

TAXONOMIC TREATMENT

Aureliana sellowiana (Sendtn.) Barboza & Stehmann, comb. nov. *Witheringia sellowiana* Sendtn., Fl. Bras. 10: 123. 1846. Brasília. Cubatão, *Sellow s. n.* (holotype: B, destroyed; lectotype [designed here]: P! ex B). Epitype (designed here): BRAZIL. São Paulo: Mun. São Paulo (Parelheiros), a 300 m de la Estrada Ponte Seca rumbo a Marsilac, 23°53'52"S, 46°43'31"W, 605 m, 15 Apr 2008 (fl, fr), G. E. Barboza, M. V. Romero and G. Bertone 2024 (SP!; isoeotypes: BHCBI, CORD!).

Small tree, 3.5–7 m tall, glabrous. Stems dichotomous distally, gray, longitudinally striate, glabrous or with rare dendritic trichomes at the top of foliar buds, the foliar scars rounded, prominent, end of twigs drying blackish. Leaves solitary or in clusters at the top, coriaceous, slightly discolorous, narrowly oblanceolate, sometimes elliptic or oblong, glabrous and somewhat shining on both sides, the margin entire and slightly revolute, the apex acute or acuminate, sometimes falcate, the base attenuate, somewhat decurrent, (4–) 7.3–18.5 × (0.9–) 1.3–2.6 cm, 4.5–7.5 times longer than wide, the venation brochidodromous, the adaxial surface with impressed midrib, abaxially with prominent midrib and drying darker than the upper surface; petioles (0.7–) 1.1–2.5 cm, slightly alate, dark at the base. Inflorescence in terminal or subterminal cymes, sessile, 1–3-florous; pedicels slightly curved, oblique to deflexed, 2.5–2.8 (–3.3) cm, glabrous or with dendritic trichomes at the base. Flower buds ovoid, green, glabrous or with whitish, appressed dendritic or simple trichomes. Calyx green, campanulate or campanulate-rotate, 4–5 mm, 5-lobed, the lobes inconspicuous, obtuse, thick, ca. 0.5 mm, being apparently longer and wider by splitting of the calyx tube, with short glandular trichomes (stalk 2–3-celled, the head multicelled) inside, glabrous outside except for the short sparse dendritic trichomes on the apex. Corolla rotate, fleshy and thick, 15–17.2 mm long, ca. 20 mm diam, lobed nearly to the base, white outside with green spots on the lobes, greenish cream with dark violet spots inside, the lobes 12–12.6 × 5–5.8 mm, elliptical, covered with glandular trichomes (stalk 4–9-celled, the head unicellular) inside and glabrous externally except on tips and the involute margins (nonglandular multicelled trichomes), the tip strongly cucullate. Stamens 5, equal, glabrous, 2–3 mm long, anthers oblong, subcaudate (2.7–) 3–3.2 mm long; stapes ca. 1.4 mm tall. Gynoecium with stylar heteromorphism; ovary subglobose, greenish, glabrous, 2 mm tall; nectary yellowish; style clavate, slightly curved, whitish, long style 5.2–5.5 (–6) mm, short style 4.5–4.8 mm; stigma somewhat dilatate, bilobulate, green. Berry globose to subovoid, glabrous, 18–22 mm, green when immature, yellowish at maturity; persistent calyx not accrescent; fruiting pedicels pendent, enlarged at the apex, 3–4 cm long, the pericarp and placenta producing projections into the locule, lacking stone cells. Seeds up to 60 per fruit, yellowish to brownish, discoidal, (3–) 3.2–3.8 × 2.7–3 mm, the testa thick, foveolate; embryo curved. Figure 1A–L.

Phenology—Flowering and fruiting specimens have been collected from December to April.

Distribution and Habitat—Endemic to southeastern São Paulo state, Brazil, in a restricted area of the Atlantic Forest on the Serra do Mar, between 650–1,100 m. It commonly grows mostly in the montane tropical rainforest in stony soils.

Additional Material Examined—Parque Estadual da Serra do Mar, Núcleo Curucutu, 23°59'16"S, 46°44'0"W, trilha para rio Embu-Guaçu,

19 Dec 1996 (fl, imm. fr), *Garcia et al.* 956 (UEC); same locality, 13 Dec 1997 (fl, fr), *Garcia et al.* 1424 (PMS); Curucutu, 31 Mar 1950 (imm. fr), *Pires and Kuhlmann* 2831 (SP); Cunha, Parque Estadual da Serra do Mar, 30 Mar 1994 (imm. fr), *Baitello* 551 (UEC); Reserva Florestal Estadual de Cunha, margem do Rio Bonito, 11/12 Feb 1981 (imm. fr), *Kubitzki et al.* 81–14 (SP); Núcleo Cunha, trilha do Rio Bonito, 23°13'28"S, 45°02'53" W, 1,100 m, 19 Mar 1996 (fr), *Costa et al.* 203 (BHC); Parelheiros, sítio à esquerda na estrada Eng. Marsilac, sentido Eng. Marsilac, 23°53'46"S, 46°43'40"W, 14 Feb 1995 (fl), *Godoy et al.* 379 (HRCB, UEC).

Karyology—Figure 2 A shows one of the metaphase figures observed. Mitotic chromosomes of *A. sellowiana* are medium-sized (Fig. 2 A, B; Table 1), with an average chromosome length of $c = 5.34 \pm 0.78 \mu\text{m}$. Small spherical satellites whose diameter is equal to, or less than one-half of, the chromosome diameter, are attached to the short arms of a metacentric chromosome pair. The resulting karyotype formula is $9 m^* + 3 sm$, and the karyotype obtained, slightly asymmetrical, is represented by an idiogram calculated from the mean values (Fig. 2 B). The asymmetry indices of Romero Zarco (1986) are $A_1 = 0.25$ and $A_2 = 0.14$, the $tl = 64.08 \pm 9.37 \mu\text{m}$ and the $R = 1.42$.

DISCUSSION

Neither the photograph of the destroyed holotype nor the fragments at P provide conclusive data to decide the real identity of this specimen. The statement that the anthers of *W. sellowiana* are poricide-longitudinal caused this species to be confused with *Solanum* (Hunziker 1969; Sousa-Peña 2001), so it has been overlooked until now. The diagnosis offers other morphological characters such as the presence of sessile multiflowered cymes, which strongly suggests that it does not belong in *Solanum*. In addition, the lobed fruiting calyx of *W. sellowiana* does not fit with any other *Witheringia*, a genus growing from Mexico to Bolivia (Hunziker 2001; Sousa-Peña 2001), but is similar to that of some genera from Brazil: *Athenaea* Sendtn., *Aureliana* Sendtn., *Acnistus* Schoot, *Vassobia* Rusby, or *Solanum* L. The nonaccrescent calyx observed in the photograph at F excludes *Athenaea* (cfr. Barboza and Hunziker 1989) but not *Aureliana*, *Acnistus*, or *Vassobia*.

The materials collected in flower allowed us to elucidate the disposition of this taxon. Anther dehiscence is strictly longitudinal (Fig. 1 E) and not poricide-longitudinal as it was described; this feature and the presence of a nectary at the ovary base (Fig. 1 I, J) exclude this species from *Solanum*. Stylar heteromorphism (Fig. 1 I, J), the expansion of the filaments functionally related to nectar conduction from the disc to the place of presentation (Fig. 1 E), and the projections of pericarp and placenta into the locule forming a cell-like hollow where seeds are located (Fig. 1 C), common traits in *Aureliana* (Hunziker and Barboza 1990; Hunziker 2001) and clearly observed in the studied material, are sufficient characters for us to conclude that *W. sellowiana* belongs to *Aureliana*.

The most striking characters of this species are its coriaceous, oblanceolate, and generally glabrous leaves, the fleshy and large corolla, and the long pedicels. The corolla with purple spots inside separated by the venation (Fig. 1 E), the few-flowered inflorescences (not more than three flowers), and the presence of dendritic trichomes in the apical shoots (Fig. 1 G) are other distinguishable features shared only with *A. tomentosa*. *Aureliana sellowiana* is also related to *A. fasciculata* Sendtn. var. *fasciculata* in leaf features (texture and pubescence) differing by its fleshy and thick corolla (vs. membranous and thin corolla), the absence of greenish spots inside the corolla, and the leaf shape (oblanceolate vs. elliptic to ovate).

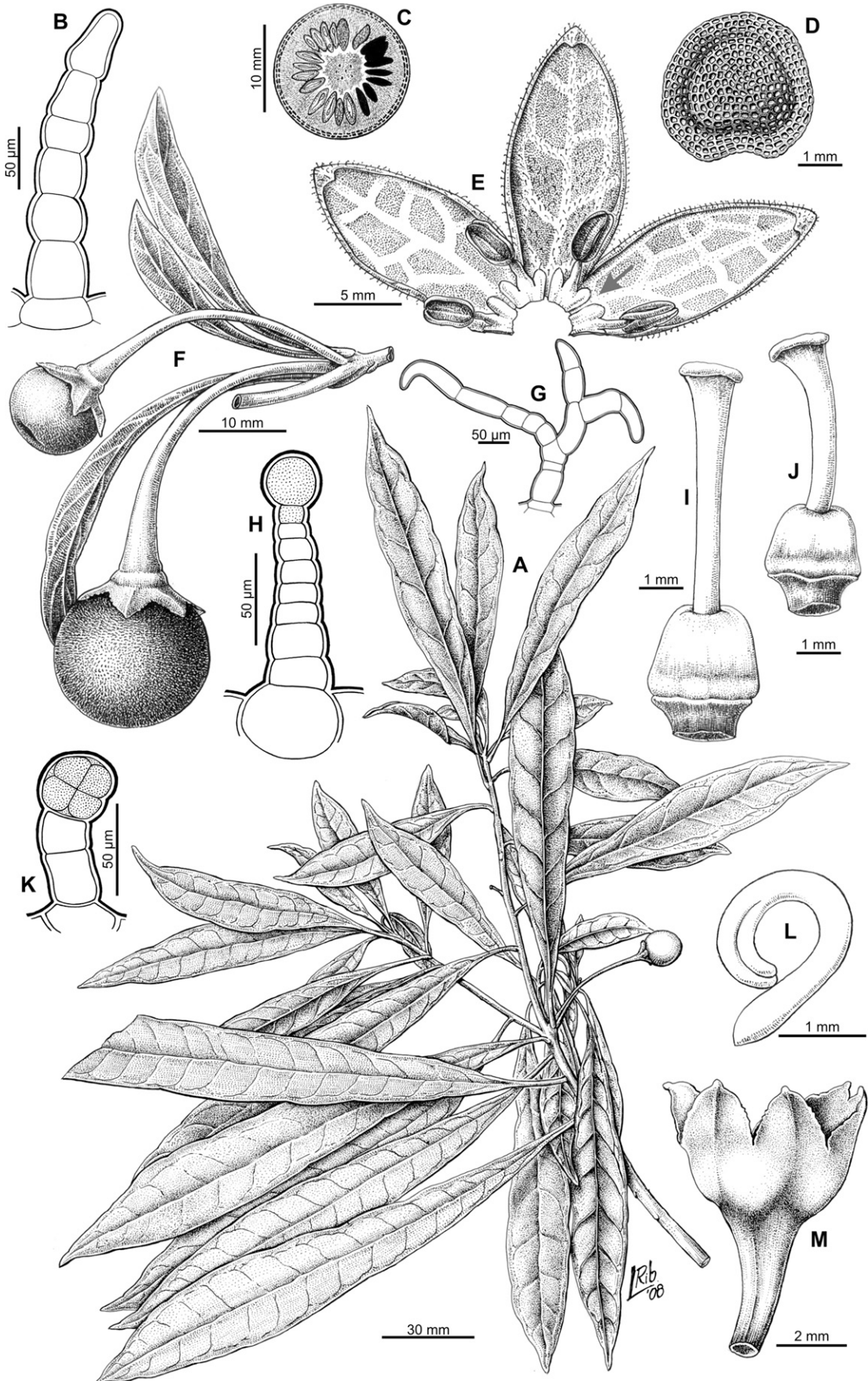


FIG. 1. *Aureliana sellowiana*. A. Branch. B. Nonglandular trichome of the corolla margins. C. Fruit in cross section. D. Seed. E. Corolla in longitudinal section showing the androecium. F. Fruiting branch. G. Dendritic trichome. H. Glandular trichome of the corolla interior. I, J: Gynoecium long- and short-styled respectively. K. Glandular trichome of the calyx interior. L. Embryo. M. Calyx (based on Barboza et al. 2024).

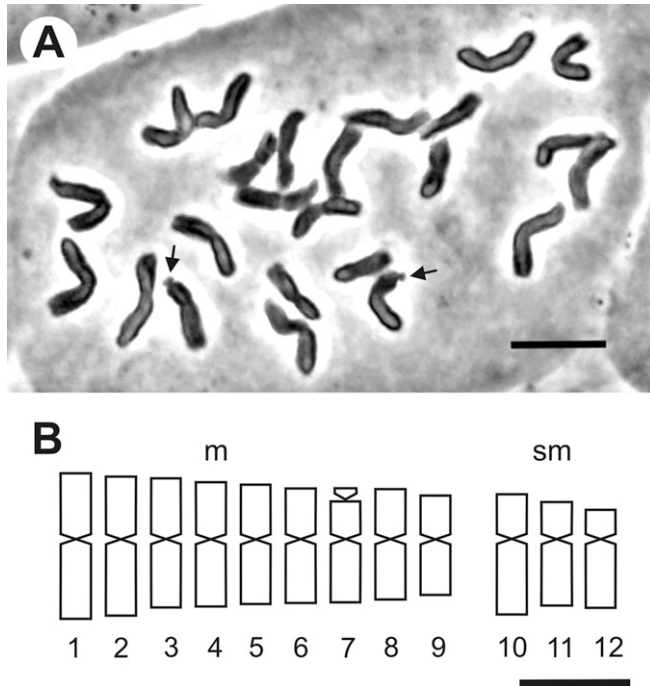


FIG. 2. A. Photomicrograph of a mitotic metaphase of *A. sellowiana*. Arrows indicate satellites, scale bar 5 µm. B. Idiogram based on mean values, scale bar 5 µm (From plant grown from seeds from Barboza et al. 2024). Abbreviations: m = metacentric chromosome; sm = submetacentric chromosome

In contrast to the habitat of *Aureliana velutina* which grows in drier areas (Hunziker and Barboza 1990), *A. sellowiana* inhabits the margin and interior of the wet and shady tropical forest at the Atlantic Forest. *Aureliana sellowiana* (São Paulo), *A. darcy* (Rio de Janeiro), and *A. angustifolia* (Espírito Santo and Minas Gerais) are the only species in the genus restricted in distribution in Brazil (Carvalho and Bovini 1995; Almeida-Lafetá 2000). Up to now, *A. sellowiana* has been collected nine times in areas confined to the Núcleos Curucutu and Cunha in the Parque Estadual da Serra do Mar (Cunha), and in the Área de Proteção Ambiental Capivari-Monos (Engenheiro Marsilac, a district of São Paulo). Considering the IUCN (2001) criteria for threatened species, it would be designated as an endangered species due to its geographical range known to exist at no more than five localities, as is also the case of *A. darcy* and *A. angustifolia*. Fortunately, *A. sellowiana* grows in

TABLE 1. Measurements of somatic chromosomes of *Aureliana sellowiana*. Abbreviations: s = short arm length; l = long arm length; c = chromosome length; sd = standard deviation; * = Chromosome pair with satellite, R = arm ratio.

Pair No.	s ± sd	l ± sd	c ± sd	R
1	2.98 ± 0.52	3.61 ± 0.58	6.59 ± 1.04	1.22
2	2.83 ± 0.49	3.46 ± 0.51	6.29 ± 0.94	1.24
3	2.75 ± 0.53	3.09 ± 0.49	5.85 ± 1.01	1.14
4	2.58 ± 0.48	3.05 ± 0.49	5.63 ± 0.92	1.20
5	2.47 ± 0.37	2.94 ± 0.51	5.40 ± 0.82	1.20
6	2.29 ± 0.39	2.89 ± 0.56	5.18 ± 0.88	1.27
7*	2.21 ± 0.45	2.86 ± 0.61	5.07 ± 0.94	1.31
8	2.26 ± 0.45	2.73 ± 0.39	5.00 ± 0.76	1.24
9	1.97 ± 0.35	2.53 ± 0.51	4.50 ± 0.79	1.30
10	2.03 ± 0.42	3.41 ± 0.37	5.44 ± 0.74	1.72
11	1.68 ± 0.25	3.01 ± 0.48	4.69 ± 0.71	1.81
12	1.33 ± 0.21	3.11 ± 0.63	4.44 ± 0.79	2.37

areas where natural resources are regulated (Área de Proteção Ambiental) which indicate that it probably has a chance to survive in the wild.

In the last taxonomic revision of *Aureliana* (Hunziker and Barboza 1990), five species (*A. fasciculata* with three varieties) were accepted; afterwards, two new species were added from Brazil, *A. darcy* (Carvalho and Bovini 1995) and *A. angustifolia* (Almeida-Lafetá 2000). Unfortunately, none of these species have chromosome counts, despite the relevance that chromosome numbers have in the understanding of evolutionary patterns and processes of any genus. Thus, this is the first chromosome number report in the genus *Aureliana*. The $2n = 24$ (and consequently $x = 12$) is typical of the subfamily Solanoideae, in which the genus is placed (Hunziker 2001; Olmstead and Bohs 2007; Olmstead et al. 2008), and is the commonest base number in the family. The chromosomes of *A. sellowiana* are intermediate in size, relative to those of other genera of Solanaceae (Badr et al. 1997). The karyotype asymmetry is also intermediate in the context of the whole family, since in a general survey of the Solanaceae, Badr et al. (1997) reported values of r ranging from 1.17–2.78. In fact, *A. sellowiana* has submetacentric chromosomes, that are relatively unusual in the Solanaceae (Chiarini and Bernardello 2006; Chiarini and Barboza 2008). Studies involving more species and different cytological techniques are necessary to discuss the position of *Aureliana* within the subclade Withaninae (sensu Olmstead and Bohs 2007; Olmstead et al. 2008) or within the tribe Capsicinae (sensu Hunziker 2001).

KEY TO THE SPECIES OF AURELIANA

The following analytical key includes all known species of *Aureliana* with additional information on the geographic distribution of the species. Intraspecific taxa of *A. fasciculata* are not treated here.

1. Corolla white with greenish spots in the lobes and limb inside (some populations of *A. fasciculata* var. *longifolia* also have brownish spots). Apical shoots glabrous or with simple trichomes 2
2. Calyx lobes not tearing. Filaments shorter than the anthers. Indumentum antrorse. Eastern and southeastern Brazil (Bahia, Minas Gerais, Rio de Janeiro, Espírito Santo, São Paulo, Paraná) *A. brasiliana* (Hunz.) Barboza & Hunz.
2. Calyx lobes tearing at anthesis. Filaments longer than the anthers (sometimes as long as the anthers in *A. fasciculata*). Glabrous or indumentum patent or oblique 3
3. Calyx lobes long-acuminate to caudate 4
4. Inflorescence with 2–4 flowers. Calyx pubescent. Fruit ovoid. Southeastern Brazil (São Paulo, Paraná, Santa Catarina, Rio Grande do Sul) *A. wetsteiniana* (Witasek) Hunz. & Barboza
4. Inflorescence with 4–12 flowers. Calyx glabrous. Fruit globose. Eastern Brazil (Rio de Janeiro) *A. darcy* Carvalho & Bovini
3. Calyx lobes triangular 5
5. Calyx lobes unequal, 2–3.2 mm long. Anthers broadly elliptical. Inflorescence generally with up to 26 flowers. Plants densely velvety. Central Brazil (Bahia, Goiás, Minas Gerais) *A. velutina* Sendtn.

