype, G-DC!; isotypes, BM [2 sheets]!, F [2 sheets]!, photo at INB, G [2 sheets]!, G-BOIS!, K!, M!, P [4 sheets]!, W).
- = *Secondatia foliosa* var. *gardneri* A. DC., Prodr. 8: 446. 1844. **Type:** BRAZIL. Ceará: S. loc., 1838 (fl), *C. Gardner* 1762 (holo-: G-DC!; iso-: BM!, photo at INB, CGE [2 sheets]!, G!, G-BOIS!, GH!, K [2 sheets]!, NY!, P [2 sheets]!, US!, W).
- = *Secondatia foliosa* var. *petiolaris* Müll. Arg. in Mart., Fl. Bras. 6(1): 109. 1860. **Type:** BRAZIL. S. loc., s. d. (fl), *Pohl* 1846 (lecto-, here designated: W!; isolecto-: F!, photo at INB, K!, NY!).
- = *Secondatia foliosa* var. *lanceolata* Müll. Arg. in Mart., Fl. Bras. 6(1): 109. 1860. **Type:** BRAZIL. S. d., *F. Sello* s. n. (not located).
- = *Angadenia pruinosa* Miers, Apocyn. S. Amer.: 177. 1878, **syn. nov.** **Type:** BRAZIL. Piauhy: Oeiras, V.1829 (fr), *C. Gardner* 2232 (holo-: BM!; iso-: K!, photo at INB).

Liana, branchlets terete to subterete, somewhat angulate in young stems, glabrous to glabrate. Leaves: blade 3-4.7(-9) × 1.1-2.3(-3.4) cm, elliptic to ovate-elliptic, firmly membranaceous, abruptly acuminate, acuminate, or obtuse-cuspidate, obtuse basally, glabrous, tertiary veins conspicuously impressed, petiole 10-14 mm. Inflorescence terminal to subterminal, rarely axillary, somewhat agglomerate, glabrous to glabrate, inconspicuously bracteate, peduncle 8-10 mm long, pedicels (3.5-) 5-8 mm, bracts 1-1.5 × 0.5-1 mm, scarious; sepals 1-1.5 × 1 mm, narrowly ovate, acute, very minutely and sparsely puberulent to glabrous or glabrate, inconspicuously ciliolate marginally; corolla salverform, white to creamish white, glabrous to glabrate without; tube 4.5-7 mm, densely puberulent within, lobes 8-12 × 2.5-4.5 mm, narrowly obovate, glabrate or puberulent basally; stamens inserted near the base of the tube, anthers 3-3.5 mm, minutely puberulent dorsally, style head 1.5-2 mm, sessile; ovary 1-1.5 mm long, glabrous, disk less than 0.5 mm, irregularly lobed or lacerate. Follicles 10-11 × 1.4-1.5 cm, continuous, glabrous; seeds unknown.

Distribution, habitat, and ecology. – Endemic to eastern and central Brazil, where it grows in mixed moist forest, rocky outcrops, sandy areas, and similar disturbed areas, at elevations of 0-1200 m.

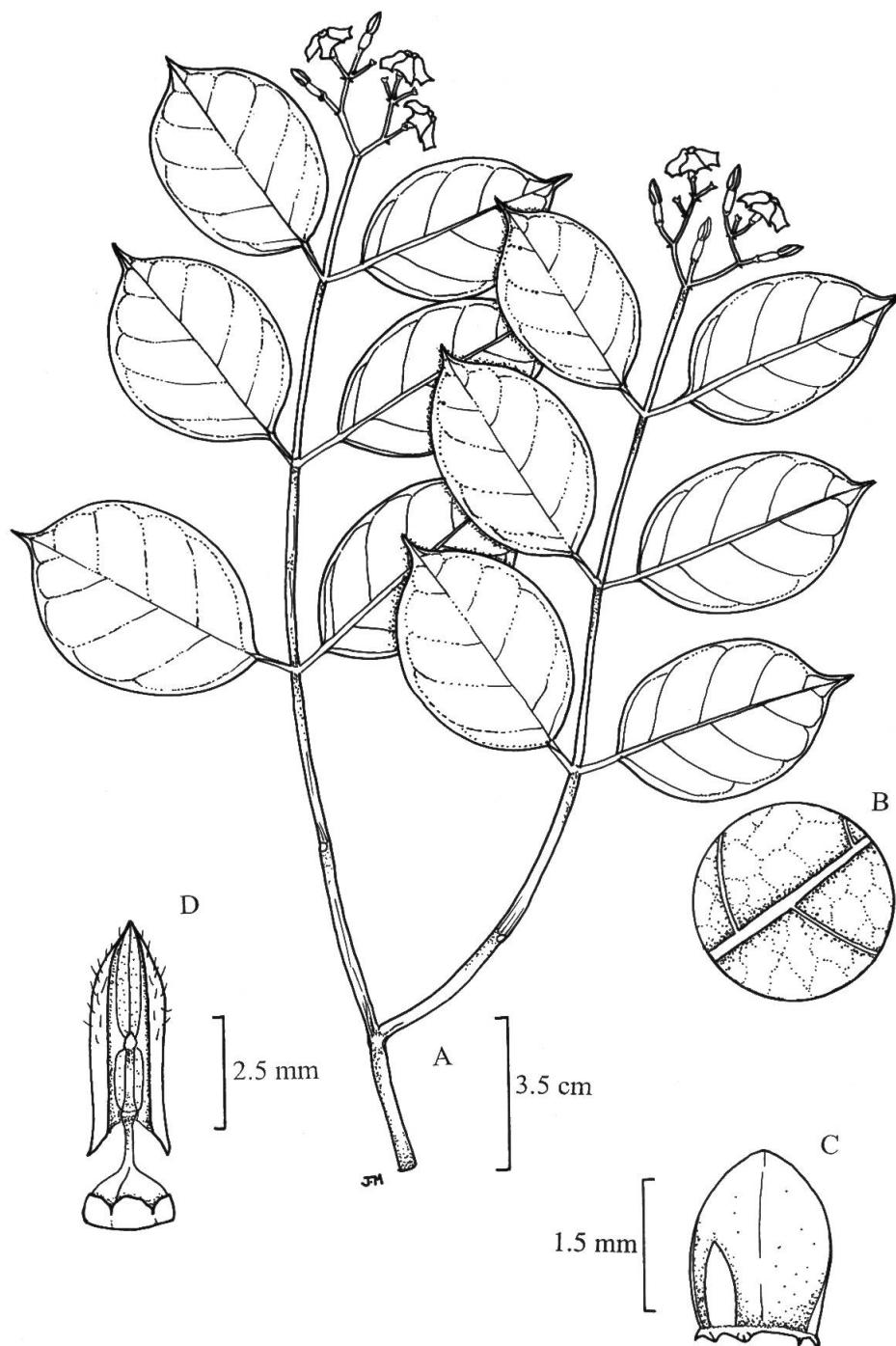


Fig. 4. – *Secondatia schlimiana* Müll. Arg. **A.** Flowering shoot. **B.** Close-up of the abaxially surface of the leaf blade. **C.** Sepal and colleters, adaxial view. **D.** Ovary, disk, style head, and anthers. [Schlim 510, NY] [Drawing by the author]

Phenology. – Flowering specimens have been collected from September through December. The only fruiting collection was collected in May. Several field notes report that the flowers are very fragrant when fresh (e.g., Guedes 639; Harley & al. 50336).

Local names. – Catuaba (Brazil, Ceará, Minas Gerais).

Secondatia floribunda is related to the widespread *S. densiflora*, which also has similar compact inflorescence structure, corolla shape, and anthers length. It is easily separated by the characters given in the key.

WOODSON (1936), who probably never saw the type, relegated *Angadenia pruinosa* Miers to synonymy under *Odontadenia lutea* (Vell.) Markgr. However, examination of the type collection (Gardner 2232) revealed that this name must be transferred to the synonymy of *Secondatia floribunda*.

Additional specimens examined. – **BRAZIL. Amazonas:** Manaus, road to Aleixo, 14.X.1941, Ducke 1199a (MO [in part]); São Paulo de Olivença, Rio Solimões, 19.VIII.1929, Ducke 22430 (K, P). **Bahia:** Argogim, along BR 242, 16.X.1997, Alves & al. 939 (INB, JPB); Morro do Chapéu, SE of America Dourada, 28.XI.1992, Arbo & al. 5352 (CTES, K [2 sheets]); Rio Pardo, Encruzilhada, 24.V.1968 (st), Belém 3633 (NY); exact locality lacking, 1856, Blanchet s. n. (G); Morro do Chapéu, Cachoeira do ferro Doido, 27.IV.1999 (fl), Forzza & al. 1379 (CEPEC, NY); Abaíra, Engenho-Márques road, 26.IX.1992, Ganev 1200 (HUEFS, NY); Piata, Abaíra, Samambaia, near Salao, Catolés-Barra do Catolés road, 19.X.1992, Ganev 1268 (NY); Rio de Contas, Pico das Almas, 28.X.1988, Harley & al. 25716 (CEPEC, F, K, NY, SPF, WAG); Barra do Estiva, road to Triunfo do Sincorá, 17.XI.1988, Harley & al. 26487 (K, MO, NY, P, SPF); Abaíra, around Catolés, 24.XII.1991, Harley & al. 50336 (CEPEC, HUEFS, K, MO, NY, SPF); Piatâ, al O de Barreiras, 9.X.1981 (fl), Hatschbach 44109 (MBM, NY, US, Z); Maracás, Gameleira, 21.XI.1985, Hatschbach & Silva 50048 (K, MBM, MO); Abaíra, around Catolés, 19.XII.1991, Hind & Queiroz 50016 (CEPEC, HUEFS, K, MO, NY [2 sheets], SPF). **Ceará:** Serra do Araripe, 12.XI.1976, Bogner 1190 (K); Chapada do Araripe, Crato, 3.IX.1980, Fernández & Matos s. n. (EAC, MO); between Oeiras and Simplicio Mendes, 17.XI.1981, Fernández & Nunes s. n. (EAC, MO); Serra do Araripe, 26.V.1957, Guedes 359 (IAN, MO), 13.IX.1957, Guedes 639 (NY, US); Capoeira between Itaueiras and Floriano, 19.XI.1979, Nunes & Martins s. n. (EAC, MO). **Ceará:** Serra de Araripe, 13.IX.1957, Ducke s. n. (NY). **Minas Gerais:** Bello Horizonte, Serra do Taquaril, 23.X.1936, Barreto 5077 (F, PAMG); Bello Horizonte, Penha de França, 23.XI.1937, Barreto 9979 (F, INB, PAMG); between Lagoa do Cercado and São Jose de Mato Sinko, 23.X.1895, Glaziou 21720 (G, K, P [3 sheets]); Jequitinhonha and Serra da Areia, 20.X.1988, Harley & al. 25280 (K, MO, P); Dionísio, 23.XI.1976, Heringer 16042 (NY, UB, US); O de Montes Claros, road to Agua Boa, 25.II.1969, Irwin & al. 23889 (NY); Capoéria da Chapada, near Divisopolis, 12.XI.1959, Magalhães 15646 (MO, RB); Araçauá, Jequitinhonha, 13.IX.1959, Magalhães 15647 (MO); Viçosa, 11.X.1930, Mexia 5163a (F, MO, VIC); Fazenda do Jose Alexandre, 20.XI.1930, Mexia 5334a (BM, G, MO, NY, US, VIC); Lagoa Santa, X.1864, Warming s. n. (C, NY, W). **Rio de Janeiro:** Serra do Estrella, 18.IV.1882, Glaziou 12941 (G, K, P [3 sheets]). **S. loc., s. d.:** (fl), Claussen s. n. (NY, W); 1846, Pohl s. n. (NY, W); (fl), Regel s. n. (CGE); (fl), Riedel s. n. (CGE, P); (st), Ule s. n. (HBG).

4. *Secondatia schlimiana* Müll. Arg. in Linnaea 30: 416. 1860.

Type: COLOMBIA. Santander del Norte: Ocana, V.1846-1852 (fl), *L. Schlim* 510 (holo-: G-DC!; iso-: BM!, BR!, F!, G!, photo F neg. 26883, G-BOIS [2 sheets]!, K!, NY!, P!, US!).

Liana; branchlets terete to subterete, minutely and inconspicuously puberulent when young, glabrous or glabrate at maturity. Leaves: blade (3.6-) 4.2-8 × 1.8-5 cm, elliptic to ovate-elliptic, firmly membranaceous, cuspidate apically, obtuse to rounded basally, glabrous, tertiary veins conspicuously impressed, petiole (5-) 8-14 mm. Inflorescence terminal, subterminal, or axillary, densely agglomerate, inconspicuously and minutely puberulent to glabrous or glabrate, conspicuously bracteate, peduncle (5-) 8-38 mm long, pedicels 0.2-7 mm, bracts 1-2 × 1 mm, scarious; sepals 1.5-2 × 1.5 mm, ovate, acute to obtuse, glabrous to glabrate; corolla salverform, white, glabrous to glabrate (except the lobes base); tube 7-9 × 2-2.5 mm, very minutely and moderately to densely puberulent within, lobes 9-12 × 6-8 mm, narrowly obovate, densely pubescent basally, near the corolla mouth; stamens inserted near the base of the tube, anthers 4-4.5 mm, densely to sparsely puberulent dorsally, style head 1.5-2 mm, with a short style, 1.5-2 mm; ovary ca. 1 mm long, glabrous, disk shorter or equalling the ovary, 5-lobed. Follicles unknown.

Distribution, habitat, and ecology. – This species is known disjunctly in southern Colombia and northern Brazil, in wet forest and disturbed vegetation at 100-400 m elevation.

Phenology. – Flowering specimens have been collected in March, April, May, and October.

Secondatia schlimiana is somewhat related to *S. densiflora*, from which it is easily distinguished by its longer corolla lobes. AZAMBUJA (1946) described the fruits of this species based on one collection made in Amazonas, Brazil. However, a careful examination of this specimen (*Ducke 1199, RB, US*), revealed than the fruits are from a species of *Forsteronia* and they were wrongly attached to a flowering collection of *S. schlimiana* (in fact, the leaves of the fruiting branchlet have colleters at the base of the midrib, adaxially, a feature somewhat common in *Forsteronia*, but lacking in *Secondatia*). Therefore, the fruits remain unknown for this species.

Additional specimens examined. – COLOMBIA. Cesar: Valledupar, 17.III.1948, *Castañeda* 955 (MO). Magdalena: Baragona, E of Chiriguana, 9.IV.1958, *Fosberg* 39403 (US). Vaupés: Circasia, Río Vaupés, 9.X.1939, *Cuatre-casas* 7169 (COL, F, US). S. loc.: 1851-1857, *Triana* 687 (BM).

BRAZIL. Amazonas: Manaus, estrada do Aleixo, 14.X.1941, *Ducke 1199* (RB, US [in part, except fruits]).

Doubtful species

Secondatia macnabii (Urb.) Woodson in Ann. Missouri Bot. Gard. 19: 385. 1932. = *Orthechites macnabii* Urb., Symb. Antill. 6: 37. 1909. Type: JAMAICA. Liguanca, St. Andrews, s. d. (fl), *G. MacNab* s. n. (E).

Following the original description (mainly the style-head features), this species can not represent a *Secondatia*. Although the type has not yet been examined, by now I prefer to consider this taxon as a doubtful species.

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LITERATURE CITED

- AZAMBUJA, D. (1946). Retificação da diagnose genérica de *Secondatia* e apresentação de espécie nova para o Brasil. *Rodriguezia* 20: 9-14.
- ENDRESS, M. E. & P. BRUYNS (2000). A revised classification of the Apocynaceae s.l. *Bot. Rev. (Lancaster)* 66: 1-56.
- MORALES, J. F. (2002a). Studies in Neotropical Apocynaceae I: A revision of the genus *Laubertia*. *Rhodora* 104: 170-185.
- MORALES, J. F. (2002b). Studies in Neotropical Apocynaceae II: A revision of the genus *Fernaldia*. *Rhodora* 104: 186-200.
- WOODSON, R. E. (1935). Studies in the Apocynaceae. IV. The American genera of Echitoideae: *Secondatia*. *Ann. Missouri Bot. Gard.* 22: 224-232.
- WOODSON, R. E. (1936). Studies in the Apocynaceae. IV. The American genera of Echitoideae. *Angadenia*. *Ann. Missouri Bot. Gard.* 23: 191-198.

APPENDICES

APPENDIX 1: NUMERICAL LIST OF ACCEPTED TAXA.

1. *Secondatia densiflora* A. DC.
2. *Secondatia duckei* Markgr.
3. *Secondatia floribunda* A. DC.
4. *Secondatia schlimiana* Müll. Arg.

APPENDIX 2: INDEX TO NAMES IN SYSTEMATIC TREATMENT

- Angadenia* Miers
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pruinosa Miers (3)
- Secondatia* A. DC.
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densiflora A. DC.
peruviana Poepp. (1)
densiflora var. *parviflora* Müll. Arg. (1)
densiflora var. *paraguariensis* Hassl. (1)
densiflora var. *genuina* Hassl. (1)
duckei Markgr.
floribunda A. DC.
foliosa A. DC. (3)
foliosa var. *gardneri* A. DC. (3)
foliosa var. *petiolaris* Müll. Arg. (3)
foliosa var. *lanceolata* Müll. Arg. (3)
schlimiana Müll. Arg.

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