

## Synopsis of the Brazilian orchid genus *Grobya*, with the description of two new species

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The orchid genus *Grobya* Lindl. currently contains three species found in southern and south-eastern Brazil: *G. amherstiae* Lindl. (type species), *G. fascifera* Rchb.f. and *G. galeata* Lindl. While studying living plants cultivated at the orchid collection of the Institute of Botany of São Paulo, the authors discovered two distinctive new species: ***Grobya guieselii* sp. nov.** comes from the Atlantic forest in the state of Santa Catarina (southern Brazil), while ***Grobya cipoensis* sp. nov.** comes from the highland vegetation known as ‘campos rupestres’ (rocky fields) in the state of Minas Gerais (south-eastern Brazil), where it grows as an epiphyte only on *Vellozia gigantea* N.L. Menezes & Mello-Silva (Velloziaceae). A synopsis of the genus and description of the two new species are presented here. © 2004 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2004, 145, 119–127.

ADDITIONAL KEYWORDS: Atlantic forest – Orchidaceae – Serra do Cipó – taxonomy.

### INTRODUCTION

*Grobya* is a small orchid genus that belongs to subtribe Cyrtopodiinae according to the classification proposed by Dressler (1993). It was established by Lindley (1835) based on *G. amherstiae* Lindl. Two other species were later described during the 19th century: *G. galeata* Lindl. (Lindley, 1840) and *G. fascifera* Rchb.f. (Reichenbach, 1886). A fourth species was described during the 20th century by Hoehne (1934) as *G. bibrachiata* Hoehne, but was considered as a synonym of *G. galeata* by Pabst (1960), and later, as a synonym of *G. fascifera* (Pabst, 1966). Pabst (1956) described a new variety: *G. bibrachiata* var. *riograndensis* Pabst, which differed from the typical variety only by the absence of two antenna-like appendices at the base of the column. He later considered this a synonym of *G. galeata*, and *G. bibrachiata* a form of *G. fascifera* (Pabst, 1966).

*Grobya* currently contains three species: *G. amherstiae*, *G. galeata* and *G. fascifera*, all known to occur only in southern and south-eastern Brazil. During the 1980s and 1990s, two interesting and distinctive plants of *Grobya* were introduced into the orchid collection at the Botanical Institute of São Paulo, Brazil. One came from the state of Santa Catarina (southern Brazil), the other from the mountain-

ous regions of the state of Minas Gerais (south-eastern Brazil); both are still in cultivation. While the first is closely related to *G. fascifera* and the second to *G. amherstiae*, there are important differences, as discussed below. Both are new species, established here, respectively, as *Grobya guieselii* F. Barros & R. Lourenço and *Grobya cipoensis* F. Barros & R. Lourenço.

A synopsis and a taxonomic key for all species of *Grobya* are presented below.

### TAXONOMY OF GROBYA LINDL.

*Grobya* Lindl., Bot. Reg. 20: t. 1740. 1835.

HERB epiphytic, sympodial. PSEUDOBULBS homoblastic, rounded to ovoid. LEAVES conduplicate, linear, with 1–3 prominent veins in the abaxial surface, base sheathing. INFLORESCENCE a lateral arcuate to suberect raceme; scape with numerous bracts, the basal ones tubular, the apical ones laminar, the floral bracts smaller, lanceolate. FLOWERS generally yellow to pale yellow with brownish dots; dorsal sepal free, concave; lateral sepals fused at the base, recurved and geniculate; petals broader than the sepals; lip trilobed; disc callose-verrucose or smooth; column semiterete, slightly curved, biauriculate with a short foot at the base; clinandrium truncate; pollinia 2, hard, sulcate; stipes fairly long, viscidium ovate.

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KEY TO THE SPECIES OF *GROBYA*

1. Lip trilobed near the apex, the median lobe small, disc without a callus
  2. Sepals with an acute to acuminate apex; lateral lobes of the lip making an acute angle with the median lobe; lateral sepals long and narrow (18–20 × 4–7 mm) . . . . . 1. *G. amherstiae*
  - 2'. Sepals with an obtuse apex; lateral lobes of the lip making an obtuse angle with the median lobe; lateral sepals short and broad (12 × 9 mm). . . . . 2. *G. cipoensis*
- 1'. Lip trilobed near the middle; median lobe very conspicuous; disc with distinct calli
  3. Mid lobe of the lip ligulate . . . . . 3. *G. fascifera*
  - 3'. Mid lobe of the lip obtusulate to obtriangular
  4. Flowers small (petals c. 8–11 mm long, mid lobe of the lip c. 2–3 mm long) . . . . . 4. *G. galeata*
  - 4'. Flowers large (petals c. 14–16 mm long, mid lobe of the lip c. 6 mm long) . . . . . 5. *G. guieselii*

1. *Grobya amherstiae* Lindl., Bot. Reg. 20: t. 1740. 1835 (Figs 1, 6)

PLANT c. 25–35 cm tall. PSEUDOBULBS ovoid, c. 2.7 × 2 cm, 5–6 leaved. LEAVES linear, recurved, c. 11.5–55 × 0.6–1.4 cm, apex acute, sometimes oblique, sheaths c. 3–8 cm long. INFLORESCENCE many-flowered, 1–2 per pseudobulb, suberect to arcuate, c. (7–)11–22 cm long; sterile bracts 4–5, 10–22 mm long; pedicel with ovary 5–10 mm long. FLOWERS mainly yellow; sepals yellow, the dorsal obovate-lanceolate to obovate with a narrow base, c. 19–24 × 4–6.5 mm, apex acuminate, the lateral ones obovate-lanceolate, asymmetrical, c. 18–20 × 4–7 mm when spread out, curve and revolute, apex acuminate, the base united up to 4 mm; PETALS pale yellow with brown dots, widely obovate-spathulate to obovate-rhombic, 15–19 × 10–15 mm, margins subundulate, apex obtuse to subacuminate; lip trilobed near the apex, pale yellow with brown apex, 6.5–7.5 × 8–9.5 mm, lateral lobes rounded with a transverse lamina near the apical border, mid-lobe very small, c. 1–1.5 × 2–3 mm, obtriangular to depressed obovate, with seven longitudinal, densely papillose ridges; disc lacking distinct callus or warts; column white with brown ribs, curved, c. 7–9 mm long.

*Specimens examined*: BRAZIL: BAHIA: Abaíra, Frios, in the road Guarda-Mor to Frios, 13°20'S, 41°53'W, 11.iv.1994, W. Ganev 3071 (HUEFS); Abaíra, Catolés, Tijuquinho, Serra do Rey, 13°18'S, 41°55'W, 5.v.1992, W. Ganev 222 (HUEFS). ESPÍRITO SANTO: Domingos Martins, 2.iii.1970, R. A. Kautsky 244 (HB). MINAS GERAIS: Bom Jardim de Minas, 25.ii.1962, J. E. Saléh 70 (HB); Jaboticatubas, flowered under cultivation 21.iii.1991, H. D. Bicalho s.n. (SP 351688); Poços de Caldas, Morro do Ferro, 17.iii.1966, O. Roppa 712 (HB). RIO DE JANEIRO: Nova Friburgo, Catête, iv.1956, C. Vale 254 (HB); Itatiaia, 23.iii.1954, N. Welter 102 (HB); Rio de Janeiro, Tijuca, 23.viii.1950, G. Pabst s.n. (HB 684); Rodeio, P. Frontin Farm, ii.1943, without collector (HB 104); without locality, 29.iv.1972, L. Osiris s.n. (HB 58007); Road Cunha-Parati, flowered

in cultivation 21.iii.1991, H. J. Targa s.n. (SP 351690). SANTA CATARINA: Palhoça, Cambirela Hill, 5.iv.1972, A. Bresolin 546 (HB). SÃO PAULO: Campos do Jordão, flowered under cultivation 21.iii.1991, J. R. Mattos s.n. (SP 351689); Embú, 25.iv.1971, O. Handro 2165 (SPF); São Bernardo do Campo, Alto da Serra Biological Station, ii.1924, F. C. Hoehne s.n. (SP 9553); São Paulo, Botanical Garden, 16.iii.1940, O. Handro s.n. (SP 65053); Tapiraí, x.1997, R. M. Silva et al. 886 (SP).

*Grobya amherstiae* grows as an epiphyte in the shadow of wet forests, mainly in the Atlantic forest region, but reaching inland forests in the states of Minas Gerais and Bahia. It flowers mainly between February and May (end of summer to end of autumn in the southern Hemisphere).

2. *Grobya cipoensis* F. Barros & R. Lourenço **sp. nov.** (Figs 2, 6)

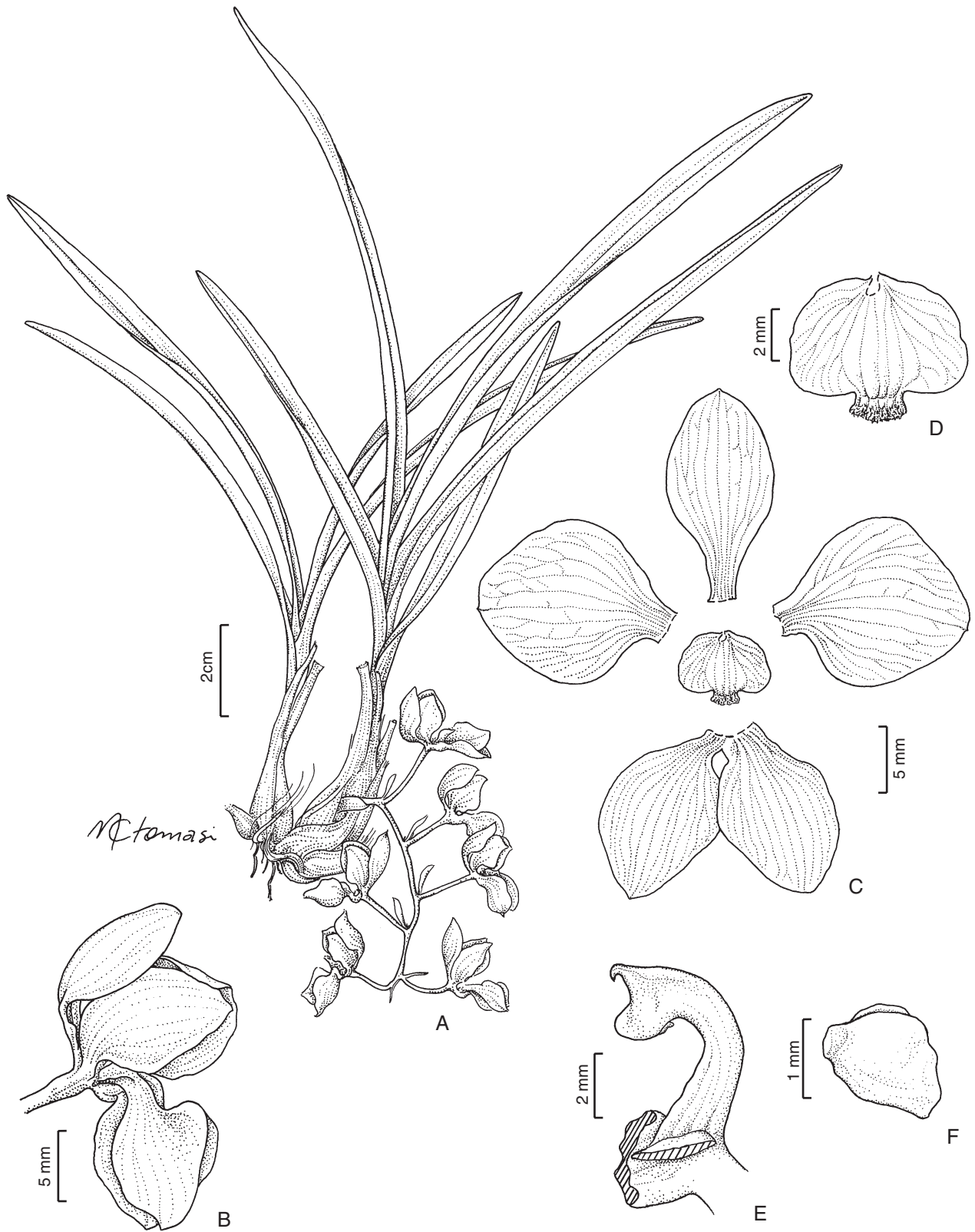
Species nova ad *G. amherstiae* similis, sed differt planta minore, floribus etiam minoribus, sepalis lateralibus late obovatis, lobo mediano labelli lobis lateralibusque angulo acuto formantibus.

*Type*: BRAZIL: MINAS GERAIS: Santana do Riacho, Serra do Cipó, km 123, 11.i.1999, R. C. Forzza et al. 1077 (holotype: SPF!); Santana do Riacho, Serra do Cipó, Alto do Palácio, flowered under cultivation i.1997, F. Barros s.n. (paratype: SP 351687!).

PLANT c. 20 cm tall. PSEUDOBULBS ovoid, c. 1–2 × 1 cm, 4-leaved. LEAVES linear, recurved, c. 11.5–19 × 0.4–0.7 cm, apex acute; sheaths c. 3.5 cm long. INFLORESCENCE a few-flowered raceme, one per pseudobulb, hanging to arcuate, c. 4–5.5 cm long; sterile bracts 2–3, c. 10 mm long; pedicel (with ovary) 10–15 mm long. FLOWERS yellow with brown dots; sepals yellow, the dorsal concave, obovate-lanceolate, c. 10 × 8 mm, apex minutely acuminate, the lateral ones ovate with a narrower base, slightly asymmetrical, c. 12 × 9 mm, recurved and slightly revolute, apex obtuse, the base united up to



**Figure 1.** *Grobya amherstiae*. A, habit. B, floral dissection. C, midlobe of the lip (ventral view). D, midlobe of the lip (dorsal view). E, column (lateral view). F, apex of column (lateral view). G, column (ventral view), showing the dislodged anther cap. H, anther cap (ventral view).



**Figure 2.** *Grobya cipoensis* sp. nov. A, habit. B, flower (lateral view). C, floral dissection. D, lip. E, column (lateral view). F, anther cap (lateral view).



2 mm; petals yellow with brown dots, ovate with a narrower base, 10 × 11–12 mm, slightly concave, apex acute; lip trilobed, *c.* 7 × 5 mm, yellow, lateral lobes rounded, with a transverse laid lamina near the apical border, mid lobe very small, *c.* 1 × 2.5 mm, depressed-obovate, densely and minutely papillose inside; disc without distinct calli; column white with purplish-brown transverse lines, curved, *c.* 7 mm long.

*Etymology:* Named after the locality (the ‘Cipó’ range) where it was found.

*Notes:* In Portuguese ‘Cipó’ means liana, although the region is not characterized by the presence of lianas, but is open grassland with sparse shrubs. Until now, *G. cipoensis* has been found to be exclusively epiphytic on *Vellozia gigantea* N.L. Menezes & Mello-Silva (Velloziaceae).

3. *Grobys fascifera* Rchb.f., *Flora* 19: 551. 1886. (Figs 3, 6)

= *Grobys bibrachiata* Hoehne, *Bol. Agric. Estado São Paulo* 34: 625.1934.

= *Grobys bibrachiata* var. *riograndensis* Pabst, *Arq. Jard. Bot. (Rio de Janeiro)* 14: 22.1956.

= *Grobys galeata sensu* Kraenzl, *Kongl. Svenska Vetensk. Acad. Handl.* 46(10): 70.1911 (*non* Lindl., 1840).

PLANT *c.* 45 cm tall. PSEUDOBULBS ovate-subrounded, *c.* 3–4.5 × 2.5–4 cm, 6–7-leaved. LEAVES linear, recurved, 22–66 × 0.5–1 cm, apex acute to minutely bifid; sheaths 5.5–10 cm long. INFLORESCENCE many-flowered, 1–2 per pseudobulb, suberect to arcuate, *c.* 10–20 cm long; sterile bracts 3–5, 4–7 mm long; pedicel (with ovary) 6–9 mm long. FLOWERS small, sepals pale-yellow, the dorsal narrowly obovate-spatulate, *c.* 8–10 × 2–4 mm, apex rounded, the lateral ones oblong-obovate, asymmetrical, *c.* 11–12 × 3.5 mm, apex obtuse to shortly apiculate, the base united up to 2–3 mm; petals yellow with purplish-brown dots, obovate-spathulate, slightly asymmetrical, 7–9 × 5–6 mm, apex rounded to subtruncate; lip trilobed in the middle, *c.* 5 × 7.5 mm, lateral lobes oblong-ligulate, incurved, yellow with purplish-brown dots, *c.* 4 × 2 mm, apex subrounded to subtruncate, mid lobe ligulate with the apical half slightly broadened, apex rounded to subtruncate, *c.* 3 × 1.5 mm; disc distinctly callose and verrucose; column white with purplish-brown points, curved, *c.* 6 mm long.

*Specimens examined:* BRAZIL: RIO GRANDE DO SUL: Caí, Macaco Branco, 30.iii.1963, *S. A. Birck* 12 (HB); Ferrabraz, near São Leopoldo, iii.1927, *J. Dutra* 980 (HB); without locality, s.d., *J. E. Leite* 397 (SP). SANTA CATARINA: Santa Catarina Island, Costa da Lagoa, 31.iii.1955, *J. A. Rohr s.n.* (HB 2652); Florianópolis,

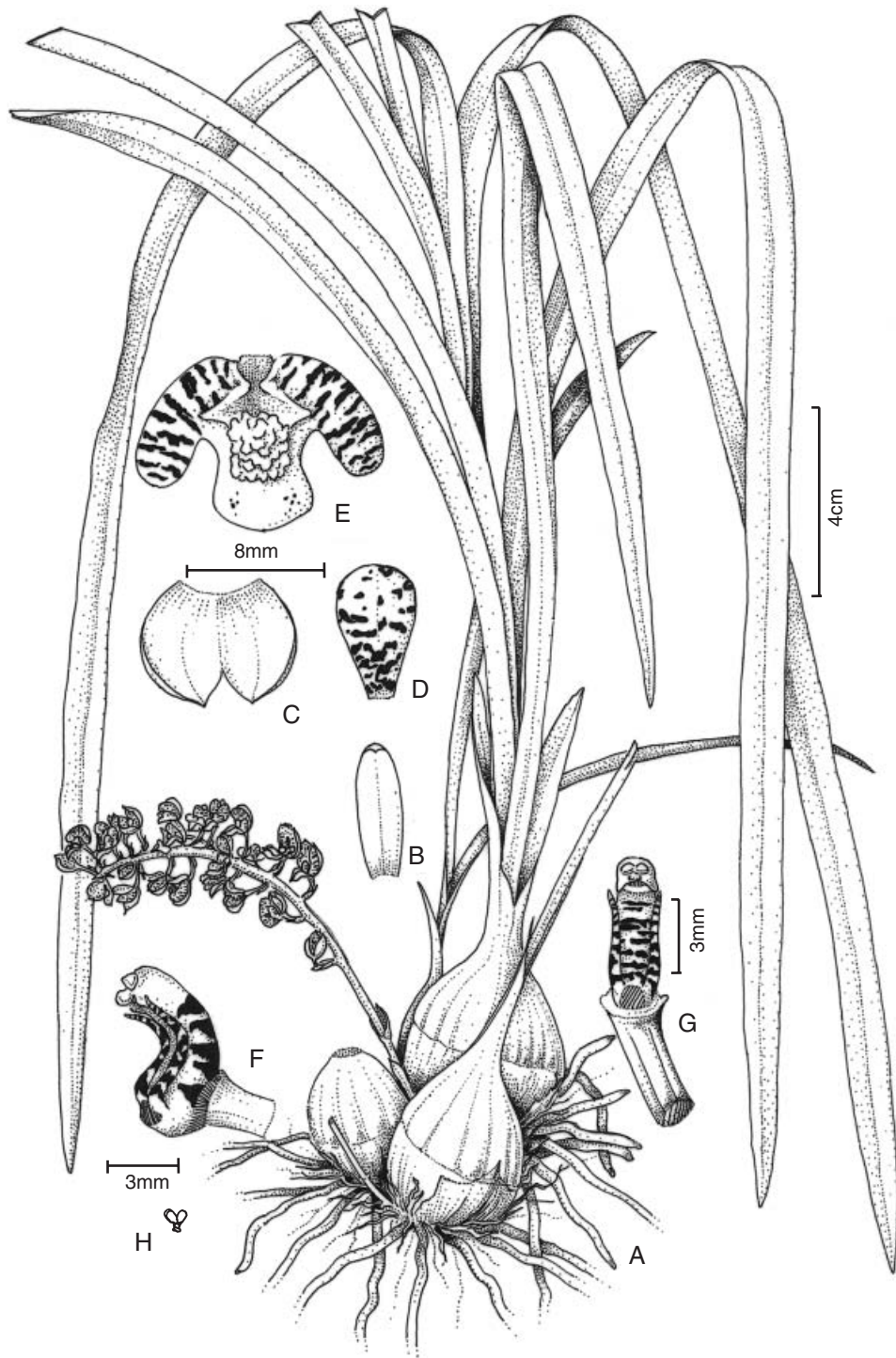
‘Ribeirão’ Hill, 14.iii.1968, *A. Bresolin* 12 (HB); Itajaí, ‘Macaco’ Hill, 12.iv.1953, *N. Welter* 65 (HB); Itajaí, Braço Joaqui, 22.iii.1956, *R. Reitz & R. M. Klein* 2891 (HB); Ilha de Santa Catarina, Sertão da Lagoa, 27.iii.1951, *J. A. Rohr* 2122 (HB); Palhoça, São Bonifácio, 12.iii.1954, *J. A. Rohr* 2256 (HB); São Francisco do Sul, Gassuva, 23.iii.1961, *R. Reitz & R. M. Klein* 10884 (HB). SÃO PAULO: Santo André, Paranapiacaba, Biological Station, 11.iv.1924, *F. C. Hoehne s.n.* (SP 14603); São Paulo, iv.1933, *F. Zoéga s.n.* (SP 30557, holotype of *G. bibrachiata* Hoehne !); São Paulo, Jabaquara, 8.iii.1914, *A. C. Brade* 7568 (HB).

*Grobys fascifera* grows as an epiphyte in the Atlantic forest, in southern and south-eastern Brazil. It flowers from March to April (end of summer to beginning of autumn).

4. *Grobys galeata* Lindl., *Bot. Reg.* 26 (misc.): 83. 1840. (Figs 4, 6)

PLANT *c.* 30 cm tall. PSEUDOBULBS ovoid-subglobose, *c.* 1.5–3.0 × 1.3–2.5 cm, 5–6-leaved. LEAVES linear, recurved, *c.* 21–62 × 0.5–0.9 cm, apex acute; sheaths *c.* 4.5–10.5 cm long. INFLORESCENCE many-flowered, 1–2 per pseudobulb, arcuate, *c.* 13–22.5 cm long; sterile bracts 5–6, 18–30 mm long; pedicel (with ovary) 9–12 mm long. FLOWERS yellow; sepals concave, the dorsal lanceolate to obovate-lanceolate, *c.* 9.5–12 × 3–3.5 mm, apex apiculate, the lateral ones oblong-obovate, asymmetrical, *c.* 7–10 × 3.5–4 mm, fused up to 3 mm from the base, apex apiculate; petals yellow with brown dots, obovate, 8–11 × 4.5–6.5 mm, apex rounded; lip trilobed in the middle, lateral lobes oblong-curved, apex obtuse, 4.5–5 × 1.5–2 mm, mid lobe subtriangular to obtusulate, 2–3 × 3–4.5 mm; disc with four digitiform calli and many warps; column white, curved, *c.* 5–7 mm long.

*Specimens examined:* BRAZIL: PARANÁ: Guaratuba, Serra de Araçatuba, ‘Perdidos’ Hill, 04.iv.1998, *E. P. Santos & C. M. S. Coimbra* 484 (UPCB); Morretes, Pilão de Pedra, 7.v.1961, *G. Hatschbach* 8014 (HB); Morretes, Pico do Marumbi State Park, Facãozinho, 02.v.1999, *C. Giongo* 37 (SP, UFPR); Morretes, 20.iv.1998, *C. Giongo* 137 (SP, UFPR); Quatro Barras, Mãe Catira Hill, 25.v.1967, *G. Hatschbach* 16490 (HB); Quatro Barras, 26.iv.1991, *J. M. Silva & D. D. Guimarães* 1009 (HUEFS); without locality, Serra do Mar, iv.1958, *M. Leinig* 25 (HB); Ipiranga, Serra do Mar, 22.iv.1910, *R. Lange* MP3985 (HB). RIO DE JANEIRO: Itatiaia, Macieiras, s.d., *P. C. Porto* 1912 (HB, RB); Teresópolis, 16.iv.1972, *M. Emmerich* 3677 (HB, R). SANTA CATARINA: São Francisco do Sul, ‘Campo Alegre’ Hill, 24.iii.1961, *R. Reitz & R. M. Klein* 10929 (HB). SÃO PAULO: São José do Barreiro, v.1926, *F. C.*



*Grobya fascifera* RUTH S. CARVALHO

**Figure 3.** *Grobya fascifera*. A, habit. B, dorsal sepal. C, lateral sepals. D, petal. E, lip (frontal view). F, column (lateral view). G, column (ventral view). H, pollinarium (based on the original colour plate published by Hoehne, 1934. as *G. bibrachiata*).



**Figure 4.** *Grobya galeata*. A, habit. B, floral dissection (except lip). C, lip (frontal view). D, lip (lateral view). E, column (lateral view). F, apex of column (lateral view), showing dried anther and pollinarium. G, apex of column (frontal view), showing dried anther and pollinarium. H, apex of column (ventral view), showing dried anther and stigmatic cavity.

Hoehne & A. Gehrt s.n. (SP 17712); São José do Barreiro, Pedra Alta, 13.v.1999, L. Freitas 669 (UEC).

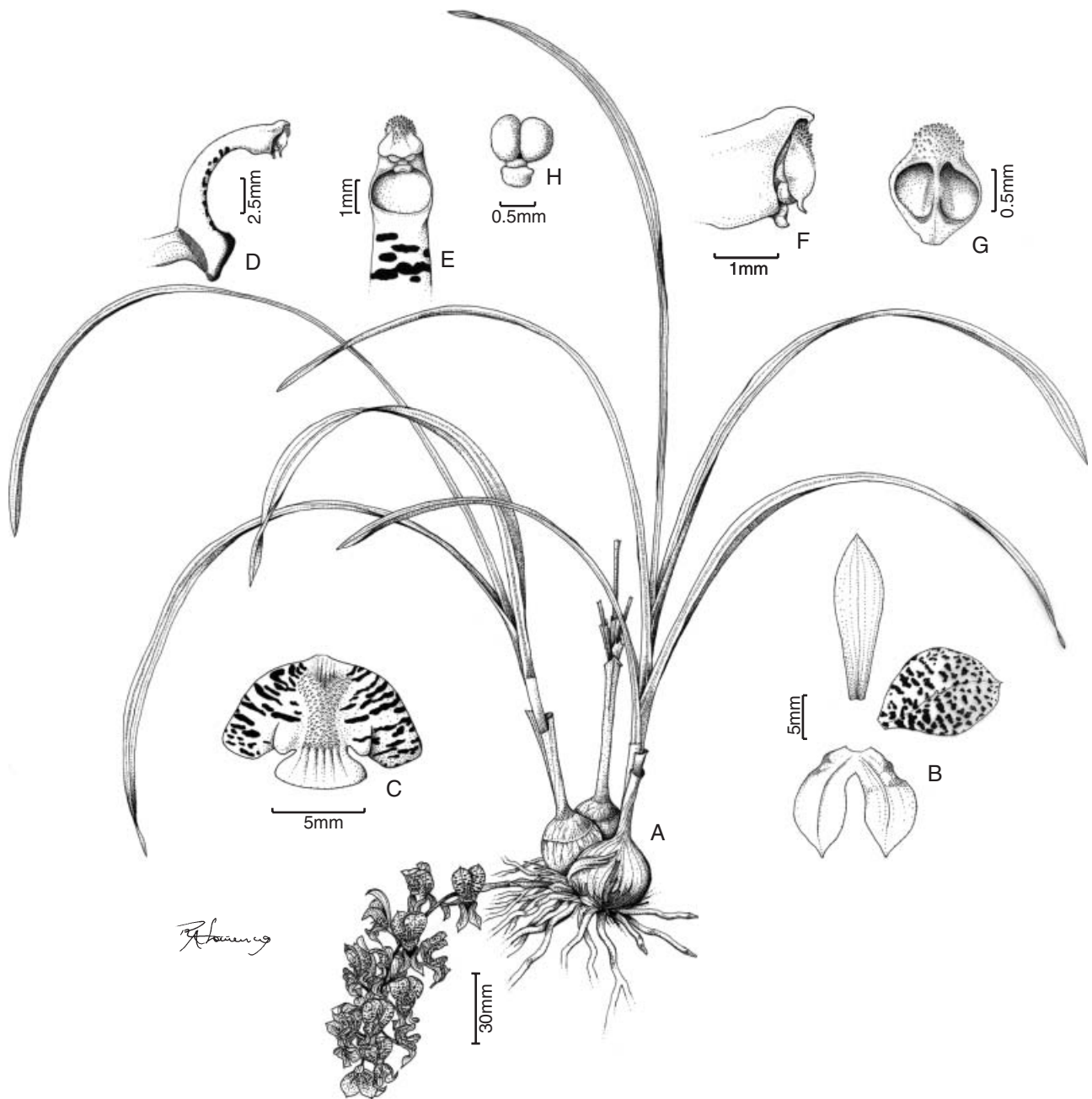
*Grobya galeata* is related to *G. fascifera* differing mainly regarding the shape of the midlobe of the lip. It is normally collected in the states of Santa Catarina, Paraná, São Paulo and Rio de Janeiro. It grows as an epiphyte in the Atlantic forest and flowers during the autumn, from March to May.

**5. *Grobya guieselii* F. Barros & R. Lourenço sp. nov.** (Figs 5, 6)

Species nova ad *G. galeatae* similis, sed floribus valde majoribus, inflorescentiis brevioribus congestioribusque differt.

*Type:* BRAZIL: SANTA CATARINA: Joinville, flowered under cultivation, 21.iii.1991, A. Guiesel s.n. (holotype: SP 351685!).



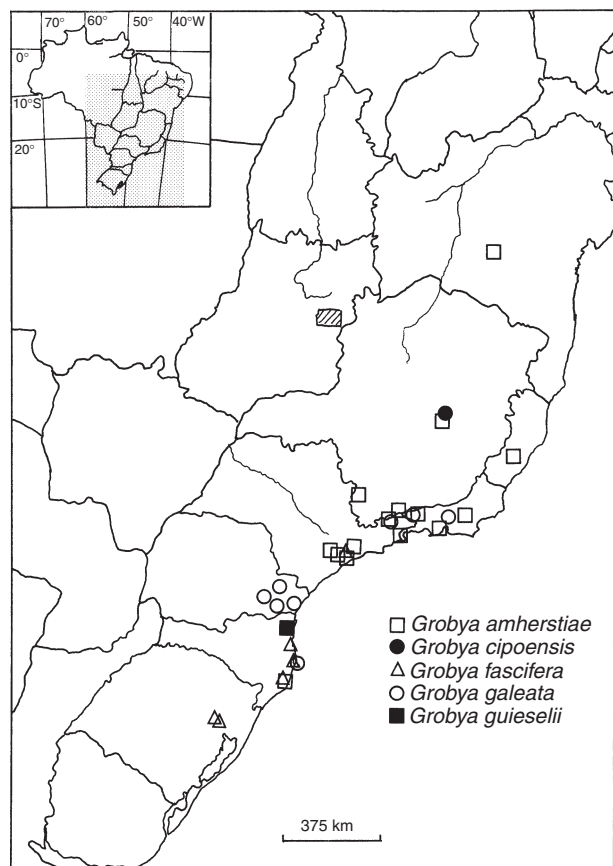


**Figure 5.** *Grobya guieselii* sp. nov. A, habit. B, floral dissection (except lip). C, lip. D, column (lateral view). E, apex of column (ventral view). F, apex of column (lateral view). G, anther cap (ventral view). H, pollinarium.

PLANT *c.* 27–61 cm tall. PSEUDOBU LBS ovoid, *c.* 3 × 1.8 cm, 6-leaved. LEAVES linear, recurved, *c.* 28–57 × 0.9–1.2 cm, apex acute; sheaths *c.* 5.5–7 cm long. INFLORESCENCE many-flowered, two per pseudobulb, suberect to arcuate, *c.* 17 cm long; sterile bracts 4–6, 14–25 mm long; pedicel (with ovary) 10–15 mm long. FLOWERS mainly yellow; sepals yellow, the dorsal concave, lanceolate, *c.* 17–19 × 4–5 mm, apex obtuse to

acuminate, the lateral ones obovate-lanceolate, asymmetrical, *c.* 13–15 × 6 mm, recurved and revolute, apex acute to acuminate, the base fused up to 4 mm; petals yellow with brown dots, obovate-spatulate, 14–16 × 9–10 mm, apex obtuse; lip trilobed near the middle, *c.* 6 × 10 mm, yellow with brown dots, lateral lobes asymmetrically oblong, apex subtruncate, mid lobe subobtrullate, *c.* 6 × 3 mm; disc orange with a distinct





**Figure 6.** Map showing distribution of the species of *Grobya*.

callus formed by 4 digitiform projections and a warty region upon the midlobe; column white, curved, c. 8 mm long.

*Etymology:* Named after the collector of the living plant from which the type specimen was prepared.

*Grobya guieselii* is similar to *G. galeata*, but has larger flowers, and a shorter and denser inflorescence. It is known only from cultivated plants coming from the Atlantic forest region in the state of Santa Catarina.

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