

NEW SPECIES AND NOMENCLATURAL NOTES IN THE PLEUROTHALLIDINAE (ORCHIDACEAE) FROM BRAZIL

A. L. V. TOSCANO DE BRITO^{1,2} AND CARLYLE A. LUER³

Abstract. One new species in the genus *Acianthera*, *A. imitator*, is described and illustrated. Sixteen species are proposed as synonyms. They are listed in alphabetical order: *Acianthera gradeae* as synonym of *A. agathophylla*; *A. spilantha* as synonym of *A. breviflora*; *A. antennata* as synonym of *A. gracilisepala*; *A. dichroa* as synonym of *A. strupifolia*; *Anathallis crebrifolia*, *A. montipelladensis*, and *A. ourobranquensis* as synonyms of *A. aristulata*; *A. liparanges* as a synonym of *A. heterophylla*; *A. bolsanelloi*, *A. githaginea*, and *A. nectarifera* as synonyms of *A. lobiserrata*; *A. limbata* and *A. marginata* as synonyms of *A. muscoidea*; *A. longiglossa* as synonym of *A. paranaensis*; *Lankesteriana gehrtii* as synonym of *L. caudatipetala*, and *Specklinia rubidantha* as synonym of *Lankesteriana imberbis*. Correct provenance and habitat information are provided for the type collection of the recently described *Anathallis johnsonii*. This species is herein formally recorded for Brazil. Lectotypes are selected for seven species: *Anathallis heterophylla*, *A. nectarifera*, *Lepanthes crebrifolia*, *Pleurothallis gracilisepala*, *P. microgemma*, *P. paranaensis*, and *P. spilantha*, and an epitype is selected for *Pleurothallis paranaensis*. Illustrations and taxonomic discussions are also provided.

Keywords: *Acianthera*, *Anathallis*, *Lankesteriana*, *Lepanthes*, *Pleurothallis*, *Specklinia*.

In the course of preparing generic treatments of Pleurothallidinae of Brazil, material of several genera was examined and their morphologies and nomenclature elucidated. One species is described as new and sixteen

are proposed as synonyms. Illustrations, updated synonym lists, typifications, and taxonomic discussions are provided. Genera and species follow in alphabetical order.

NEW SPECIES

Acianthera imitator Toscano, Luer & L. Kollmann, *sp. nov.*
TYPE: BRAZIL. Espírito Santo: Santa Maria do Jetibá, collected and cultivated by Ludovic Kollmann, flowered in cultivation in Santa Teresa, 15 July 2010, A. Toscano de Brito 2866 (Holotype: MBML [43914]), C. Luer illustr. 21679. Fig. 1.

Plant small, epiphytic, long-repent, the rhizome slender, 15–20 mm long between ramicauls; *roots* slender. *Ramicauls* ascending, erect, 5–8 mm long, enclosed by a tubular sheath from below the middle and another sheath at the base. *Leaf* erect, suberect to horizontal, thickly coriaceous, elliptical to ovate, obtuse to subacute at the apex, 20–30 mm long, 12–15 mm wide, the base rounded, sessile. *Inflorescence* a single-

flowered peduncle 3–4 mm long, borne from the base of the leaf with a spathe 2 mm long; floral bract 2–2.5 mm long; *pedicel* 3 mm long with a minute filament; *ovary* 1.5 mm long; *sepals* fleshy, glabrous, the dorsal sepal greenish with dark purple veins, elliptical-oblong, obtuse to rounded at the tip, 9 mm long, 3 mm wide, 5-veined, the *lateral sepals* adaxially spotted with dark purple, connate into an ovate, obtuse, minutely bidentate, concave synsepal, 8 mm long, 6 mm wide expanded, 6-veined, concave below the middle; *petals* translucent-green, elliptical, acute, microscopically serrulate above the middle, 3.5 mm long, 1.5 mm wide, 3-veined; *lip* dark purple with green lateral lobes, thick, oblong-subtrilobed, 4 mm long, 2.5 mm wide, markedly

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¹ Marie Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, Florida 34236-7726 U.S.A.

² Author for correspondence: atoscano@selby.org

³ Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Missouri 63110, U.S.A. Address for correspondence: 3222 Old Oak Drive, Sarasota, Florida 34239-5019 U.S.A.; cluer@juno.com

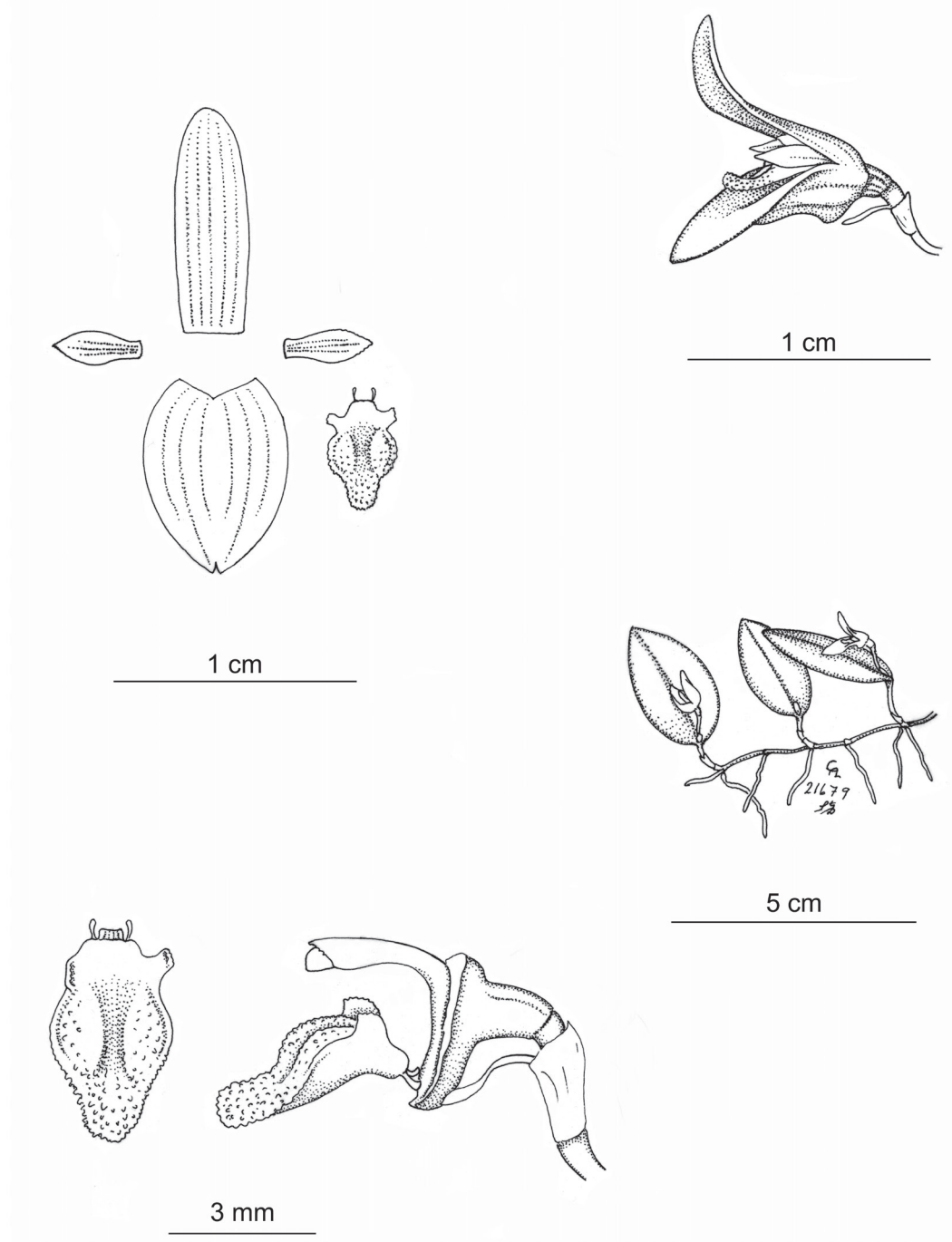


FIGURE 1. *Acianthera imitator* Toscano, Luer & L.Kollmann, *sp. nov.* Based on the holotype, *A. Toscano de Brito* 2866 (MBML). Drawn by C. A. Luer.

verrucose, serrulate, narrowly rounded and thickened at the apex, the lobes below the middle, small, erect, obtuse to rounded, the disc narrowly channeled between a pair of verrucose calli on the middle third, the base truncate with a minute, pedunculated lobule at the corners; column green, semiterete, narrowly winged toward the purple spotted apex, 3 mm long, anther, rostellum and stigma ventral, the foot thick, 1.5 mm long.

Etymology: From the Latin *imitator*, “an imitator,” referring to its similarity to Barbosa Rodrigues’s *Pleurothallis bidentula* [= *Acianthera bidentula* (Barb. Rodr.) Pridgeon & M.W.Chase].

This new species belongs to a complex of long-repent, similar taxa recently referred to as the *Acianthera saundersiana* (Rchbf.) Pridgeon & M.W.Chase complex (Toscano de Brito and Luer, 2015). It resembles in habit

Acianthera bidentula, but it is distinguished by a markedly verrucose lip that is narrowly rounded at the tip, instead of broadly rounded or truncate. The creeping rhizome is delicate and the leaves are elliptical to slightly ovate. The flowers are relatively smaller and more delicate than those of *A. bidentula*. In shape and color, the lip of *A. imitator*

resembles that of *A. saundersiana*, but the latter species is a much larger one with longer ramicauls and larger flowers. The reader should refer to Toscano de Brito and Luer (2015) for further discussion on the identities of some species in this complex, especially that of *A. bidentula* and *A. saundersiana*.

NOMENCLATURAL NOTES

Acianthera agathophylla (Rchb.f.) Pridgeon & M.W.Chase, *Lindleyana* 16: 241. 2001. Fig. 2.

Basionym: *Pleurothallis agathophylla* Rchb.f., *Xenia Orchid.* 3: 25. 1881. TYPE: BOLIVIA. La Paz: Larecacha, vicinity of Sorata, Cerro del Iminapi, alt. 2600 m, March–May 1860, *G. Mandon 1132* (Holotype: W [45938]; Isotypes: AMES [118553], BM [82439], G [24887], K [584177], MPU [18064, photo seen], NY [9220], P [489101], P [489102], P [489103]).

Synonyms: *Humboldtia agathophylla* (Rchb.f.) Kuntze, *Revis. Gen. Pl.* 2: 667. 1891.

Pleurothallis cyclophylla Luer, *Selbyana* 3: 92. 1976. TYPE: BOLIVIA. Santa Cruz: near Samaipata, alt. 1500 m, flowered in cultivation at J and L Orchids, Easton, CT, 20 October 1976, *F. Fuchs s.n.* (Holotype: SEL [002781]), C. Luer illustr. 249-S.

Pleurothallis nakatae T.Hashim., *Ann. Tsukuba Bot. Gard.* 4: 3. 1986. TYPE: PERU. Junín: Chanchamayo, near La Merced, alt. 1700–1800 m, flowered in cultivation in TBG, 8 May 1985, *M. Nakata 626* (Holotype: TNS [not seen]).

Acianthera gradeae Chiron & Benelli, *Richardiana* 13: 66. 2012, **syn. nov.** TYPE: BRAZIL. Mato Grosso: Nova Bandeirante, Fazendinha da Lagoa, alt. 304 m, A. Petini-Benelli, A. Grade and & H.S. Lima APB963 (Holotype: HERBAM [4953, not seen]); same locality, June 2005, flowered in cultivation in September 2005, A. Petini-Benelli, A. Grade and & H.S. Lima APB964 (Paratype: HERBAM [4954, not seen]).

Acianthera agathophylla is a common species distributed from central Peru through Bolivia (Vázquez & Dodson 1982; Vázquez & Ibsch, 2000; Luer, 2004) and has been recently collected in the Brazilian state of Mato Grosso. It was redescribed as *Acianthera gradeae*, in 2012, based on two collections from the municipality of Nova Bandeirantes, also in the state of Mato Grosso, but this name is illegitimate and it is here placed in the synonym of *Acianthera agathophylla*. This synonymy has been alluded to in some non-scientific websites (e.g. <http://pt.wikipedia.org/wiki/Acianthera>) without provision of supporting evidence. Chiron and Petini-Benelli (2012) distinguished *Acianthera gradeae* from *A. agathophylla* based on a number of characters such as rhizome length, leaf shape, leaf base and apex, spathe size, petals and lip shape, type of margins, lip surface, and column thickness. However, none of these features can be used to distinguish these two taxa because they are variable characters and some of them, e.g. leaf shape,

base and apex, may vary even in the same individual. *Acianthera agathophylla* is a variable species, both vegetatively and in floral morphology, but it can be easily recognized by its repent rhizome, ascending ramicauls, and spreading, broad elliptical to suborbicular leaves. The inflorescence is a short, few-flowered raceme at the base of the leaf and produces 1 to 4 orange-yellow flowers. Most distinctive is a darker, convex thickening above the middle of the sepals. The Brazilian collection that we studied comes from the municipality of Apiacás, in the state of Mato Grosso, near the border with the state of Pará. It was collected by Ronaldo Herculano Alves and flowered in cultivation by Maria Rita Cabral in 2012. This same collection was photographed by Luiz Filipe Varella and a couple of his photographs are reproduced here (Fig. 2A–B). Several others can be found at: <http://www.flickr.com/photos/luizfilipevarella/sets/72157620101297689>. Duplicates of this collection are currently in cultivation at Rio de Janeiro Botanical Garden (Fig. 2C).

Additional specimen examined: BRAZIL. Mato Grosso: Apiacás, collected by *R.H. Alves s.n.*, flowered in cultivation in 25 August 2012, *M.R. Cabral 6* (MBM).

Acianthera breviflora (Lindl.) Luer, *Monogr. Syst. Bot. Missouri Bot. Gard.* 95: 253. 2004. Fig. 3.

Basionym: *Pleurothallis breviflora* Lindl., *Edwards's Bot. Reg.* 27(Misc.): 59. 1841. TYPE: MEXICO (in error, most likely from Brazil): imported by *Messrs. Loddiges s.n.* (Holotype: K [000885713]).

Synonyms: *Humboldtia breviflora* (Lindl.) Kuntze, *Revis. Gen. Pl.* 2: 667. 1891.

Pleurothallis spilantha Barb.Rodr., *Gen. Spec. Orchid.* 2: 32. 1881, **syn. nov.** TYPE: BRAZIL. Minas Gerais: Serra das Bicas, alt. 600 m, *J. Barbosa Rodrigues s.n.* [Holotype: Lost; Lectotype here designated: Barbosa Rodrigues's original illustration in *Iconogr. Orchid. Brésil*, vol. 3, tab. 173, at the Library of Rio de Janeiro Botanical Garden, cited as tab. 752 (unpubl.) in Barb. Rodr. loc.cit; copied and reprod. in black and white in Cogn., *Fl. Bras. (Mart.)* 3(4), tab. 106, fig. 1. 1896; reprod. in color in Sprunger et al. (1996), vol. 1: 231, fig. A].

Myoxanthus spilanthus (Barb.Rodr.) Luer, *Monogr. Syst. Bot. Missouri Bot. Gard.* 15: 38. 1986, **syn. nov.**

Pleurothallis paspaliformis Loefgr., *Arch. Jard. Bot. Rio de Janeiro* 2: 53. 1918, **syn. nov.** TYPE: BRAZIL. Rio de Janeiro: Itatiaia, *P. Campos Porto s.n.* (Holotype: RB [14168]).

Acianthera spilantha (Barb.Rodr.) Luer, *Monogr. Syst. Bot. Missouri Bot. Gard.* 112: 118. 2007, **syn. nov.**

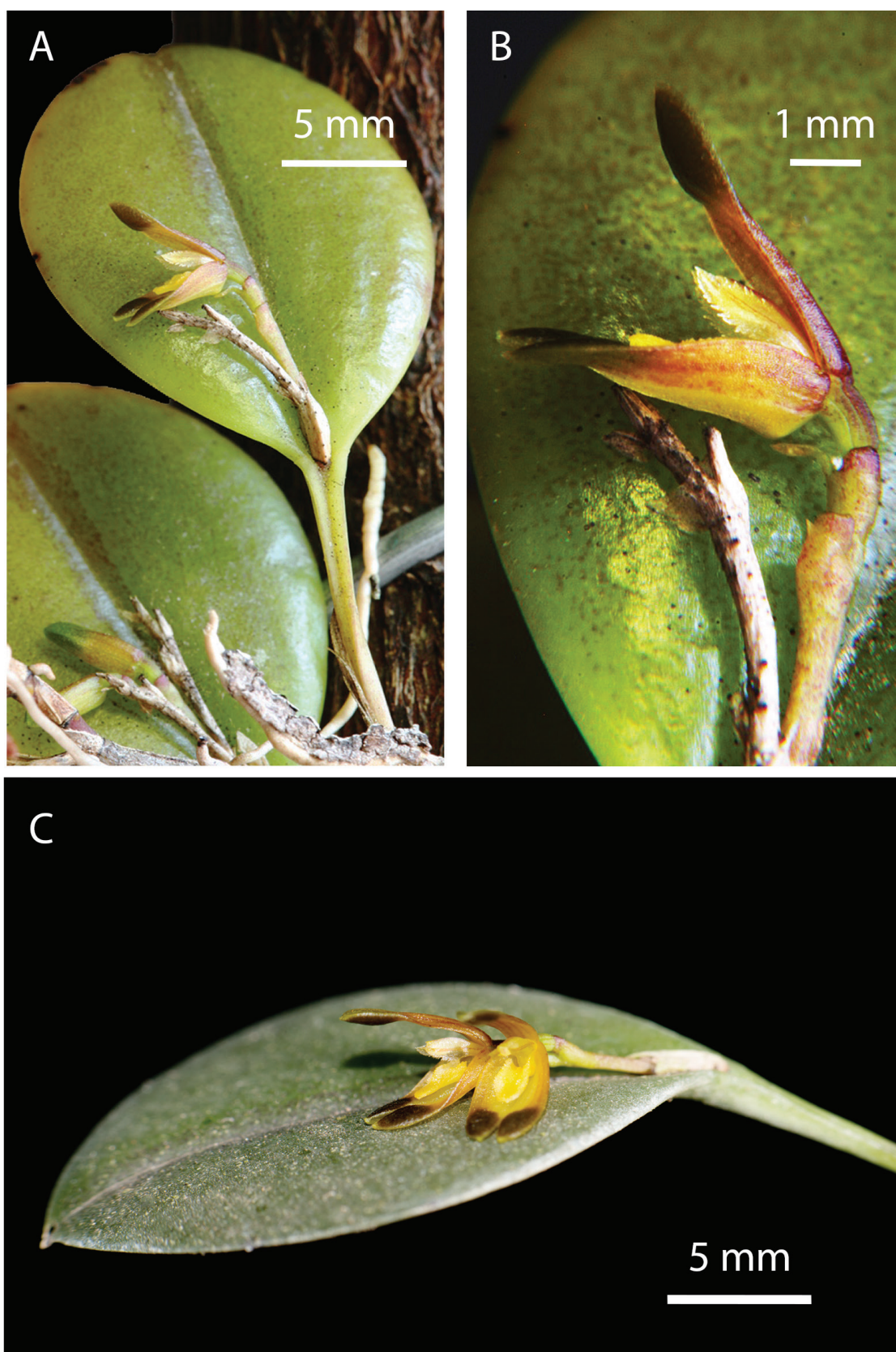


FIGURE 2. *Acianthera agathophylla* (Rchb.f.) Pridgeon & M.W.Chase. A–B. Photographed by Luiz Filipe Varella based on a plant in cultivation in Porto Alegre, Rio Grande do Sul, Brazil. C. Photographed by Wade Collier based on a plant in cultivation at Rio de Janeiro Botanical Garden. All based on duplicate specimens of *M.R. Cabral* 6 (MBM).



FIGURE 3. *Acianthera breviflora* (Lindl.) Luer. Holotype of *Pleurothallis breviflora* Lindl. at K showing watercolor by John Lindley on the type sheet. © The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with permission.

Acianthera spilantha (Barb.Rodr.) Campacci Bol. CAOB 69–70: 25. 2008, *nom. illeg.*

John Lindley described *Pleurothallis breviflora* [= *Acianthera breviflora*] based on a specimen said to have been imported from Mexico by the Loddiges family. No flowers remain on the type specimen preserved at K (Fig. 3) but a fine watercolor prepared by Lindley can be found on the herbarium sheet. This painting and the sterile specimen at Kew agree in every detail with Barbosa Rodrigues's original illustration of *Pleurothallis spilantha*, a frequent species in the Atlantic forest of southeast Brazil. It also agrees with the type specimen of *Pleurothallis paspaliformis*. Therefore, these two taxa are here placed in the synonym of *Acianthera breviflora*. This casts doubt on the Mexican origin of the specimen imported by the Loddiges, which most certainly came from Brazil. An illustration based on a collection by Martin Martens, probably from Brazil, was published by Luer in 2004. As in the case of *Acianthera gradeae*, previously treated here, this synonymy has also been alluded to in some non-scientific websites (e.g. <http://pt.wikipedia.org/wiki/Acianthera>) without providing further evidence.

The type specimen of *Pleurothallis spilantha* is lost and the only extant original material is the illustration that appeared in Barbosa Rodrigues's *Iconographie des orchidées du Brésil*, which is now deposited in the library of Rio de Janeiro Botanical Garden. This illustration was copied and reproduced in black and white in Cogniaux (1896) and reproduced in color in Sprunger et al. (1996). It is selected here as lectotype.

Additional specimens examined: BRAZIL. Espírito Santo: Vargem Alta, 650 m, 3 June 1949, A.C. Brade 19966 (RB). Minas Gerais: without collection data, cultivated in Poços de Caldas, 1 March 2004, Americo *s.n.* (SEL), C. Luer illustr. 20636. São Paulo: without collection data, cultivated in São Paulo by V.P. Castro, 28 February 2004, C. Luer 20617 (SEL). Without collection data, cultivated in Hort. Bot. Leuvenensis, 1837, by M. Martens *s.n.* (BR), C. Luer illustr. 18913.

Acianthera graciliseppala (Brade) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 253. 2004. Fig. 4.

Basionym: *Pleurothallis graciliseppala* Brade, Arch. Jard. Bot. Rio de Janeiro 11: 74. 1951. TYPE: BRAZIL. Paraná: Campos Gerais, 1949, flowered in cultivation 4 January 1950, A. Guimarães *s.n.* (RB [74403, lost]); Lectotype here designated: Brade original drawings of the holotype deposited in Guido F. J. Pabst's reference files at Herbarium Bradeanum (HB), numbered Brade 20159, reproduced in Arch. Jard. Bot. Rio de Janeiro 11: plate 4, fig. 1–10. 1951.

Synonyms: *Pleurothallis antennata* Garay, Arch. Jard. Bot. Rio de Janeiro 12: 170. 1953, *syn. nov.* TYPE: BRAZIL. Paraná: Capão Grande, fl. cult. 21 February 1915, P. Dusén 16727 (Holotype: S [S-R-4949, photo seen]; Isotype: AMES [118552]).

Acianthera antennata (Garay) Pridgeon & M.W.Chase, Lindleyana 16: 242. 2001, *syn. nov.*

Study of an isotype of *Pleurothallis antennata* and of a photograph of the holotype deposited at S has shown that this species is a synonym of *Pleurothallis graciliseppala*

[= *Acianthera graciliseppala*]. The holotype specimen of *Pleurothallis graciliseppala* has not been located at RB and is apparently lost. However, this species was nicely illustrated in the protologue leaving no doubt that it is conspecific with *P. antennata*. Brade's original drawings that appeared in the protologue have also been examined and confirm our opinion. Figure 4 in the present work is based on the isotype of *Pleurothallis antennata* at AMES. Although rehydration of the flower using ammonia was not satisfactory and the column was still somewhat distorted, all other floral segments match well those of *Acianthera graciliseppala*. This specimen was collected by Dusén in forests by the Guabiroba river, in Capão Grande, state of Paraná. As far as we could ascertain, Capão Grande is a farm in the municipality of Ponta Grossa. It was founded in 1850 and is located near what today is Vila Velha State Park. For further information on these sites, the reader should refer to the following website addresses: <http://sigep.cprm.gov.br/sitio099/sitio099.htm> and http://www.webhotel.com.br/parana/turismo/tc2_pontagrossa.htm

Additional specimens examined: BRAZIL. São Paulo: Rio Claro, collected locally and cultivated by Wagner Marques, 16 March 2007, D.H. Baptista *s.n.* (SEL), C. illustr. 21131. Paraná: Ortigueira, Rio Barra Grande, 13 May 1969, G. Hatschbach 21472 (C). Without collection data, flowered in cultivation 16 March 2007 by Wagner *s.n.* (SEL), C. Luer illustr. 21131.

Acianthera strupifolia (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 246. 2001. Fig. 5–7.

Basionym: *Pleurothallis strupifolia* Lindl., Edwards's Bot. Reg. 25(Misc.): 2. 1839. TYPE: BRAZIL. Without collection data, imported by Messrs. Loddiges *s.n.* (Holotype: K [000885712]).

Synonyms: *Pleurothallis picta* Hook., Bot. Mag. 68: t. 3897 (1841), *nom. illeg.*, non Lindl. 1835. TYPE: MEXICO (in error): imported by Mr. Parkinson, flowered in cultivation at Woburn, submitted to the Botanical Magazine in 1839 by Mr. Forbes *s.n.* (Holotype: K [not located]).

Pleurothallis bicolor Lindl., Edwards's Bot. Reg. 28(Misc.): 76. 1842, replacement name for *Pleurothallis picta* Hook.

Pleurothallis dichroa Rchb.f., Hamburger Garten-Blumenzeitung 21: 356. 1865, *syn. nov.* TYPE: BRAZIL. Without locality, collected by H. Blunt, flowered in cultivation in 1863, S.H. Low *s.n.* (Holotype: W [R-21887]).

Pleurothallis hookeri Regel, Trudy Imp. S. Peterburgsk. Bot. Sada 7: 545. 1881, *nom. illeg.*, replacement name for *Pleurothallis picta* Hook.

Humboltia strupifolia (Lindl.) Kuntze, Revis. Gen. Pl. 2: 668. 1891.

Pleurothallis glaucophylla Hoehne, Arch. Bot. São Paulo 1: 579. 1927. TYPE: BRAZIL. Minas Gerais: Santa Bárbara do Mato Dentro, flowered in cultivation at Horto Oswaldo Cruz, Butantan, in 30 October 1922, F.C. Hoehne *s.n.* (Holotype: SP [8117]; Isotype: B [destroyed]).

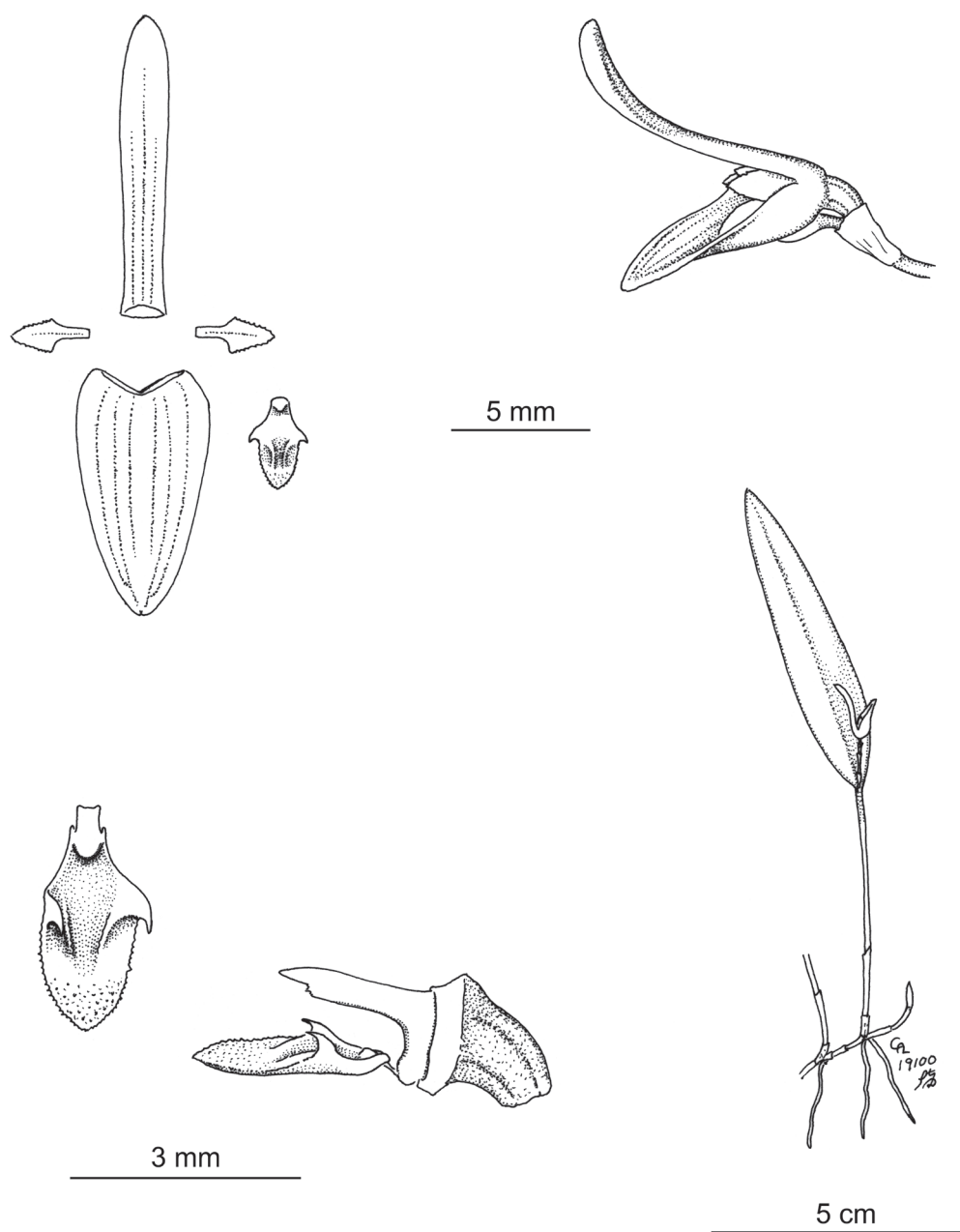


FIGURE 4. *Acianthera gracilisepala* (Brade) Luer. Drawing based on the isotype of *Pleurothallis antennata* Garay, *P. Dusén* 16727 (AMES). Drawn by C. A. Luer.

Acianthera dichroa (Rchb.f.) F.Barros & L.Guimarães, Neodiversity 5: 28 (2010), **syn. nov.**

Study of the type specimen of *Pleurothallis dichroa* has shown that this species is a synonym of the common and showy *Pleurothallis strupifolia* [= *Acianthera strupifolia*].

Pleurothallis dichroa was described by Reichenbach in 1865 based on a collection received from Stuart Henry Low in 1863. Stuart was the younger son of Hugh Low (1793–1863), founder of Hugh Low & Co., a famous nursery at Upper Clapton, London. He received the specimen from his plant collector in Brazil, Henry Blunt.

Three herbarium sheets labeled as *Pleurothallis dichroa* are found in the Reichenbach orchid herbarium at W. One of them, numbered 21887 (Fig. 5), contains a specimen and a colored illustration accompanied by a short description in Reichenbach's almost illegible handwriting. It is labeled "Low 63," the number 63 meaning the year (1863) he received it from Low. The other two sheets are numbered 41142 (Fig. 6) and 18556 (Fig. 7). The former bears a sketch, description and notes, also in Reichenbach's almost illegible handwriting. On the upper right side of these notes the number "258" can be read. The latter sheet, numbered

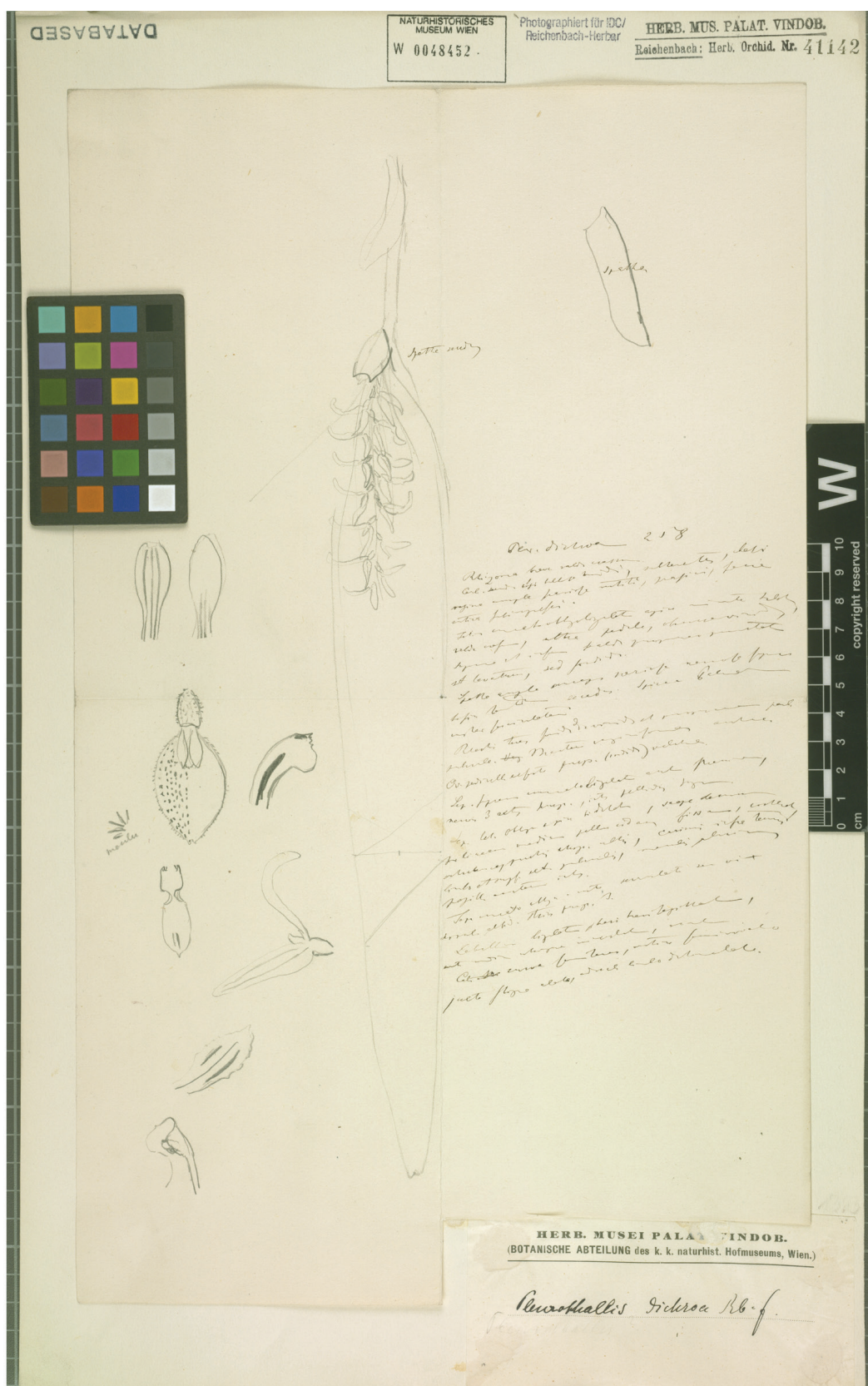


FIGURE 6. *Acianthera strupifolia* (Lindl.) Pridgeon & M.W.Chase. Herbarium sheet 41142 of *Pleurothallis dichroa* Rchb.f., Reichenbach Orchid Herbarium at W. By permission of the Keeper, Herbarium Natural History Museum in Vienna.

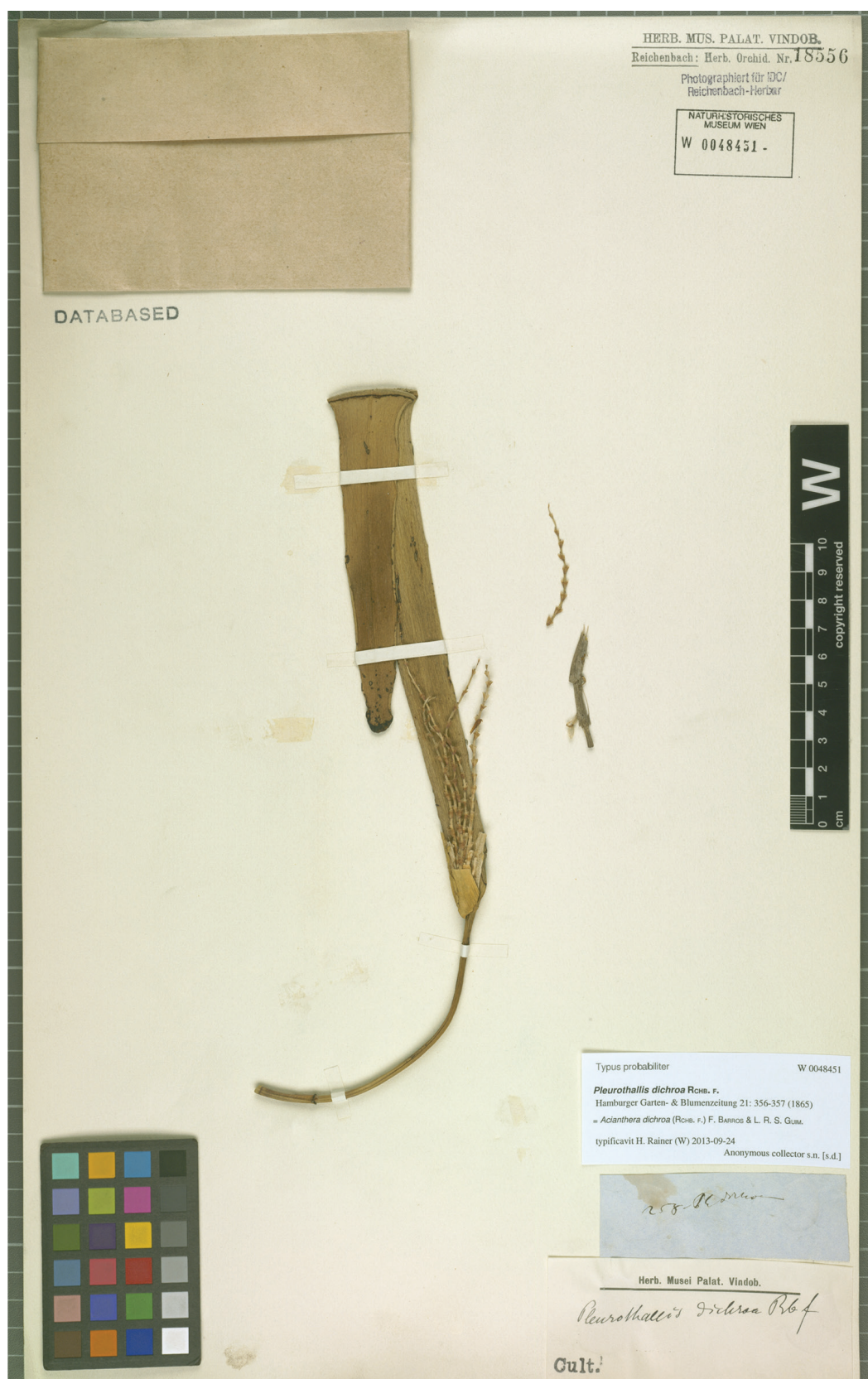


FIGURE 7. *Acianthera strupifolia* (Lindl.) Pridgeon & M.W.Chase. Herbarium sheet 18556 of *Pleurothallis dichroa* Rchb.f., Reichenbach Orchid Herbarium at W. By permission of the Keeper, Herbarium Natural History Museum in Vienna.

18556, contains an actual specimen and is labeled “258 Pl. dichroa” in Reichenbach’s handwriting. The number “258” is most certainly not Blunt’s collection number, but an identification number applied to each live specimen at Low’s nursery (L. A. Garay 2013, pers. comm.). The cross-labelling on the herbarium sheets 41142 and 18556 in Reichenbach herbarium indicates that these two sheets with a “Blunt’s number,” one containing the drawings and the other a specimen, refers to the same collection. Following standard practice of his time, Reichenbach did not explicitly cite the word “type” (or “typus”) in the protologue of *Pleurothallis dichroa*. However, he explicitly cited that he received the plant from Low in 1863 and that it had been collected by Blunt. All three herbarium sheets mentioned here seem to constitute original material and might have been used by Reichenbach to base his description. Nonetheless, the herbarium sheet 21887 is the only one which contains unambiguous information that agrees with the protologue (Low’s name and the year Reichenbach received the specimen), apart from agreeing with the original description. It is therefore here interpreted as the actual holotype of *Pleurothallis dichroa*. Blunt’s name is also cited in the protologue but no number is mentioned in the original description.

The name *Restrepia liebmanni* Kraenzl. has been usually cited in the synonymy of *Acianthera strupifolia* (e.g. Barros *et al.* 2015; Govaerts *et al.* 2015) but this Mexican species is a distinct taxon. It is actually a synonym of *Pleurothallis spectrilinguis* Rchb.f. [= *Muscarella marginata* (Rich.) Luer] and it is therefore here excluded from the synonymy of *Acianthera strupifolia*.

Additional specimens examined: BRAZIL. Without locality: *Blunt* 258 (W [R-18556 and R-41142, drawings and notes]). Rio de Janeiro: Carmo, Rio Paqueta, date not given, *Neves-Armond* 120 (BR). Espírito Santo: Serra do Castelo, near Alto Ribeirão do Meio, alt. 1000 m, cultivated at Fazenda Capijuma, November 2002, *M. Frey* 282 (SEL), C. Luer illustr. 20253. Santa Catarina: Ilha de Santa Catarina, Saco Grande, 24 January 1969, *R.M. Klein* 8131 (M).

Anathallis aristulata (Lindl.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 118. 2007. Fig. 8–10.

Basionym: *Pleurothallis aristulata* Lindl., Fol. Orchid. 9: 41. 1859. TYPE: BRAZIL. Rio de Janeiro, *J. Miers* n. (Holotype: K [000885711]; Isotype: BR [658536]).

Synonyms: *Lepanthes crebrifolia* Barb.Rodr., Gen. Spec. Orchid. 2: 67. 1881, *syn. nov.* TYPE: BRAZIL. Rio de Janeiro: near Rodeio, flowered in November, *J. Barbosa Rodrigues* s.n. [Holotype: Lost; Lectotype here designated: Barbosa Rodrigues’s original illustration in Iconogr. Orchid. Brésil, vol. 6, tab. 298, at the Library of Rio de Janeiro Botanical Garden, cited as tab. 611 (unpubl.) in Barb.Rodr. loc.cit; copied and reprod. in black and white in Cogn., Fl. Bras. (Mart.) 3(4), tab. 98, fig. 3. 1896; reprod. in color in Sprunger *et al.* (1996), vol. 1: 426, fig. E].

Pleurothallis crebrifolia (Barb.Rodr.) Cogn., Fl. Bras. (Mart.) 3(4): 483. 1896, *syn. nov.*

Pleurothallis montipelladensis Hoehne, Arch. Inst. Biol. Defesa Agric. 2: 36. 1929, *syn. nov.* TYPE: BRAZIL. São Paulo: Morro Pellado, January 1901, *G. Edwall* ex Comissão Geográfica e Geológica de São Paulo 6020 (SP [22463]).

Specklinia crebrifolia (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 259. 2004, *syn. nov.*

Anathallis montipelladensis (Hoehne) F.Barros, Bradea 8: 295. 2002, *syn. nov.*

Specklinia aristulata (Lindl.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 258. 2004, *syn. nov.*

Specklinia montipelladensis (Hoehne) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 262. 2004, *syn. nov.*

Anathallis ourobranquensis Campacci & Menini, Bol. Bol. CAOB 60: 123. 2005 (publ. 2006), *syn. nov.* TYPE: BRAZIL. Minas Gerais, Ouro Branco, alt. 1500 m, flowered in cultivation, 24 October 2004, *M.A. Campacci* MAC-1679 (Holotype: SP [not seen]).

Anathallis crebrifolia (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 118. 2007, *syn. nov.*

John Lindley described *Pleurothallis aristulata* [= *Anathallis aristulata*] based on a John Miers’s collection from the state of Rio de Janeiro. The holotype specimen is kept in Lindley herbarium at K. We have recently examined it and an illustration (Fig. 8) has been prepared by one of us (CAL). We have also examined an isotype deposited at BR. Comparison of these collections with illustrations, collections, and protologues of *Lepanthes crebrifolia*, *Pleurothallis montipelladensis*, and *Anathallis ourobranquensis*, shows that they are all conspecific.

Anathallis aristulata is a widespread species in eastern Brazil, found from Rio Grande do Sul, in the south, to the interior of Bahia, in the northeast. It inhabits the moist Atlantic forests and usually grows as epiphytes in shade places at low (ca. 200 m) or moderate altitudes (700–1000 m). It also grows at higher altitudes (1000–1600 m) in open spaces, either as lithophytes or epiphytes exposed to cold temperatures during the night and plenty of sunshine during the day. When growing in protected areas, plants of *A. aristulata* possess elongate ramicauls and dorsiventrally flattened, elliptical or spatulate, green leaves. When growing in open, exposed places, however, they may have much shorter, usually inconspicuous ramicauls and the leaves are reduced, thicker and fleshier, sometimes almost orbicular and subcylindrical, and occasionally yellowish. Variations from one extreme to another may occasionally be found in the same individual. Inflorescence and floral morphology are, however, much less variable and quite uniform throughout its distribution range. There are usually two, occasionally three, yellow to greenish-yellow flowers on a solitary raceme. In specimens with thicker leaves the inflorescence usually exceeds the leaves, but it can be much shorter in those specimens with longer, thinner leaves. Sepals and petals are somewhat similar and acute, and the lip, usually minutely papillose towards the base, is slightly three-lobed with lateral lobes below the middle. Figures 9–10 illustrate some variants of *Anathallis aristulata*.

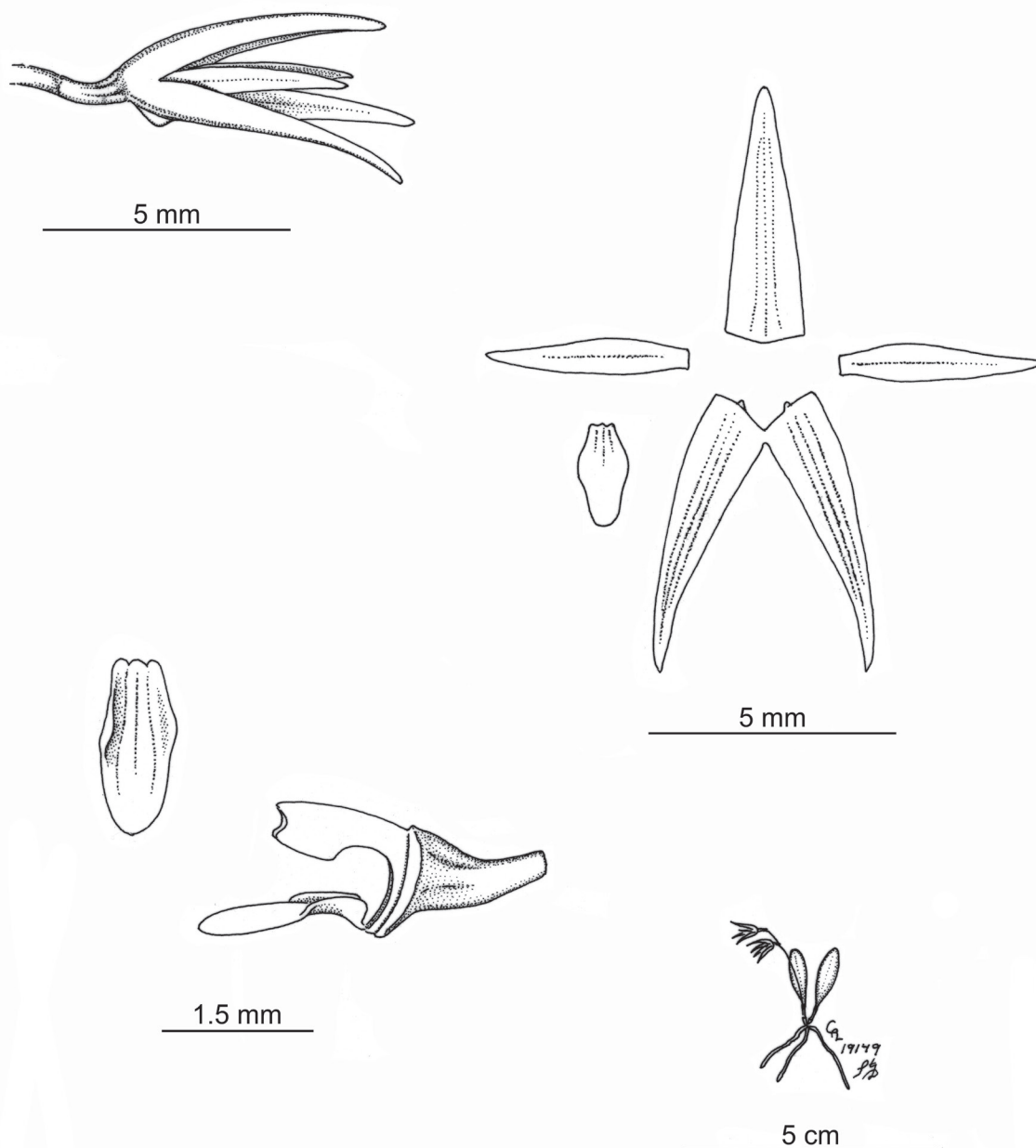


FIGURE 8. *Anathallis aristulata* (Lindl.) Luer. Based on the holotype of *Pleurothallis aristulata* Lindl., *J. Miers s.n.* (K). Drawn by C. A. Luer.

Additional specimens examined: BRAZIL. Bahia: Rio de Contas, Pico das Almas, alt 1500 m, 25 December 1988, *R.M. Harley & D.J.N. Hind* 27369 (K), C. Luer illustr. 19144. Espírito Santo: Vargem Alta, collected in 1949, flowered in cultivation, 20 December 1950, *A.C. Brade* 20560 (RB). Minas Gerais: without collection data, flowered in cultivation by Wladyslaw Zaslawski in 1983, *A. Toscano de Brito* 1584 (SEL), C. Luer illustr. 21578; Bejamim Constant, collected in 1934, flowered in cultivation at Rio Botanical Garden, 14 January 1936, *P.P. Horta s.n.* (RB). Rio de Janeiro: Above Petrópolis, alt. 1500 m, sold by Verboonen at EOC, in NJ, 21 October 1988, *C. Luer* 13757 (SEL). Rio Grande do Sul: Itati, Barata, 170 m, 15 August 2010, *J. Klein* 057 (UPCB,

spirit). Santa Catarina: cultivated in Corupá by Orquidário Alvim Seidel, presumably collected locally, 22 March 2007, *D.H. Baptista s.n.* (SEL), C. Luer illustr. 21178. Without collection data: *W.J. Burchell* 2097 (K).

Anathallis heterophylla Barb.Rodr., Gen. Spec. Orchid. 2: 74. 1881. TYPE: BRAZIL. Rio de Janeiro: Serra de Santa Anna, flowered in May, *J. Barbosa Rodrigues s.n.* (Holotype: [Lost]; Lectotype here designated: Barbosa Rodrigues's original illustration in Iconogr. Orchid. Brésil, vol. 3, tab. 181, fig. B, at the Library of Rio de Janeiro Botanical Garden, cited as tab. 658 (unpubl.) in Barb.Rodr. loc.cit; copied and reprod. in black and white in Cogn., Fl.

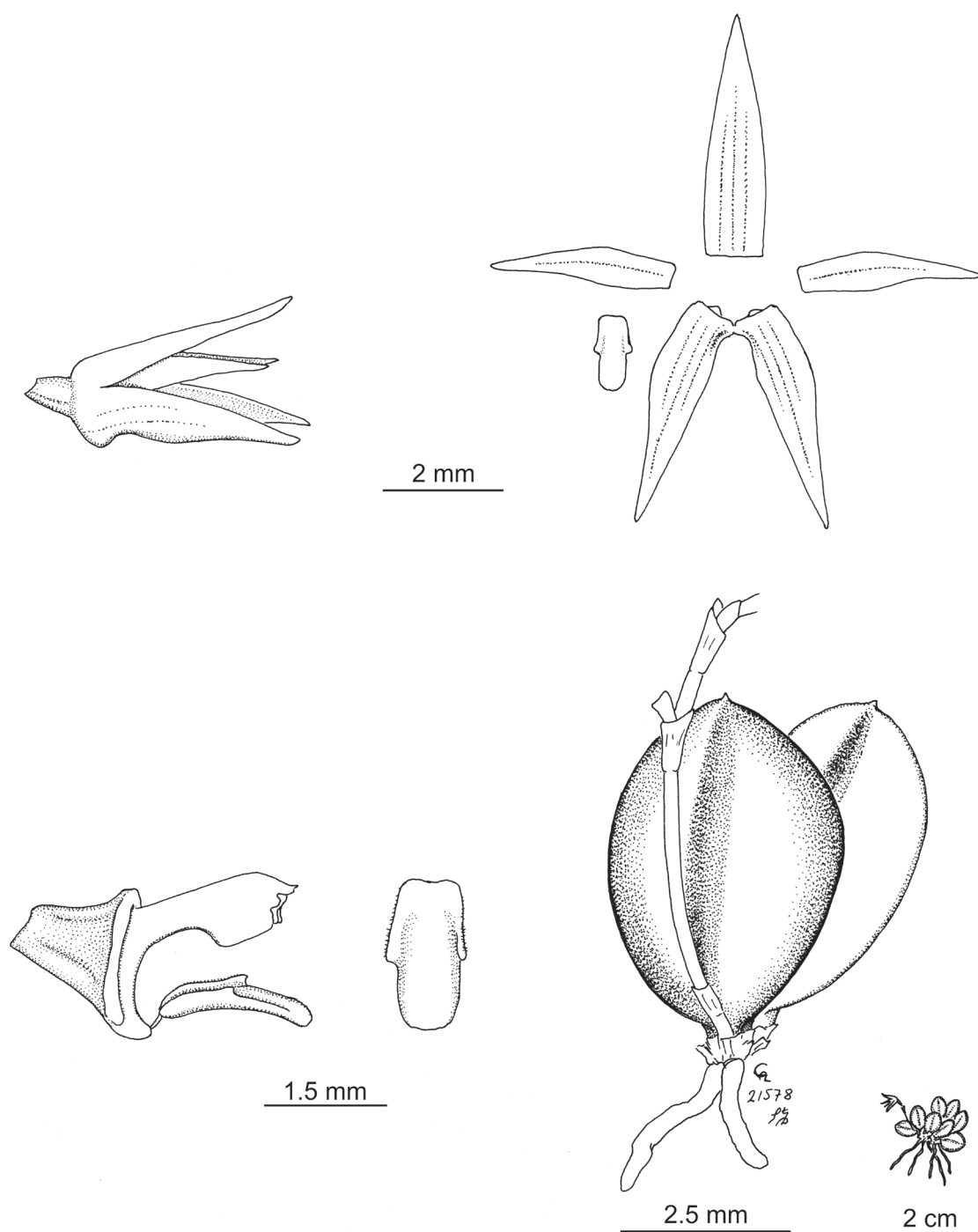


FIGURE 9. *Anathallis aristulata*. (Lindl.) Luer. Based on A. Toscano de Brito 1584 (SEL). Drawn by C. A. Luer.

Bras. (Mart.) 3(4), tab. 3, fig. 1. 1896; reprod. in color in Sprunger et al. (1996), vol. 1: 239, fig. B).

Synonyms: *Pleurothallis liparanges* Rehb.f., Gard. Chron., n.s., 23: 532. 1885, **syn. nov.** TYPE: BRAZIL. Without locality: obtained from G.M. Binot, flowered in cultivation at Leiden Botanical Garden, H. Witte s.n. (Holotype: W [R-45888]; Isotype: AMES [69074, fragment]).

Pleurothallis heterophylla (Barb.Rodr.) Cogn., Fl. Bras. (Mart.) 3(4): 556. 1896.

Pleurothallis hoehnei Schltr., Arch. Bot. São Paulo 1: 215. 1926. TYPE: BRAZIL. São Paulo: Estação Biológica Alto da Serra, 5 May 1921, A. Gehrt s.n. (Holotype: B [destroyed]; Lectotype: designated by Barros (2004): SP [5542]; Isolectotypes: AMES [54816 and 118513]; HB [2739, not seen]).

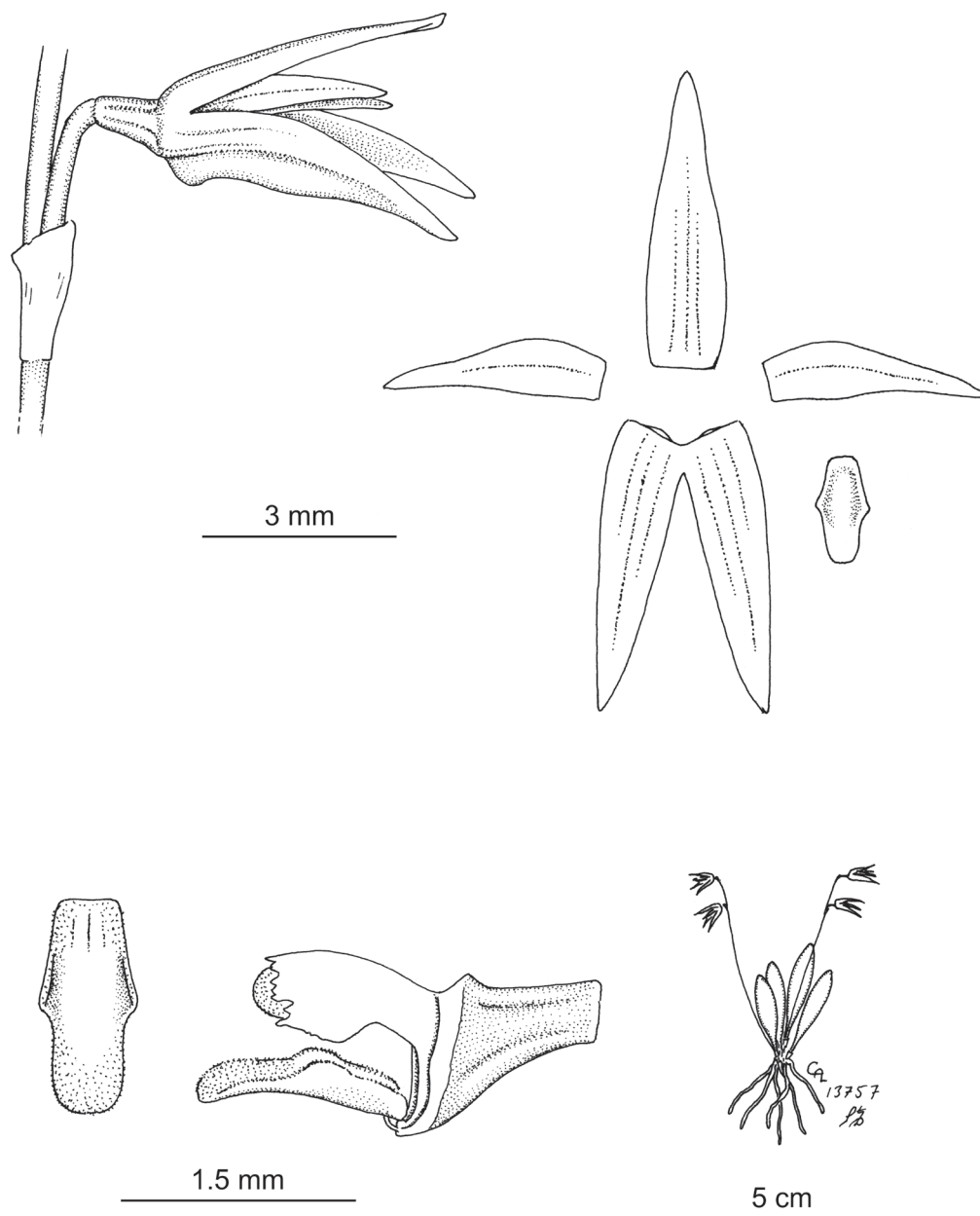


FIGURE 10. *Anathallis aristulata*. (Lindl.) Luer. Based on C. Luer 13757 (SEL). Drawn by C. A. Luer.

Specklinia heterophylla (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 261. 2004, **syn. nov.**

Specklinia liparanges (Rchb.f.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 261. 2004, **syn. nov.**

Anathallis liparanges (Rchb.f.) Luer, Novon 18: 78. 2008, **syn. nov.**

Examination of the holotype of *Pleurothallis liparanges* deposited at W confirms that this species is conspecific with *Anathallis heterophylla* as stated in Barros *et al.* (2015). However, this name is actually a later synonym published four years after the publication of *Anathallis heterophylla*.

The type specimen of *Anathallis heterophylla* is lost and the only extant original material is the illustration that appeared in Barbosa Rodrigues's *Iconographie des orchidées du Brésil*, which is now deposited in the library of Rio de Janeiro Botanical Garden. This illustration was copied and reproduced in black and white in Cogniaux (1896) and reproduced in color in Sprunger *et al.* (1996). It is here selected as lectotype.

Anathallis johnsonii Luer & Toscano, Harv. Pap. Bot. 16(2): 365. 2011. TYPE: ARGENTINA. Misiones: Departamento San Pedro, El Piñalito, Arroyo Manduri, 750 m,

collected 6 January 1991, flowered in cultivation 10 March 1991, *A. Johnson 0171* (MO), C. Luer illustr. 18109.

The type specimen of *Anathallis johnsonii* was discovered by the late Andrés E. Johnson (1956–2009) and sent to one of us (CAL) for identification in December 1996. The specimen remained unnamed for 15 years and was only recently recognized as new and finally published in 2011. Johnson's correspondence did not provide specific locality and the original label, which accompanied the specimen, had been, unfortunately, lost. While studying additional collections by Johnson, we rediscovered the original label of the type specimen of *Anathallis johnsonii*. It contains precise location and additional ecological information on this species. The type citation of *Anathallis johnsonii* is, therefore, herewith corrected and should be cited as above. This species was found near a small stream growing as an epiphyte on upper branches of *Luehea divaricata* Mart. (Malvaceae). The bases of sepals and petals are yellowish with the tips magenta. The tip and sides of the lip are also magenta, and the center is yellow.

First described for Argentina, this species has recently been discovered in the Brazilian state of Rio Grande do Sul. It is herewith formally recorded for Brazil. A series of photographs based on this collection can be found in the following website: http://www.orquideasgauchas.net/P_desc_especie.php?cod_especie=480

Additional specimens examined: BRAZIL. Rio Grande do Sul. Cambará do Sul, 19 July 2014, *A. Toscano de Brito, L.F. Varella, J. Klein & S. Kuhn* 3267 (UPCB).

Anathallis lobiserrata (Barb.Rodr.) Luer & Toscano, Monogr. Syst. Bot. Missouri Bot. Gard. 115: 259. 2009. Fig. 11–12.

Basionym: *Lepanthes lobiserrata* Barb.Rodr., Gen. Spec. Orchid. 2: 63. 1881. TYPE: BRAZIL. Rio de Janeiro: Rodeio, flowered in January, *J. Barbosa Rodrigues s.n.* [Holotype: Lost; Lectotype selected by Barros and Barberena (2010): Barbosa Rodrigues's original illustration in Iconogr. Orchid. Brésil, vol. 6, t. 298, fig. F, at the Library of Rio de Janeiro Botanical Garden, cited as tab. 617 (unpubl.) in Barb.Rodr. loc. cit; copied and reprod. in black and white in Cogn., Fl. Bras. (Mart.) 3(4), tab. 92, fig. 4. 1896; reprod. in color in Sprunger et al. (1996), vol. 1: 426, fig. F].

Synonyms: *Anathallis nectarifera* Barb.Rodr., Gen. Spec. Orchid. 2: 74. 1881, **syn. nov.** TYPE: BRAZIL. Rio de Janeiro: Serra do Mar, flowered in May, *J. Barbosa Rodrigues s.n.* [Holotype: Lost; Lectotype here designated: Barbosa Rodrigues's original illustration in Iconogr. Orchid. Brésil, vol. 3, tab. 145, at the Library of Rio de Janeiro Botanical Garden, cited as tab. 538 (unpubl.) in Barb.Rodr. loc.cit; copied and reprod. in black and white in Cogn., Fl. Bras. (Mart.) 3(4), tab. 111, fig. 4. 1896; reprod. in color in Sprunger et al. (1996), vol. 1: 203].

Pleurothallis lobiserrata (Barb.Rodr.) Cogn., Fl. Bras. (Mart.) 3(4): 438. 1896.

Pleurothallis nectarifera (Barb.Rodr.) Cogn., Fl. Bras. (Mart.) 3(4): 560. 1896, **syn. nov.**

Pleurothallis githaginea Pabst & Garay, Arch. Jard. Bot. Rio de Janeiro 14: 12. 1956, **syn. nov.** TYPE: BRAZIL. Rio de Janeiro: Serra da Carioca, near Trapicheiro, 300 m, cultivated at Rio de Janeiro Botanical Garden, collector unknown, flowered in July 1952, *G. Pabst 1689* (Holotype: RB [81252]; Isotype: AMES [118516]; HB [1689, not seen]).

Anathallis githaginea (Pabst & Garay) Pridgeon & M.W.Chase, Lindleyana 16: 248. 2001, **syn. nov.**

Specklinia lobiserrata (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 261. 2004.

Specklinia githaginea (Pabst & Garay) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 260. 2004, **syn. nov.**

Specklinia nectarifera (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 262, 2004, **syn. nov.**

Panmorphia githaginea (Pabst & Garay) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 177. 2006, **syn. nov.**

Panmorphia lobiserrata (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 177. 2006.

Anathallis bolsanelloi Chiron & V.P.Castro Richardiana 9(1): 4. 2008, **syn. nov.** TYPE: BRAZIL. Espírito Santo: Domingos Martins, Biriricas, 200–600 m, collected by R. Bolsanello s.n., *G. Chiron 08184* (Holotype: SP [not seen]).

Anathallis lobiserrata (Barb.Rodr.) F.Barros & Barbarena, Rodriguésia 61(1):128. 2010, **nom. illeg.**

Study of the protologues and original illustrations of *Lepanthes lobiserrata* [= *Anathallis lobiserrata*], *Anathallis nectarifera* and *Anathallis bolsanelloi*, and examination of the type specimens of *Pleurothallis githaginea* have shown that all these taxa belong within a same species concept. We did not examine the type specimen of *Anathallis bolsanelloi*, but the description, illustration, and photographs provided in the protologue leave no doubt that it also belongs here.

Anathallis lobiserrata is frequent in the Atlantic forests of Rio de Janeiro and Espírito Santo. It is recognized by its oblong-elliptical leaves, which are longer than the ramicauls, and the inflorescences which are much shorter than the leaves and usually produced in a fascicle of several racemes at the apex of the ramicauls. The short, few-flowered racemes produce up to ca. 6 successive flowers; a single open flower is found near the apex of the racemes. The lip is slightly three-lobed, the side lobes are round and erect with minutely pillose margins; a central, longitudinal callosity runs from the very base up to near the middle of the lip; at the middle or between the middle and the apical three-quarters of the lip there is also a pair of parallel, short, elongate callosities or elevations which are usually very faint and difficult to see without magnifying lenses. They were described and illustrated in the protologue of *Anathallis nectarifera*, but are missing in the original descriptions and illustrations of *Lepanthes lobiserrata*, *Anathallis bolsanelloi*, and *Pleurothallis githaginea*. Examination of a flower from an isotype at AMES has shown, however,

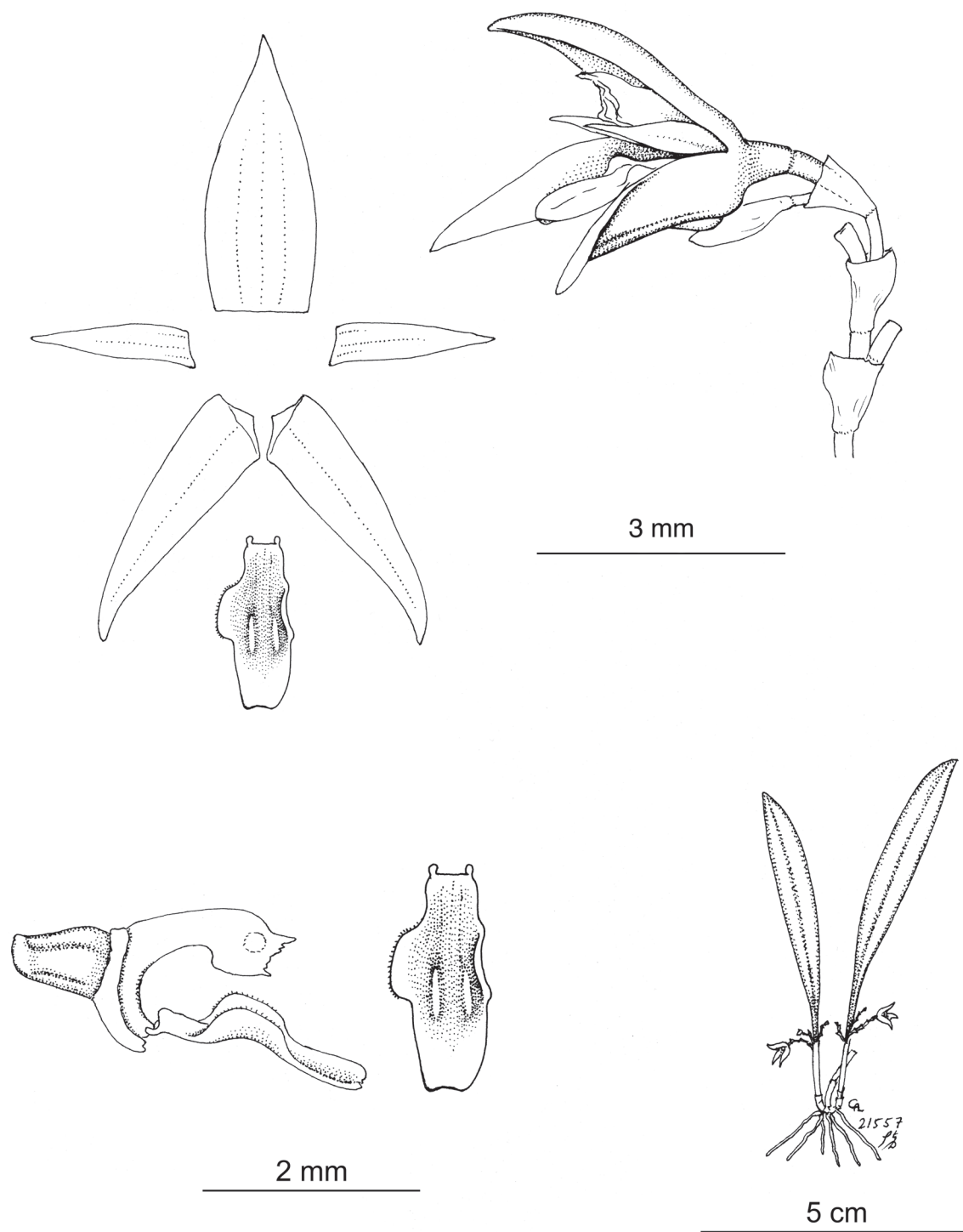


FIGURE 11. *Anathallis lobiserrata* (Barb. Rodr.) Luer & Toscano. Based on A. Toscano de Brito 2020 (MBML). Drawn by C. A. Luer.

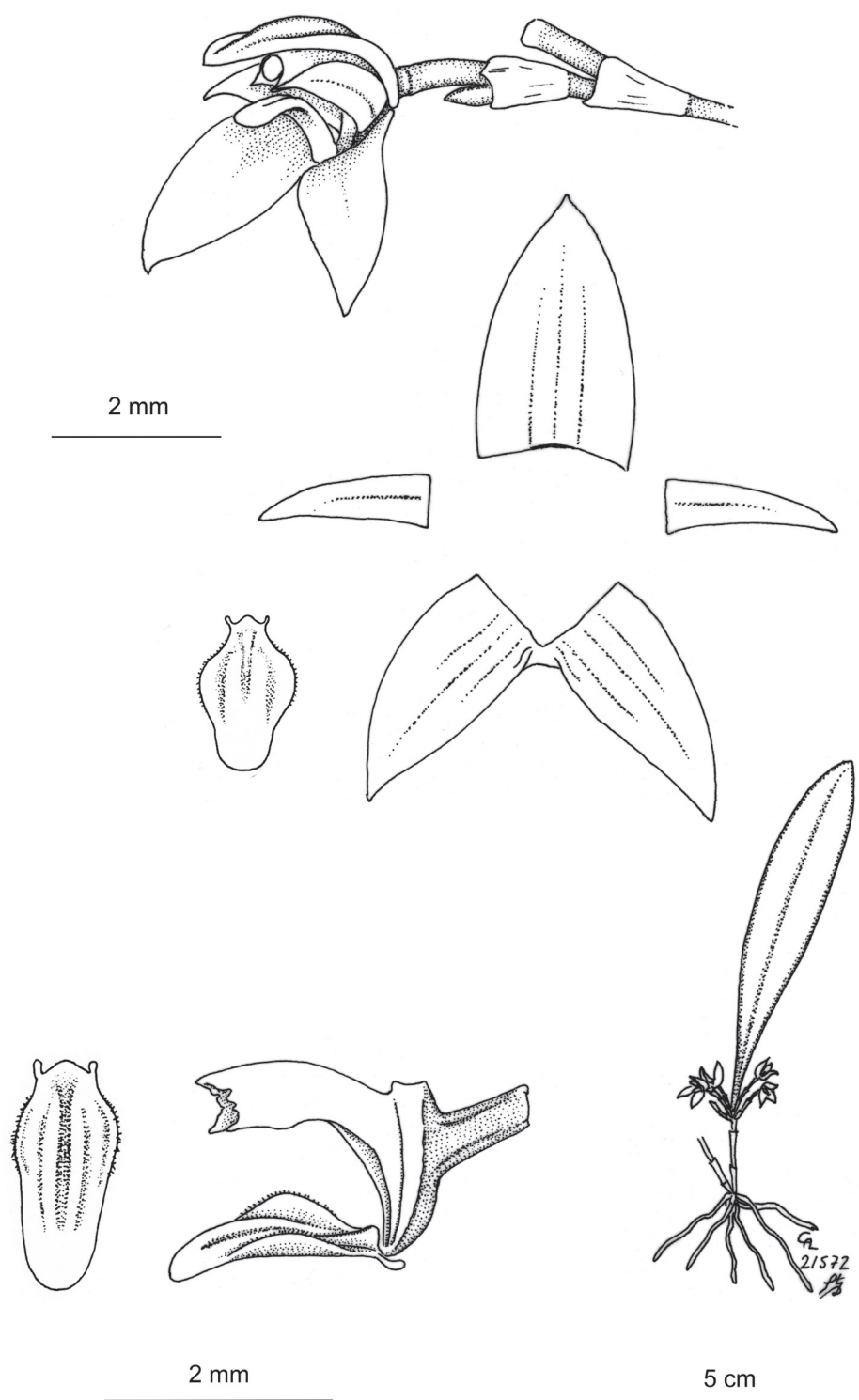


FIGURE 12. *Anathallis lobiserrata* (Barb.Rodr.) Luer & Toscano. Based on A. Toscano de Brito 1483 (SEL). Drawn by C. A. Luer.

that these callosities are present on the lip of *Pleurothallis githaginea*. They are also present on the lip of *Anathallis bolsanelloi* and can be seen in a photograph of a flower in front view in the protologue of this species (Chiron & Castro Neto 2008: 17, fig. b). Figures 11–12 in the present work illustrate two collections from Espírito Santo.

The type specimen of *Anathallis nectarifera* is lost and the only extant original material is the illustration that appeared in Barbosa Rodrigues's *Iconographie des orchidées du Brésil*, which is now deposited in the library of Rio de Janeiro Botanical Garden. This illustration, which was copied and reproduced in black and white in Cogniaux (1896) and reproduced in color in Sprunger et al. (1996), is selected here as the lectotype.

Additional specimens examined: BRAZIL. Espírito Santo: Domingos Martins, 700 m, property of Roberto Kautsky, 15 April 1997, A. Toscano de Brito 1483 (SEL), C. Luer illustr. 21572; same locality, flowered in cultivation by Roberto Kautsky 1059, 24 March 1999, A. Toscano de Brito 2020 (MBML); Santa Teresa, Estação Biológica de Santa Lúcia, 10 Nov. 2000, L. Kollmann et al. 3121 (MBML, SEL), C. Luer illustr. 20548.

Anathallis muscoidea (Lindl.) F.Barros & Barberena, *Rodriguésia* 61(1): 129. 2010. Fig. 13–14.

Basionym: *Pleurothallis muscoidea* Lindl., Edwards's Bot. Reg. 24(Misc.): 89. 1838. TYPE: BRAZIL. Without locality: *C. Loddiges s.n.* (Holotype: K [000885710]).

Synonyms: *Lepanthes marginata* Barb.Rodr., Gen. Spec. Orchid. 2: 68. 1881, **syn. nov.** TYPE: BRAZIL. Rio de Janeiro, Palmeiras, Pascoinha, flowered in October, *J. Barbosa Rodrigues s.n.* [Holotype: Lost; Lectotype selected by Barros & Guimarães (2010): Barbosa Rodrigues's original illustration in *Iconogr. Orchid. Brésil*, vol. 3, tab. 133, fig. C, at the Library of Rio de Janeiro Botanical Garden, cited as tab. 677 (unpubl.) in Barb.Rodr. loc.cit; copied and reprod. in black and white in Cogn., *Fl. Bras. (Mart.)* 3(4), tab.98, fig.2. 1896; reprod. in color in Sprunger et al. (1996), vol. 1: 191, fig. C].

Humboldtia muscoidea (Lindl.) Kuntze, *Revis. Gen. Pl.* 2: 668. 1891.

Pleurothallis limbata Cogn., *Fl. Bras. (Mart.)* 3(4): 485. 1896, replacement name for *Lepanthes marginata* Barb.Rodr., **syn. nov.**

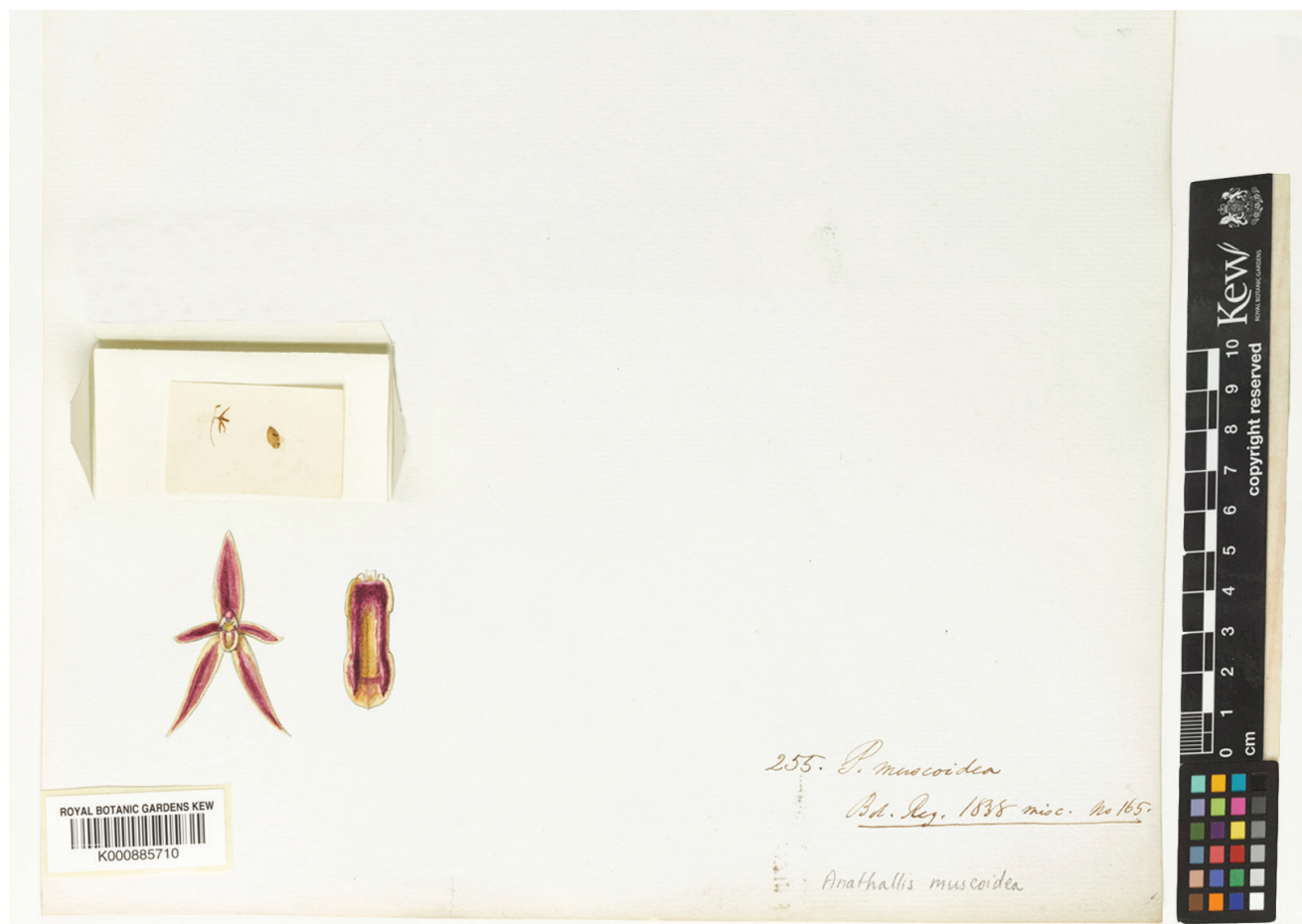


FIGURE 13. *Anathallis muscoidea* (Lindl.) F.Barros & Barberena. Holotype of *Pleurothallis muscoidea* Lindl. deposited in Lindley's herbarium at K. © The Board of Trustees of the Royal Botanic Gardens, Kew. Reproduced with permission.

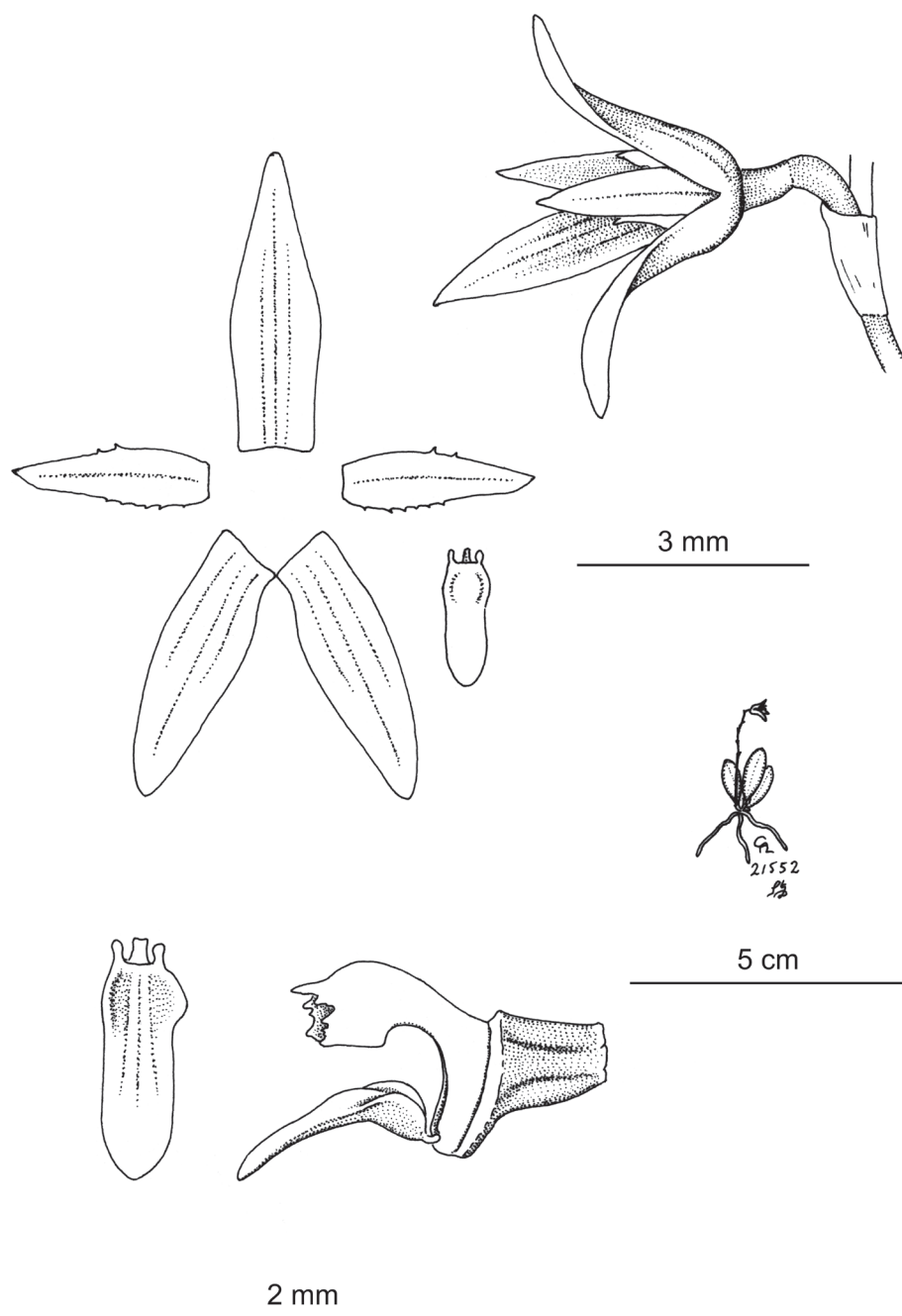


FIGURE 14. *Anathallis muscoidea* (Lindl.) F.Barros & Barberena. Based on A. Toscano de Brito 2575 (UPCB). Drawn C. A. Luer.

Specklinia limbata (Cogn.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 261. 2004, *nom. illeg.*

Specklinia muscoidea (Lindl.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 121. 2007.

Panmorphia limbata (Cogn.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 177. 2006, *nom. illeg.*

Anathallis limbata (Cogn.) Luer & Toscano, Monogr. Syst. Bot. Missouri Bot. Gard. 115: 258. 2009, *nom. illeg.*

Anathallis marginata (Barb.Rodr.) F.Barros & Barberena, Rodriguésia 61(1): 129. 2010 [before 15 Dec 2010], *syn. nov.*

Anathallis marginata (Barb.Rodr.) F.Barros & L.R.S.Guim. Neodiversity 5(1): 30. 2010 [31 Dec 2010], *nom. illeg.*

Anathallis muscoidea (Lindl.) F.Barros & L.R.S.Guim. Neodiversity 5(1): 30. 2010 [31 Dec 2010], *nom. illeg.*

John Lindley described *Pleurothallis muscoidea* [= *Anathallis muscoidea*] based on a Brazilian collection he received from the Loddiges family. The type specimen is deposited at K and comprises a leaf and an inflorescence with only one tiny flower, all glued on a small piece of paper which is kept within an envelope. We were not able, for this reason, to dissect and properly examine that flower. However, a detailed watercolor of a flower prepared by Lindley is found on the herbarium sheet of *Pleurothallis muscoidea* (Fig. 13) and provides enough information for recognition of this species. It is conspecific with *Lepanthes marginata*, a later synonym first illustrated by Barbosa Rodrigues in his unpublished *Iconographie des Orchidées du Brésil*. Figure 14 presented herein illustrates a specimen from São Carlos in the state of São Paulo, southeast Brazil. Photographs and an illustration of a specimen from the same area, and most probably representing a duplicate of this same collection, were recently published by Ferreira et al. (2013) named as *Anathallis marginata*.

A lectotypification of *Lepanthes marginata* was proposed almost simultaneously by Barros and Barberena (2010) and Barros and Guimarães (2010). The latter reference correctly selected Barbosa Rodrigues's original illustration, the only extant original material, as the lectotype of this species. For this reason, it must be the one to be accepted. Barros and Barberena (2010) failed to select Barbosa Rodrigues's actual, original illustration.

Additional specimens examined: BRAZIL. São Paulo: São Carlos, obtained from Dalton H. Baptista, flowered in cultivation, February 2010, A. Toscano de Brito 2575 (UPCB), C. Luer illustr. 21552.

Anathallis paranaensis (Schltr.) Pridgeon & M.W.Chase, Lindleyana 17: 100. 2002. Fig. 15–19.

Basionym: *Pleurothallis paranaensis* Schltr., Notizbl. Bot. Gart. Berlin-Dahlem 7: 274. 1918. TYPE: BRAZIL. Paraná: without locality, flowered in cultivation in June 1918, P. Dusén s.n. (Holotype: B [destroyed]); Lectotype here designated: Schlechter's illustration reproduced in Feddes Repert. Spec. Nov. Regni Veg. 58, tab. 35, fig. 138. 1930. Epitype here designated: Rio de Janeiro: Friburgo, Alto Macaé, collected by R. Warren s.n., flowered in cultivation by Manning 94-0319, September 1997, C. Luer 18557 (SEL).

Synonyms: *Pleurothallis microgemma* Schltr. ex Hoehne, Bol. Mus. Nac. Rio de Janeiro 12(2): 9. 1936, **syn. nov.** TYPE: BRAZIL. São Paulo, Iguape, Morro das Pedras, 20 November 1920, A.C. Brade 8055 (Holotype: B [Lost], Lectotype here designated: HB [8232, not seen]; Brade's original drawings: HB).

Specklinia microgemma (Schltr. ex Hoehne) F.Barros, Hoehnea 10: 110. 1983 (publ. 1984), **syn. nov.**

Anathallis microgemma (Schltr. ex Hoehne) Pridgeon & M.W.Chase, Lindleyana 16: 249. 2001, **syn. nov.**

Specklinia paranaensis (Schltr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 262. 2004.

Panmorphia paranaensis (Schltr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 177. 2006.

Anathallis longiglossa Chiron & N.Sanson, Richardiana 10: 153 (2010), **syn. nov.** TYPE: BRAZIL. Espírito Santo: Conceição do Castelo, G. Chiron 9858 (Holotype: MBML [41733]), C. Luer illustr. 21804.

Pleurothallis paranaensis [= *Anathallis paranaensis*] was described based on a specimen collected by P. Dusén in the state of Paraná. The original description lacks an illustration and the holotype was most certainly destroyed by the World War II bombing of the Berlin-Dahlem herbarium. Schlechter prepared a detailed illustration of a floral dissection of this species, but his original drawing remained unpublished until it was posthumously reproduced by Mansfeld (1930). The protologue does not mention any voucher other than the type and we were unable to locate any original material associated with the protologue except the illustration published in 1930. This illustration (Fig. 15) is here selected as the lectotype. As no information on the origin of Schlechter's drawings was provided in the 1930 publication, it could be argued that this illustration could have been based on a different specimen rather than on Dusén's collection. Here we share the opinion expressed by Buzatto et al. (2011) who, while investigating a similar case (*Capanemia angustilabia* Schltr.), found no reason to think otherwise. We have examined several specimens which fit nicely Schlechter's illustration and description. One of them, C. Luer 18557 (Fig. 16) has been selected here as the epitype as it complements the lectotype illustration which is represented by a floral analysis.

Hoehne (1929) proposed an amendment to Schlechter's description of *Pleurothallis paranaensis* claiming that Schlechter had not correctly diagnosed it. He provided a Latin description and an illustration based on a different collection from São Paulo, F. C. Hoehne s.n. (SP 17176). Hoehne slightly altered the diagnostic features of this taxon and cited only his collection from São Paulo, which seems like he intended to exclude the type of *P. paranaensis*. However, he kept the same specific epithet and authority (Schlechter) meaning that he did not want to change the author citation of the name of the taxon. Therefore, he did not intend and effectively publish a new name, but only proposed an amendment to Schlechter's description. In 1936, Hoehne changed his opinion and concluded that the specimen he had used for amending Schlechter's description of *Pleurothallis paranaensis* actually represented an undescribed species. He described it as *Pleurothallis microgemma*, taking an unpublished name given by Schlechter, and cited a collection from Rio das Pedras, Iguape, in the state of São Paulo. This collection, whose flowers possess a characteristically emarginated lip, apparently existed in Germany and was destroyed during the bombing of Berlin-Dahlem herbarium (Barros, 2004). A duplicate of the specimen studied by Hoehne and Brade's original drawings cited and reproduced in the protologue are preserved at HB. The former is here selected as the lectotype of *Pleurothallis microgemma*. We have studied other collections which match well the protologue and Brade's original illustration of *Pleurothallis microgemma*, including specimens which have the characteristic emarginated lip shown in the prologue.

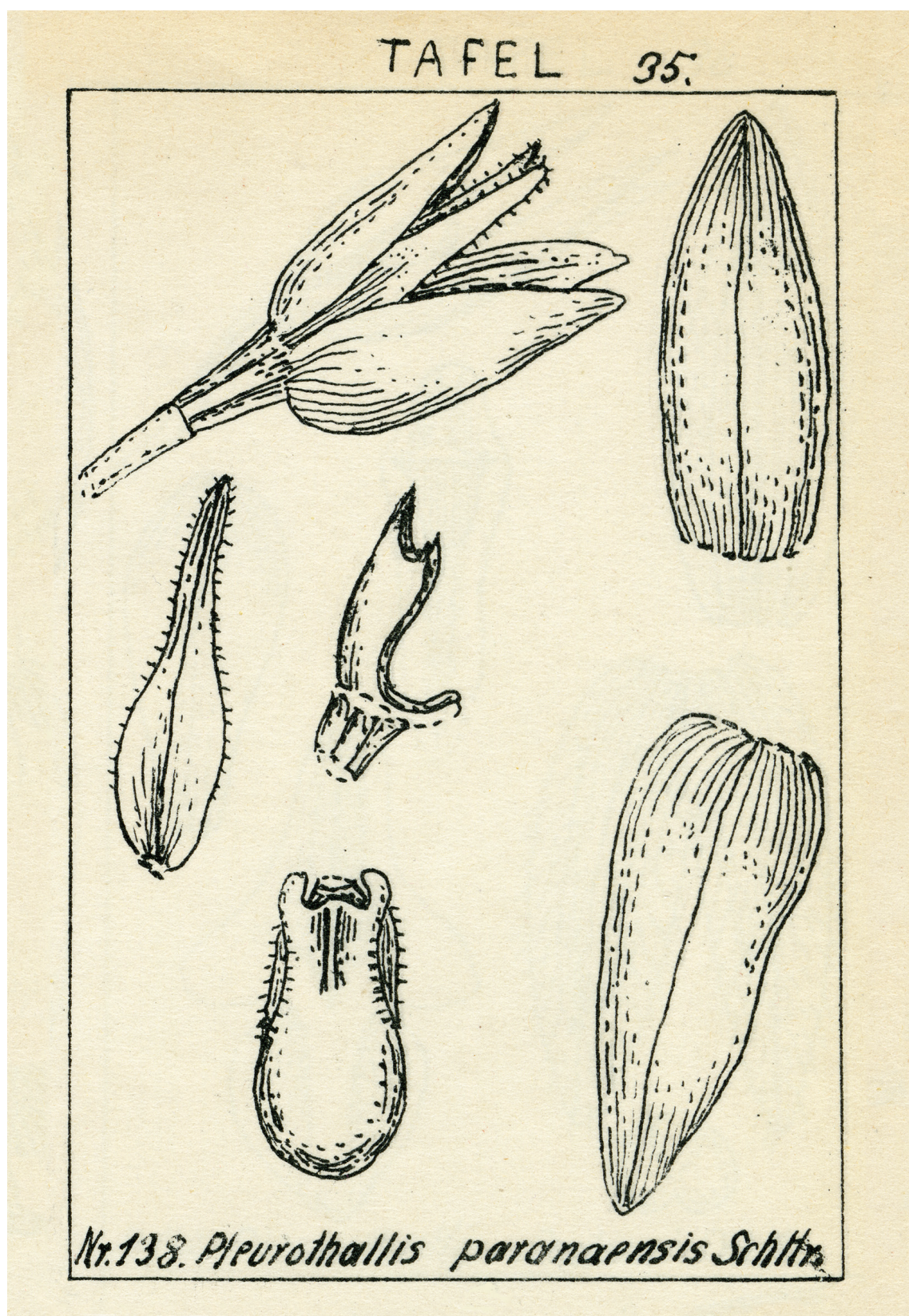


FIGURE 15. *Anathallis paranaensis* (Schltr.) Pridgeon & M.W.Chase. Lectotype of *Pleurothallis paranaensis* Schltr., selected here: Schlechter's illustration published by Mansfel in 1930.

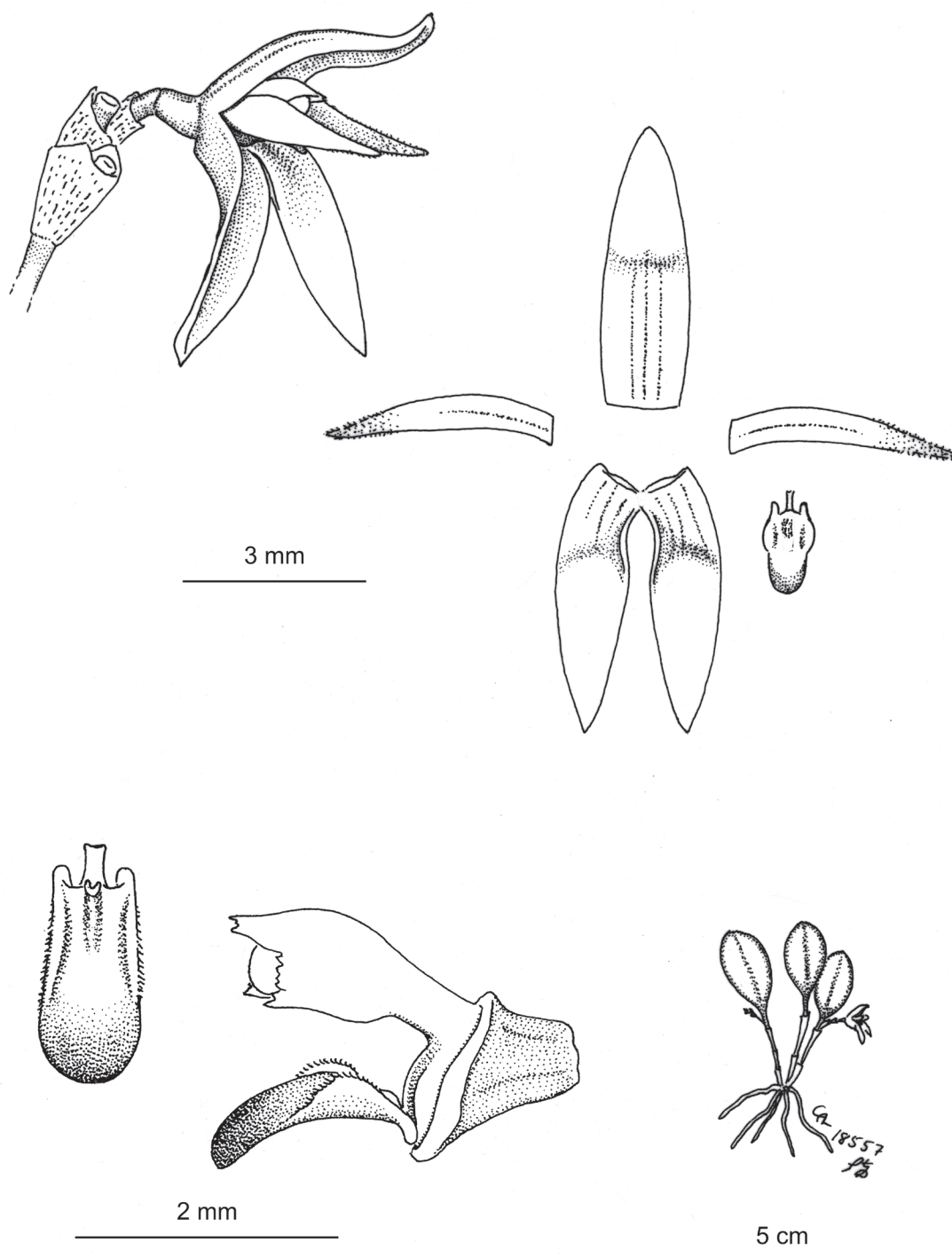


FIGURE 16. *Anathallis paranaensis* (Schltr.) Pridgeon & M.W.Chase. Based on the epitype of *Pleurothallis paranaensis* Schltr., here selected: C. Luer 18557 (SEL). Drawn by C. A. Luer.

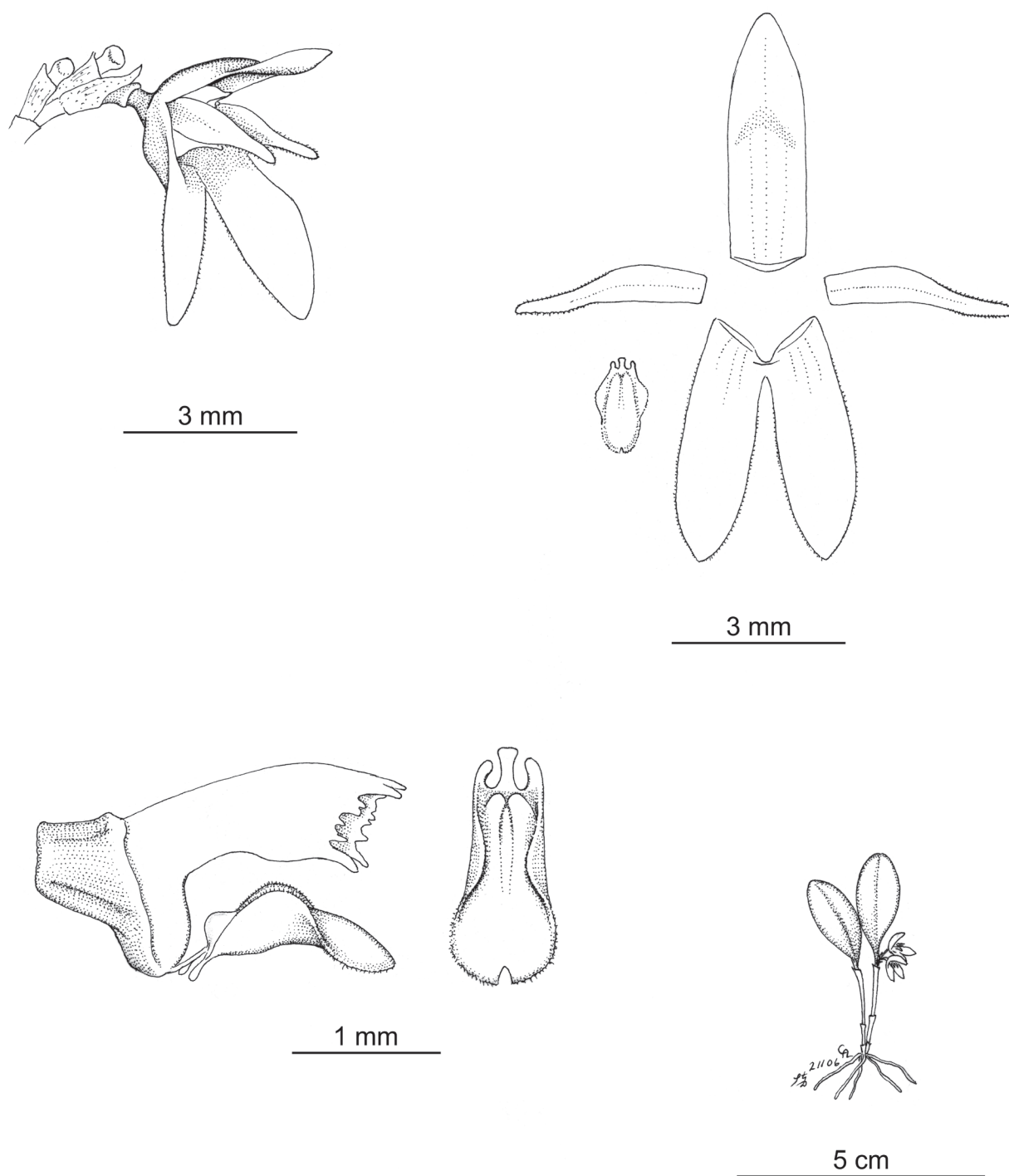


FIGURE 17. *Anathallis paranaensis* (Schltr.) Pridgeon & M.W.Chase. Based on a plant cultivated at *Orquidário Colibri s.n.*, C. Luer illustr. 21106. (SEL). Drawn by C. A. Luer.

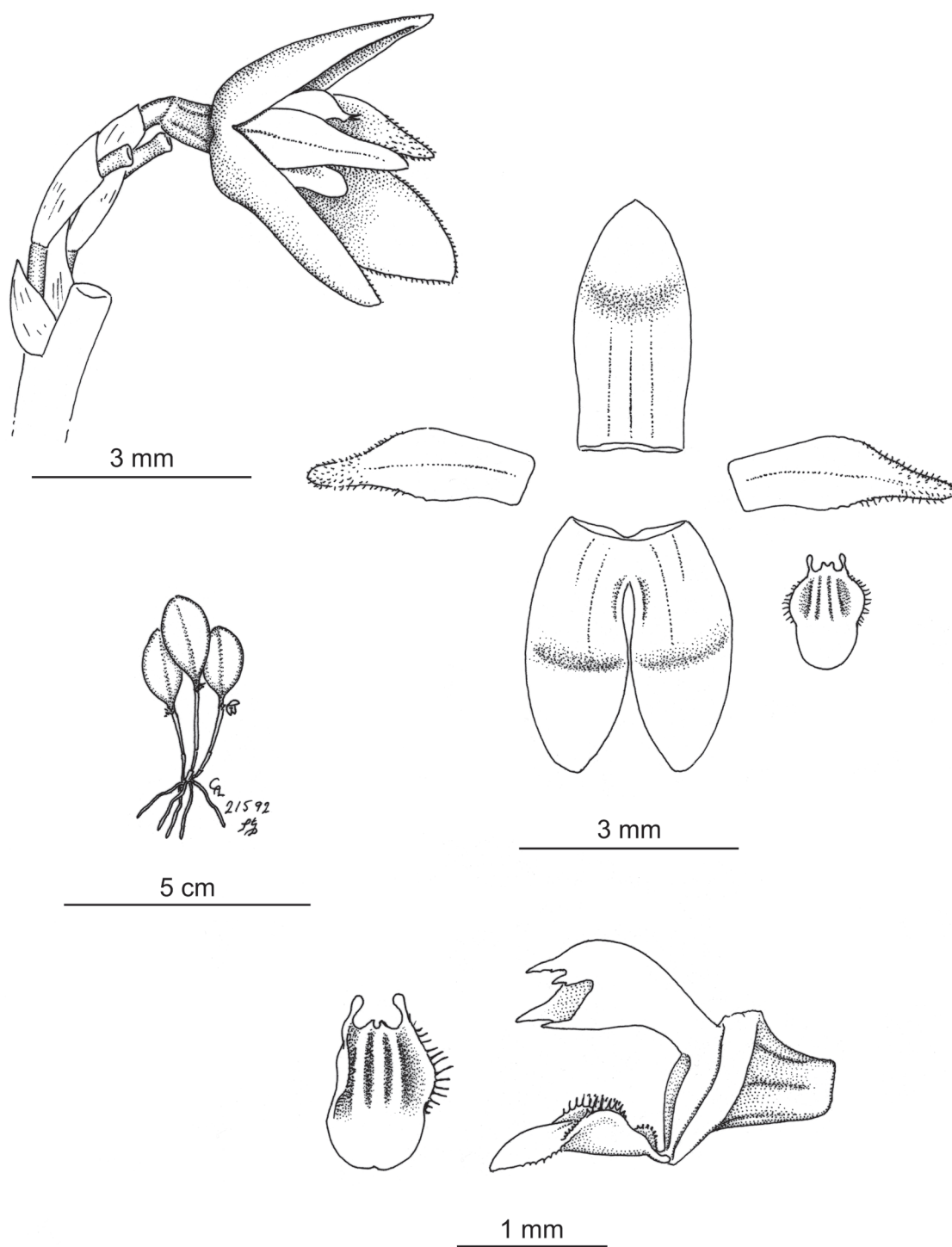


FIGURE 18. *Anathallis paranaensis* (Schltr.) Pridgeon & M.W.Chase. Based on A. Toscano de Brito 2592 (HUEFS). Drawn by C. A. Luer.

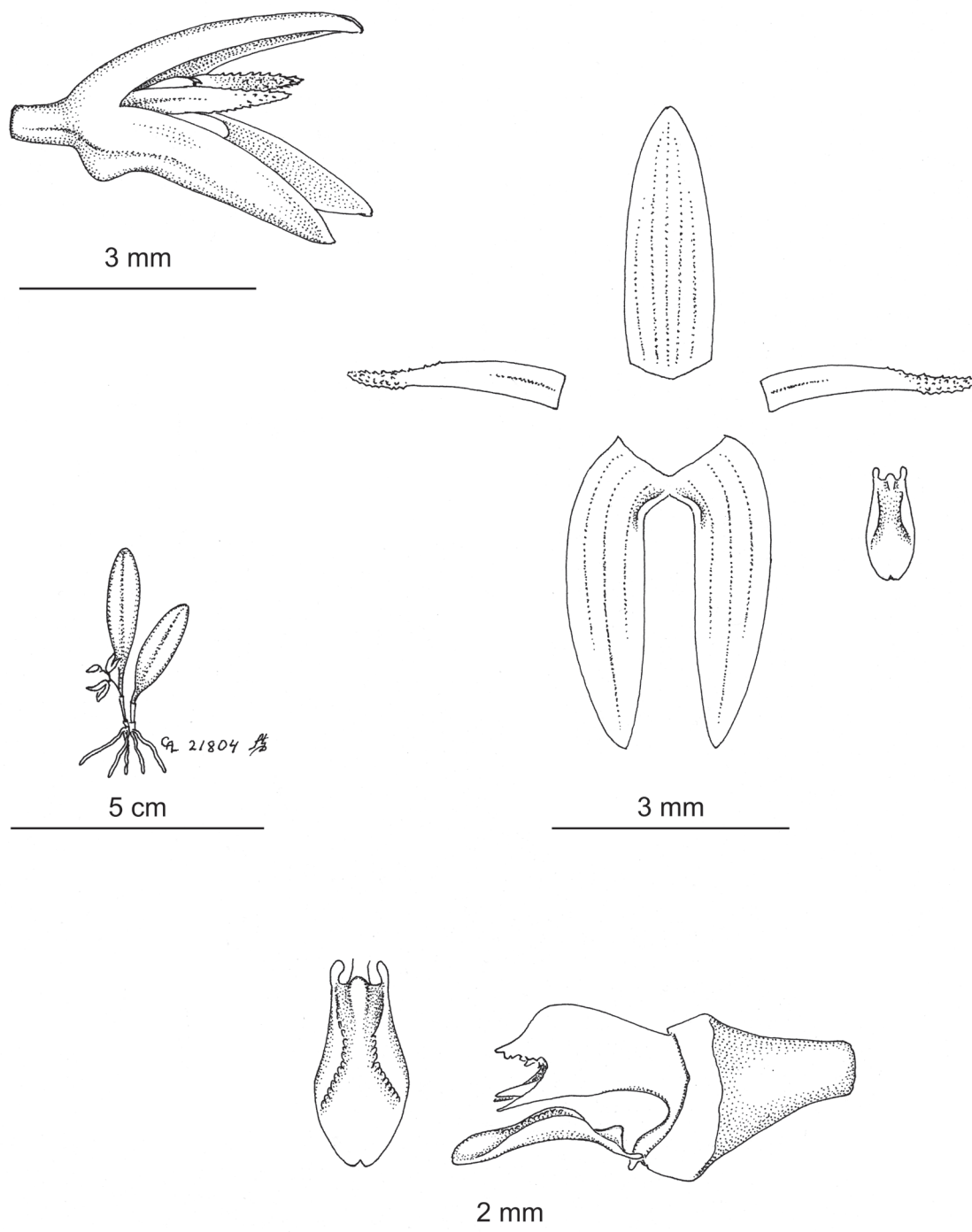


FIGURE 19. *Anathallis paranaensis* (Schltr.) Pridgeon & M.W.Chase. Based on the holotype of *Anathallis longiglossa* Chiron & N.Sanson, G. Chiron 9858 (MBML). Drawn by C. A. Luer.

Figure 17 in the present article illustrates one of them. This feature has been shown to be only a variation of a spectrum ranging from entire to emarginate lip and cannot be used to distinguish *A. microgemma* from *A. paranaensis*. Figure 18 illustrates an intermediate variant collected in the Brazilian state of Paraná.

Study of the holotype of *Anathallis longiglossa* reveals not only that it is conspecific with *A. paranaensis*, but also shows that the illustration of the lip in the protologue of the former (Chiron and Sanson, 2010: fig. 1, f.1–f. 2) is inaccurate. It is so different from the lip in the type specimen that we can only assume that the illustrator either confused one of the lateral sepals as being the lip or based his illustration on a distinct collection. Nevertheless, with the exception of the lip, all other features in the protologue and on the type specimen agree well with those of *A. paranaensis*. The illustration presented herein (Fig. 19) was made from a rehydrated flower from the type specimen of *A. longiglossa*. The tiny flower was too badly flattened to allow an adequate drawing of the lip surface and its callosities. It is worth noticing, however, that the lip of *A. longiglossa* is also emarginate just like in the type of *Pleurothallis microgemma*.

Additional specimens examined: BRAZIL. Espírito Santo: Domingos Martins, collected and cultivated by R. A. Kautsky s.n., fl. cult. 20 March 1999, *A. Toscano de Brito* 2002 (SEL), C. Luer illustr. 21343; Serra do Castelo, vicinity of Fazenda Capijuma, collected by Michel Frey, flowered in cultivation at Capijuma, 6 Mar. 2004, *M. Frey s.n.* (SEL), C. Luer illustr. 20670. Paraná: Rio Tibagi, cultivated by D. H. Baptista s.n., fl. cult. 19 December 2008, *A. Toscano de Brito* 2592 (HUEFS), C. Luer illustr. 21592; Curitiba, flowered in cultivation, 21 March 2007, *Marcos Klingelfus s.n.* (SEL). São Paulo: São Paulo, Parque do Estado, flowered in cultivation, 20 April 1934, *F.C. Hoehne s.n.* (AMES, SP); São Paulo, Parque Jabaquara, 2 February, 1926, *F.C. Hoehne s.n.* (SP-17176); São Bernardo do Campo, Serra do Mar, 800 m, *M. Campacci and V.P. Castro s.n.* (SEL), C. Luer illustr. 18212; without collection data, flowered in cultivation in Embú, São Paulo, 11 March 2007, *R.B. Galati s.n.* (SEL), C. Luer illustr. 21082; Caucaia, flowered in cultivation, 12 March 2007, *Orquidário Colibri s.n.* (SEL), C. Luer illustr. 21106.

Lankesteriana caudatipetala (C.Schweinf.) Karremans, *Lankesteriana* 13(3): 327. 2014. Fig. 20–21.

Basionym: *Pleurothallis caudatipetala* C.Schweinf., Bot. Mus. Leaf. 10: 175. 1942. TYPE. PERU. Junín: Chanchamayo Valley, alt. 1500 m, March 1930, C. Schunke 1307 (Holotype: F [622342]; Isotype: AMES [00083282, flower from the holotype, not seen]).

Synonyms: *Pleurothallis gehrtii* Hoehne & Schltr., Arch. Bot. São Paulo 1: 214. 1926, **syn. nov.** TYPE. BRAZIL. São Paulo: Alto da Serra, Mata da Estação Biológica, 6 May 1921, *A. Gehrt s.n.* (Holotype: destroyed at B; Lectotype selected by Barros (2004): SP [5539, photo seen]; Isolectotype: AMES 54815).

Pleurothallis illudens Spann., An. Prim. Reun. Sul-Amer. Bot. 3: 171. 1938 (publ. 1940), **syn. nov.** TYPE. BRAZIL. Rio de Janeiro: Petrópolis, June 1938, collected by Fr. Hermenegildo s.n., *C. Spannagel* 486 (Holotype: SP [42297, photo seen]).

Specklinia caudatipetala (C.Schweinf.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 259. 2004.

Anathallis gehrtii (Hoehne & Schltr.) F.Barros, Orchid Memories: 10. 2004, **syn. nov.**

Specklinia gehrtii (Hoehne & Schltr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 260. 2004, **syn. nov.**

Panmorphia gehrtii (Hoehne & Schltr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 177. 2006, **syn. nov.**

Anathallis caudatipetala (C.Schweinf.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 115: 257. 2009.

Anathallis edmeiae F.J. de Jesus, Xim.Bols. & Chiron, Richardiana 13: 296. 2013, **syn. nov.** TYPE. BRAZIL. São Paulo: Salesópolis, at the border of Salesópolis and Caraguatatuba, 1270 m, 9 March 2013, *F. José de Jesus & J. Rodrigues Gomes s.n.* (Holotype: SP [447912, not seen]).

Lankesteriana gehrtii (Hoehne & Schltr.) Karremans & Luer, Orchids 84(5): 308. 2015, **syn. nov.**

Lankesteriana caudatipetala is widely distributed from Central America into the Andes to southern Brazil. It has been described for Brazil on three occasions: first as *Pleurothallis gehrtii*, second as *Pleurothallis illudens*, and more recently as *Anathallis edmeiae*. We concur with Karremans (2015), who recently recognised *Anathallis edmeiae* as conspecific with *Lankesteriana gehrtii*. However, these two species are only forms of a same taxon and are therefore here placed in the synonymy of *L. caudatipetala*.

This species is frequent in the Brazilian Atlantic forest occurring in Santa Catarina (Spannagel, 1940), Rio de Janeiro, São Paulo, and in Espírito Santo. It is characterized by a lax, flexuous, successively flowered raceme that usually surpasses the leaves. Flowers are very variable in color; sepals, petals and lip run from dark purple, through red-purple to greenish-yellow and intermediate combinations within this spectrum. The sepals are acute, vary from glabrous to ciliate or pubescent, and are connate more or less at or above the middle into a bifid, ovate lamina. The petals are glabrous or pubescent, usually contracted near the middle into a narrowly caudate or linear, apical portion. The lip is oblong to subpendunculate and ciliate. A pair of longitudinal calli begins tall above the middle, diverges near the middle, and in apposition at the base. At base of the lip there are a couple of minute lobules, a common feature found in many other *Lankesteriana* and *Anathallis* species. These lobules are missing in the illustration of the lip in the protologue of *A. edmeiae*. The drawings in the present work illustrate two collections from Rio de Janeiro showing variation in tepals pubescence. The specimen in Fig. 20 has glabrous sepal margins, the synsepal is minutely pubescent in the basal, central portion, and petals are glabrous. The specimen in Fig. 21 has ciliate sepals and minutely ciliate petals.

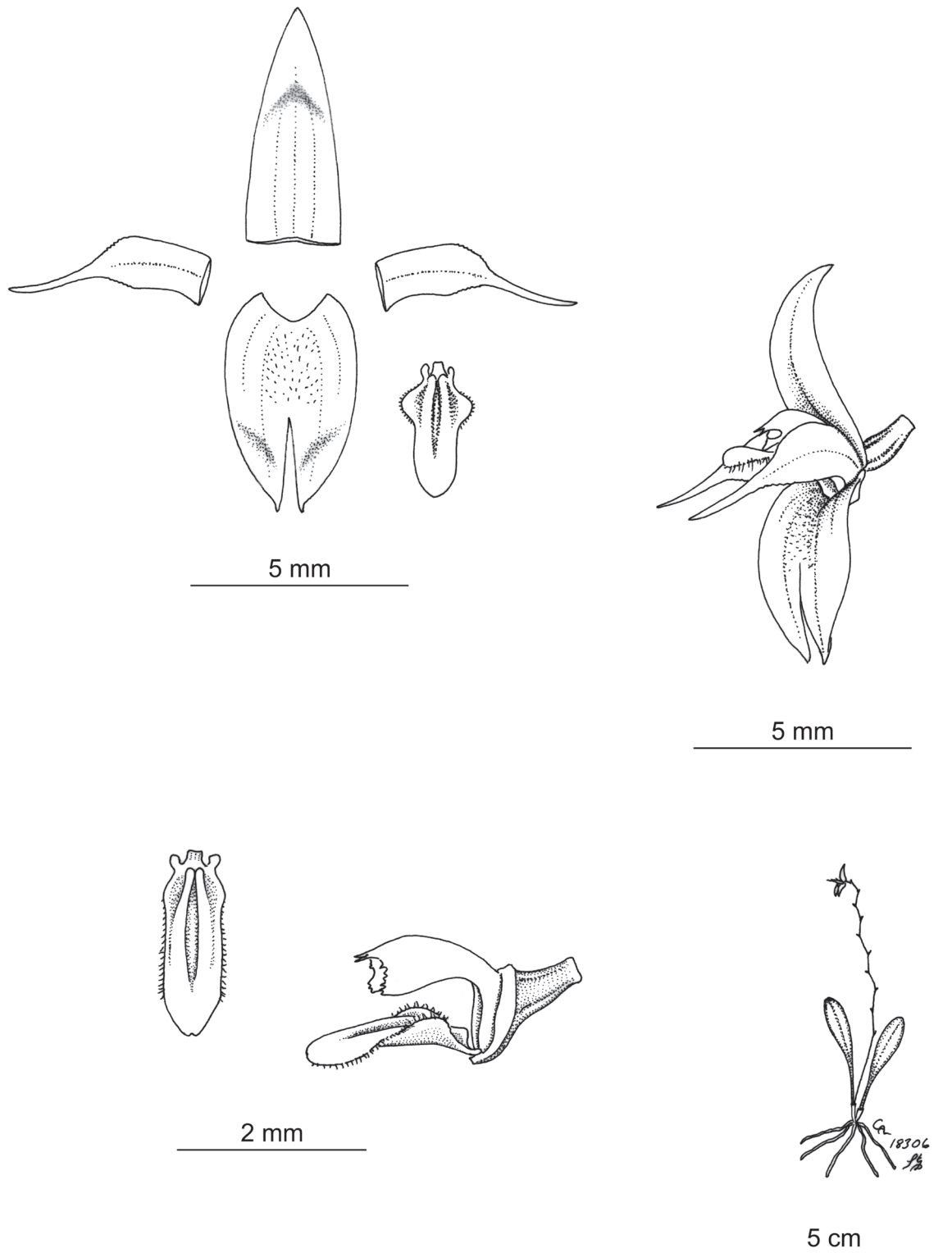


FIGURE 20. *Lankesteriana caudatipetala* (C.Schweinf.) Karremans. Based on A. Toscano de Brito s.n., C. A. Luer illustr. 18306 (SEL). Drawn by C. A. Luer.

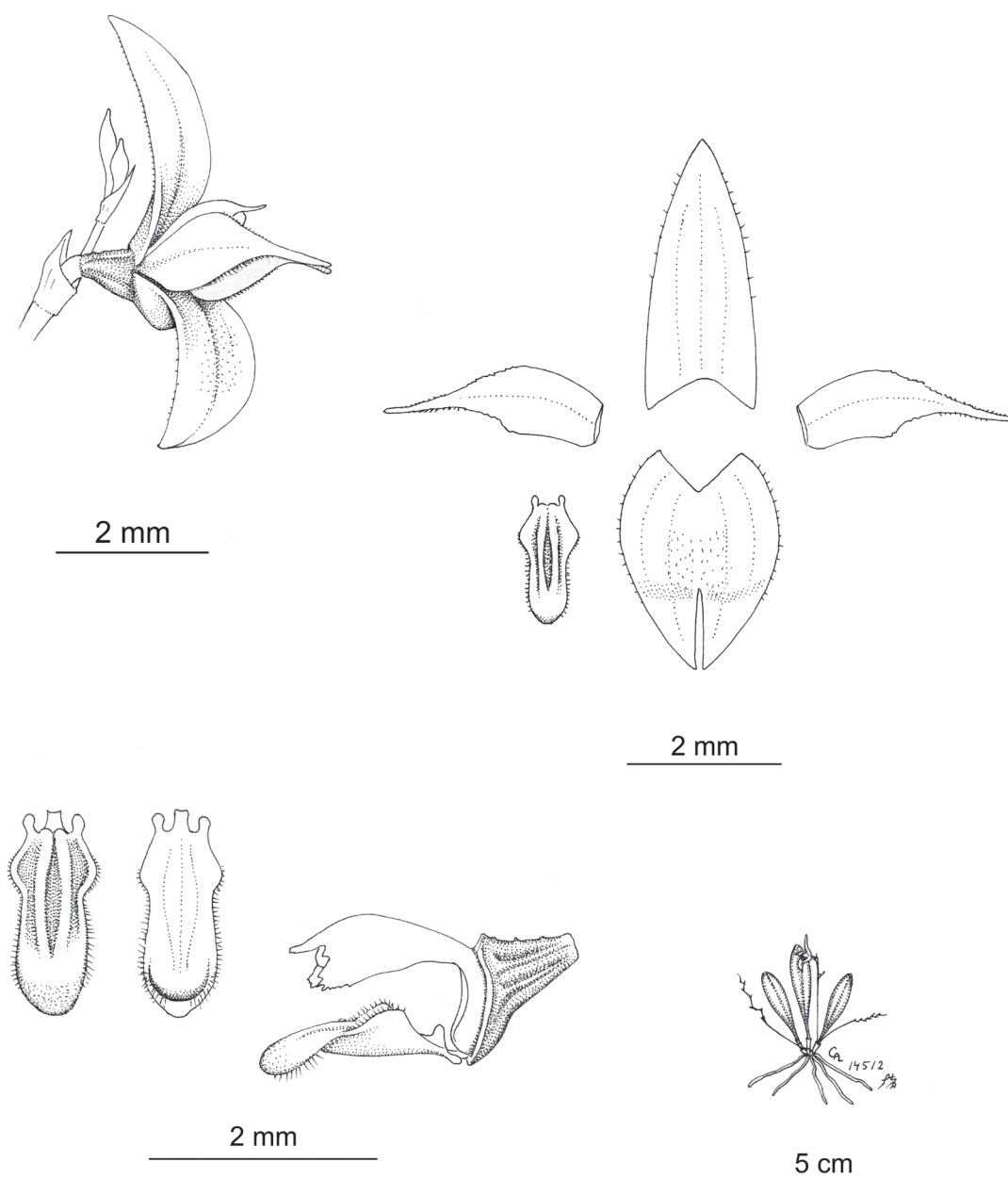


FIGURE 21. *Lankesteriana caudatipetala* (C.Schweinf.) Karremans. Based on *C. Luer 14512* (SEL). Drawn by C. A. Luer.

Additional specimens examined: BRAZIL. Rio de Janeiro: Teresópolis: Picada do Rancho Frio, 1500 m, flowered in cultivation 20 Nov. 1940, *A.C. Brade 16746* (RB); Petrópolis: cultivated at Orquidário Binot by Jorge and Maurício Verboonen, 27 Jan. 1997, *A. Toscano de Brito s.n.* (SEL), *C. Luer* illustr. 18306; near Petrópolis, 1000 m, cultivated at Orquidário Binot by Jorge and Maurício Verboonen, 30 Nov. 1989, *C. Luer 14512* (SEL). São Paulo: São Bernardo do Campo, 800 m, 19 Jan. 1997, *M. Campacci & V.P. Castro s.n.* (SEL), *C. Luer* illustr. 18204. Espírito Santo: Alfredo Chaves, São Bento de Urânia, 1200 m, 20 March 1999, *A. Toscano de Brito & R. Kautsky 1954* (MBML). PERU:

Cuzco: Huancabamba, Machu Picchu, 2040 m, 16 April 1943, *C. Vargas 3367* (AMES); Urubamba, Machu Picchu, on rocks, 2040 m, ca. 16 April 1948, *C. Vargas 3367* (AMES). BOLIVIA: La Paz: Nor Yungas, Yierbani, alt. 2750 m, collected by M. Manon, 5 Feb. 1980, *C. Luer 5132* (SEL). Cochabamba: Chapare, between Cochabamba and Villa Tunari, alt. 1200 m, 17 Jan. 1988, *C. Luer, J. Luer & R. Vásquez 12854* (MO). ECUADOR: Pichincha: old road between Quito and Santo Domingo, collected by C.H. Dodson, cultivated at SEL, 1975, *C. Luer 565* (SEL). COSTA RICA: San José: near Cascajal, 1700 m, collected and cultivated by W. Ballestero, 21 Mar. 1986, *C. Luer & B. Luer 12137* (MO).

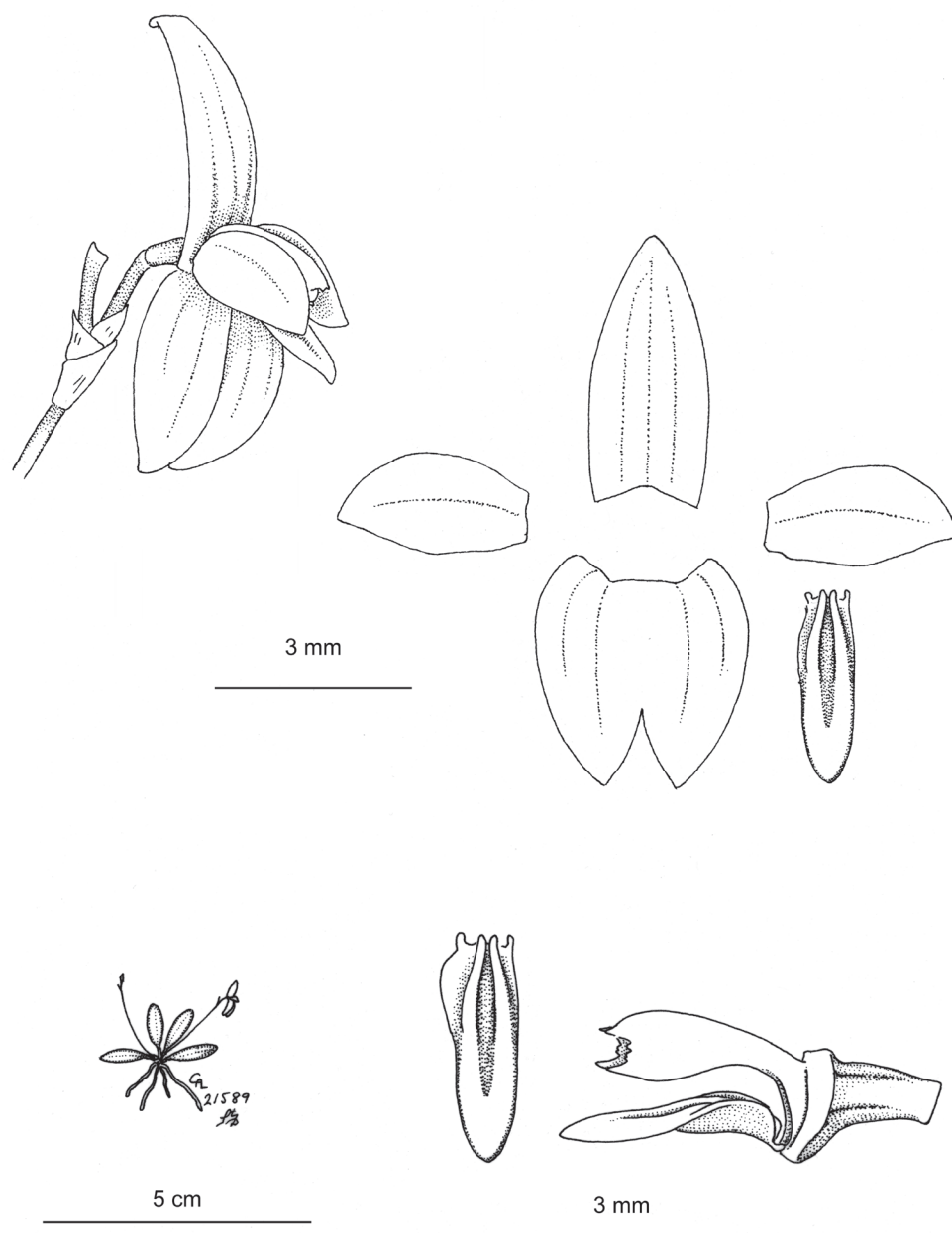


FIGURE 22. *Lankesteriana imberbis* (Luer & Hirtz) Karremans. Based on A. Toscano de Brito 1573 (MBML). Drawn by C. A. Luer.

Lankesteriana imberbis (Luer & Hirtz) Karremans, *Lankesteriana* 13(3): 327. 2014. Fig. 22.

Basionym: *Pleurothallis imberbis* Luer & Hirtz, *Lindleyana* 11: 163. 1996. TYPE: ECUADOR. Morona-Santiago: Cordillera de Cuticú, epiphytic in forest along the new road between Mendez and Morona, alt. ca. 900 m, 19 January 1989, A. Hirtz, A. Andreetta & S. Ortega 4136 (Holotype: MO [5259628]), C. Luer illustr. 14917.

Synonyms: *Pleurothallis aondae* Carnevali & G.A.Romero in G.A.Romero & G.Carnevali, *Orchids Venez.* (ed. 2): 1141. 2000. TYPE: VENEZUELA. Bolívar: forest of Río Aonda, Auyantepui, alt. 600 m, September

1972, C.G.K. *Dunsterville* 1239 (Holotype: AMES [00287231, drawing]).

Specklinia imberbis (Luer & Hirtz) Luer, *Monogr. Syst. Bot. Missouri Bot. Gard.* 95: 261. 2004.

Panmorphia imberbis (Luer & Hirtz) Luer, *Monogr. Syst. Bot. Missouri Bot. Gard.* 105: 160. 2006.

Specklinia rubidantha Chiron & Xim.Bols. *Richardiana* 9(3): 125. 2009, **syn. nov.** TYPE: BRAZIL. Espírito Santo, Domingos Martins, Biriricas, 200–600 m, collected by R.X. Bolsanello 90511, *G. Chiron* 9381 (MBML [not located]; Isotype: LY [not seen]).

Anathallis imberbis (Luer & Hirtz) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 115: 258. 2009.

Lankesteriana rubidantha (Chiron & Xim.Bols.) Karremans, Lankesteriana 13(3): 327. 2014, *syn. nov.*

Lankesteriana imberbis was originally described in the genus *Pleurothallis* R.Br. based on a collection from lowland Ecuador. Two other collections, one from Amazonian Bolivia and one from Amazonian Brazil, were also cited in the protologue. Comparison of the collections cited in the protologue and two additional collections from Domingos Martins, in Espírito Santo, southeast Brazil, with the protologue of the recently described *Specklinia rubidantha*, whose type specimen also comes from Domingos Martins, leaves no doubt that *S. rubidantha* is a synonym of *Lankesteriana imberbis* and corroborates the view of Karremans (2015) who alluded to this synonymy. The illustration of the lip in the protologue of *Specklinia rubidantha* (page 126, fig. 1–2) is crude, seems to be inaccurate and therefore misleading: the lip is shown with disc free of callosities and the truncate base lacks basal lobules, features always present on the lip of *L. imberbis*. We have been unable to locate the holotype of *S. rubidantha* at MBML

during a recent visit by one of us (ALVTB). Apparently a specimen has not been deposited in this herbarium. The two collections from Domingos Martins cited in the present article, *A. Toscano de Brito 1449* and *A. Toscano de Brito 1573*, confirm the presence of *Lankesteriana imberbis* in southeast Brazil. One of them, *A. Toscano de Brito 1573*, is illustrated in Fig. 22. This species seems to rival in distribution *Lankesteriana barbulata* (Lindl.) Karremans, a frequent and apparently closely related species. We believe that other collections of *L. imberbis* might exist in Brazilian herbaria misidentified as *L. barbulata*.

Additional specimens examined: ECUADOR. Napo: between Puerto Napo and Misahualli, alt. 430 m, 23 June 1987, *C.H. Dodson and M.W. Chase 17230* (MO). BRAZIL. Espírito Santo: Domingos Martins, collected by *R.A. Kautsky s.n.*, 1996, flowered in cultivation in February 1997, *A. Toscano de Brito 1573* (MBML), *C. Luer* illustr. 21589; same locality, collected by *R.A. Kautsky s.n.*, 1996, flowered in cultivation 14 April 1997, *A. Toscano de Brito 1449* (MBML). Amazonas: Igarapé do Tarumã, near Manaus, alt. 200 m. collected by *M. Madison*, flowered in cultivation 19 March 1979, *C. Luer 4038* (SEL).

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