

# MISCELLANEOUS NEW SPECIES IN THE PLEUROTHALLIDINAE (ORCHIDACEAE)

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**Abstract.** Two new species of *Crocodelanthe*, *C. dewildei* and *C. steinbachii*, three new species of *Masdevallia*, *M. calochrysos*, *M. driesseniana* and *M. rostriflora*, and one new species of *Pleurothallis*, *P. amentacea*, are described and illustrated.

**Keywords:** *Crocodelanthe*, *Masdevallia*, *Pleurothallis*, *Stelis*

Two species of *Crocodelanthe* Rchb. f. & Warsz., three species of *Masdevallia* Ruiz & Pav., one species of *Pleurothallis* R. Br. and one species of *Stelis* Sw. are described as new.

As discussed elsewhere (Toscano de Brito, 2018), the genus *Crocodelanthe* is related to *Stelis* Sw. Vegetatively, *Crocodelanthe* is inseparable from many species of *Stelis*, which is reflected in portions of their DNA. Species of *Crocodelanthe* are distinguished by morphology of the sepals, petals, lip and column. The sepals of *Crocodelanthe* are developed into a recognizable dorsal sepal, which is free of variably connate to the lateral sepals that are also more or less connate and antrorse. The sepals of *Stelis* are either similar (*Stelis* sect. *Stelis*) or dissimilar with the lateral sepals more or less connate, often into a concave synsepal [*Stelis* sect. *Humboldtia* (Ruiz & Pav.) Pers.]. These patterns do not occur in *Crocodelanthe*. The petals of *Crocodelanthe* are longer than wide. The petals of *Stelis* are usually wider than long. Many are thick with a transverse callus. The lip of *Crocodelanthe* is usually thick, with a pair of calli in most species, and occasionally forming lateral lobes. In all species the base is concave on the end and articulated to the tip of the column-foot. The concavity is sometimes narrow and not easily seen, resembling a hinge, and the anterior margin not being apparent. This type of articulation, usually referred to as “ball and socket,” does not occur in *Stelis*. The column of *Crocodelanthe* is more or less terete with a single, subapical anther with a pair of pollinia, and a ventral stigma. The column of *Stelis* is short and usually with a pair of apical stigmatic lobes, one on either side of the central, bilocular anther, and each locule with a single pollinium. The occasional species with the stigmatic lobes confluent beneath the rostellum have been segregated into *Apatostelis* Garay (Garay, 1980), a synonym of *Stelis*.

***Crocodelanthe dewildei*** Luer & Toscano, *sp. nov.* TYPE: COLOMBIA. Risaralda: Santa Rosa de Cabal, Ucumarí, Regional Nature Reserve, 2250 m, 10 Oct. 1992, A. de Wilde 339 (Holotype: MO), C. Luer illustr. 21922. Fig. 1.

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This large species is characterized by a thick rhizome, long ramicauls, and one or two many-flowered racemes shorter than an elliptical leaf; small, fleshy, obtuse sepals; oblong, membranous, single-veined petals; and a fleshy lip with erect, broadly rounded margins overlaid with similarly shaped calli nearly to the tip.

*Plant* large, epiphytic, densely caespitose from a rhizome 5 mm thick; roots slender. Ramicauls erect, stout, 18–23 cm long, with a close, tubular sheath on the middle third and 2–3 other sheaths below at the base. *Leaf* erect, coriaceous, elliptical, subacute, 14–16 cm long including a petiole 1–1.5 mm long, the blade 3 cm wide in the dry state, cuneate below into the petiole. *Inflorescence* an erect, strict, distichous, subsecund, many-flowered raceme, with many flowers open simultaneously, 7–10 cm long including the peduncle 1–2 cm long, subtended by a spathe 2 cm long, from a node below the apex of the ramicaul; floral bracts tubular, obtuse, 1.5–2 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; flowers light green, slightly suffused with rose; *sepals* glabrous, fleshy, sepals ovate, subacute to obtuse, 2.5 mm long, 2 mm wide, 3-veined; *petals* membranous, oblong, rounded at the tip, 1.5 mm long, 1 mm wide; *lip* fleshy, ovoid, with erect sides, rounded at the tip, 2 mm long, 1.2 mm wide unexpanded, with low, rounded calli overlying the margins toward the apex, the base truncate with a transverse cavity to which the base of the column is attached; *column* terete, stout, 1 mm long, the anther apical, the stigma ventral.

**Etymology:** Named for José Ahrend de Wilde, who collected and cultivated this species.

This large species is characterized by a raceme of small, fleshy flowers, which is shorter than the leaf; thin, oblong and single-veined petals; and the ovoid lip. A pair of flat, rounded calli overlie the erect margins of the lip near the apex. It is apparently related to the much smaller and more widely distributed *C. pachypus* (Lehm. & Kraenzl.) Luer and also to the Bolivian *C. vasquezii* Luer. The former differs by the subquadrate lip with distinct callosities, and the latter by the three-lobed lip.

**Crocodelanthe steinbachii** Luer & Toscano, *sp. nov.* TYPE: BOLIVIA. Cochabamba: Chapare, Incaacorral, 2350 m, 19 March 1929, *J. Steinbach s.n.* (Holotype: AMES [116369]), C. Luer illustr. 21887. Fig. 2.

This species is characterized by a minutely flowered raceme about as long as an elliptical leaf; fleshy sepals with the dorsal sepal cymbiform; large, spatulate, membranous, single-veined petals; a fleshy lip with erect, broadly rounded halves; and a curved, cylindrical column.

*Plant* small to medium-sized, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 5–7 cm long, with a close, tubular sheath from below the middle and 2–3 other sheaths below. *Leaf* erect, coriaceous, elliptical, acute, 5–8 cm long including a petiole 1–1.5 mm long, the blade 1–1.3 mm wide in the dry state, cuneate below into the petiole. *Inflorescence* an erect, strict, distichous, simultaneously many-flowered raceme, 5–7 mm long including the peduncle less than 1 cm long, subtended by a spathe 8–10 mm long, from a node below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1–1.5 mm long; ovary 1 mm long; flowers transparent light green, suffused with violet (*fide* collector); *sepals* glabrous, fleshy, the dorsal sepal cymbiform, 2 mm long, 1 mm wide unexpanded, 3-veined, the lateral sepals oblong, subacute, 2 mm long, 1 mm wide, thickened along the veins; *petals* membranous, spatulate, unguiculate, broadly obtuse at the apex, 1.5 mm long, 1 mm wide, thickened externally along the midvein; *lip* fleshy, oblong with erect sides broadly rounded, the apices obtuse, with a small lobule, 1 mm long, 1.2 mm wide if expanded, the base truncate, narrowly concave between the rounded bases of the lip, strongly connate to the base of the column; column terete, curved, 1 mm long, the anther apical, the stigma ventral, the foot thick.

**Etymology:** Named for José Steinbach, German naturalist who emigrated to Bolivia and collected the type of this species.

*Crocodelanthe steinbachii* is a small to medium sized species without close relatives. It is characterized by a minutely flowered raceme about as long as an elliptical leaf; fleshy sepals with the dorsal sepal cymbiform; large, spatulate, membranous, single-veined petals; a fleshy lip with erect, broadly rounded halves; and a curved, cylindrical column.

**Masdevallia calochrysos** Luer & Sijm, *sp. nov.* TYPE: ECUADOR. Without collection data, flowered in cultivation in Venhuizen, the Netherlands, March 2013, A. P. Sijm 20130401 (Holotype: MO); C. Luer illustr. 21819. Fig. 3.

Among the species of *Masdevallia* subsect. *Saltatrices* (Rchb. f.) Luer, this species is recognized by the broadly cylindrical and bright orange sepaline tube, the elongated and recurved basal process of the petals, the ovate lip, and the extension of the tip of the column-foot, which is elongated as in *M.* subsect. *Oscillantes* Luer.

*Plant* medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2 cm long, enclosed by 1–2 tubular sheaths. *Leaf* erect, coriaceous, petiolate, 9 cm

long including the petiole 3 cm long, the blade elliptical, subacute, 2 cm wide, the base cuneate into the petiole. *Inflorescence* a solitary, more or less horizontal flower borne by a slender, suberect peduncle 6 cm long, with a bract near the base, from low on the ramicaul; floral bract unknown; pedicel unknown; ovary 7 mm long; *sepals* bright orange, yellow at the apex, glabrous externally, the dorsal sepal obovate, 19–20 mm long, 9 mm wide, connate to the lateral sepals for 18 mm into a cylindrical, ventricose tube, the free portion transversely ovate, then abruptly contracted into a slender, orange tail 30–34 mm long, the lateral sepals 20–21 mm long, connate 19 mm into an oblong, broadly ventricose lamina 14–18 mm wide, sparsely pubescent toward the apices, the apices rounded abruptly contracted into tails similar to that of the dorsal sepal; *petals* oblong, 7 mm long, 2 mm wide, the apex with a short, obtuse apiculum, the labellar half with a longitudinal callus ending in a 2 mm long, retrorse process, incurved at the tip; lip ovate, 6 mm long, 3 mm wide, the apex obtuse, the base truncate, hinged beneath; column semiterete, 4 mm long, the foot 5 mm long with a long, slender, incurved extension.

**Etymology:** From the Greek *calochrysos*, “beautiful gold,” referring to the flowers.

With a bright orange sepaline tube, this species joins a select few in *Masdevallia* subsect. *Saltatrices*. The sepaline tube is broad and cylindrical and ventricose near the middle. The basal process of the petals is elongated with the tip incurved. By a long, slender, curved extension from the base of the column, the ovate lip is held forward where it certainly must oscillate, but to what degree is limited by the sides of the sepaline tube.

**Masdevallia driesseniana** Luer & Sijm, *sp. nov.* TYPE: PANAMA. Chiriquí: near Amistad, 1300 m, collected by P. Dubbeldam and A. Sijm, 2003, flowered in cultivation by Wiel Driessen in Panningen, the Netherlands, February 2013, A. P. Sijm 20130208 (Holotype: MO); C. Luer illustr. 21809. Fig. 4.

This species is related to *Masdevallia audax* Königler, but differs with broader leaves; a longer peduncle; longer, protruding petals; and a broader lip with a longitudinal callus and a slender, terete apex.

*Plant* small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, ca. 1 cm long, enclosed by a tubular sheath from above the base and another at the base. *Leaf* erect, coriaceous, elliptical-oblongate, subacute to obtuse, 5–10 cm long including a petiole ca. 2 cm long, the blade 0.8–1.6 cm wide, narrowed below to the petiole. *Inflorescence* a single flower borne by a slender, erect peduncle 8–9 cm long, from low on the ramicaul; floral bract tubular, acute, 12 mm long; pedicel 8 mm long; ovary green, 5–6 mm long; *sepals* pale green, suffused with rose, glabrous, the dorsal sepal elliptical, concave, 30 mm long including the tail, the blade 15 mm long, 8 mm wide, connate to the lateral sepals for 8 mm to form a sepaline tube, the apex acute, contracted into a stout, terete tail 15 mm long, the lateral sepals elliptical, connate ca. 6 mm into a bifid synsepal 30 mm long, 15 mm

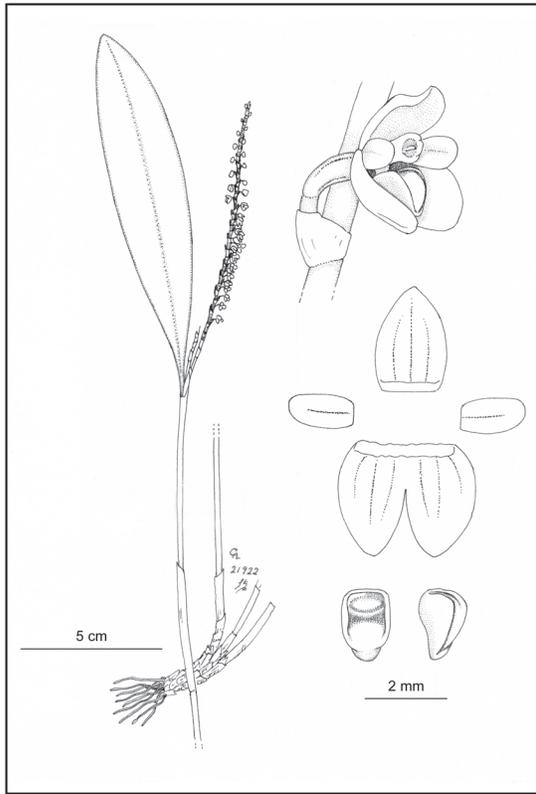


FIGURE 1. *Crocodeilanthe dewildei* Luer & Toscano

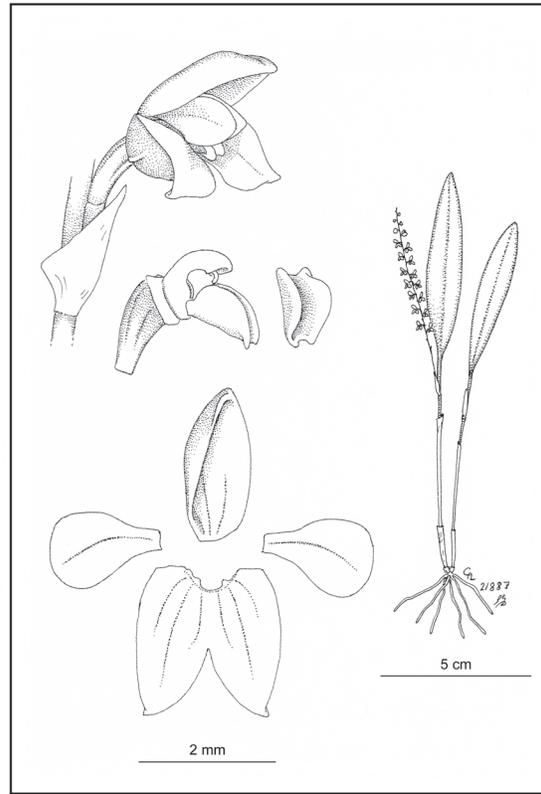


FIGURE 2. *Crocodeilanthe steinbachii* Luer & Toscano

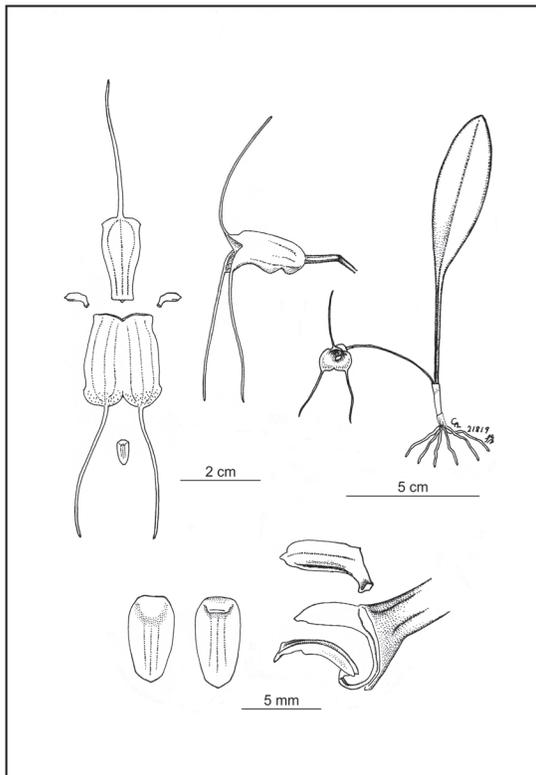


FIGURE 3. *Masdevallia calochrysis* Luer & Sijm

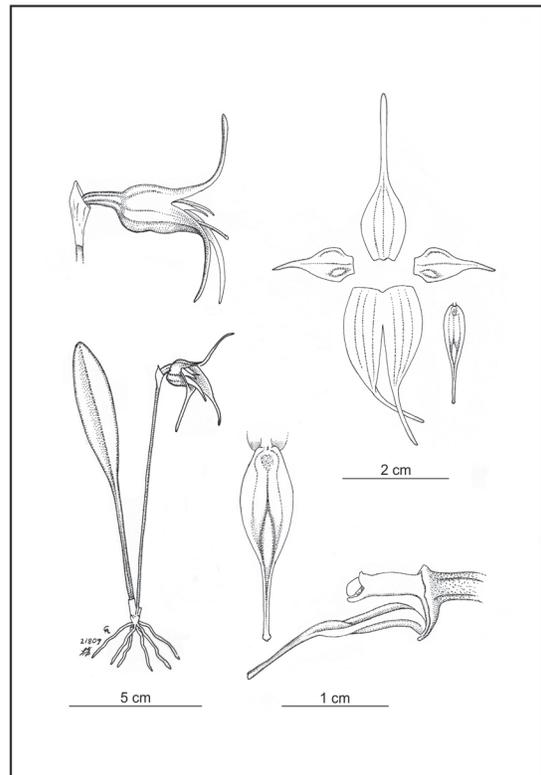


FIGURE 4. *Masdevallia driesseniana* Luer & Sijm

wide, the apices acute, contracted into stout tails ca. 10 mm long, similar to that of the dorsal sepal, 1 mm thick; *petals* rose, ovate, 15 mm long, 6.5 mm wide, 1-veined, contracted near the middle into an acute, acuminate tip, the blade with a 2-mm-long lamella toward base on the lower portion; *lip* dark rose, ovate, 18 mm long including the tip, 5.5 mm wide, 4-veined, the sides membranous, acuminate near the middle into a slender, terete tip 8–9 mm long, with a smooth, longitudinal convexity from near the middle of the blade and extending onto the terete tip, with a shallow, rounded depression at the base, the base contracted into a solid, fixed process connected to the tip of the column-foot; *column* terete, 6 mm long, the foot 3 mm long, the anther non-deciduous in the apical clinandrium, the pair of pollinia adherent within the anther cap.

**Etymology:** Named for Wiel Driessen of Panningen, the Netherlands, who successfully cultivates this species.

This unusual species of *Masdevallia* has been found in Chiriquí, Panama, near the border with Costa Rica. It is related to *Masdevallia audax* König from Amazonian Peru. The habit and sepals are not remarkable for the genus, but the acuminate petals and lip that protrude from the sepaline tube are most distinctive. Both petals and lip are contracted near the middle into long, slender, acuminate tips.

**Masdevallia rostriflora** Luer & Sijm, *sp. nov.* TYPE: PANAMA. Chiriquí: near Amistad, 1800 m, collected by P. Dubbeldam and A. Sijm, 2003, flowered in cultivation by Wiel Driessen in Panningen, the Netherlands, February 2013, A. P. Sijm 20130204 (Holotype: MO); C. Luer illustr. 21810. Fig. 5.

This taxon is closely related to *Masdevallia driesseniana*, described herein, but differs with cleistogamous flowers with an ecallous lip.

*Plant* small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, ca. 1 cm long, enclosed by a tubular sheath from above the base and another at the base. *Leaf* erect, coriaceous, elliptical-oblancoolate, subacute to obtuse, 4–6 cm long including a petiole 1–2 cm long, the blade 1 cm wide, narrowed below to the petiole. *Inflorescence* a single flower borne by a slender, erect peduncle ca. 3 cm long, from low on the ramicaul; floral bract tubular, acute, 12 mm long; pedicel 12 mm long; ovary green, 5–6 mm long; *sepals* pale green, suffused with rose, glabrous, the dorsal sepal elliptical, concave, 30 mm long including the tail, the blade 15 mm long, 9 mm wide, completely connate to the lateral sepals, the apex acute, contracted into a stout, terete tail 15 mm long along with the tails of the lateral sepals, the lateral sepals elliptical-oblong, completely connate, 30 mm long, 10 mm wide, the apices acute, contracted into tails along with the tail of the dorsal sepal; *petals* white, ovate, 15 mm long, 4 mm wide, 1-veined, contracted near the middle into an acute, acuminate tip; *lip* white, ovate, 20 mm long, 4 mm wide, 2-veined, acuminate from near the middle into a slender, terete tip 8 mm long, the base truncate, fixed to the tip of the column-foot; *column* terete, 7 mm long, 3.5 mm thick, the foot subnil, the anther non-deciduous in the apical clinandrium, the pair of pollinia fixed within the anther cap.

**Etymology:** From the Latin *rostriflora*, “with beaked, or

snout-nose flower,” referring to the long, connate tails of the lateral sepals.

The flowers of this cleistogamous species are similar to those of *Masdevallia driesseniana*, and comes from the same locality where the latter was found, but at a slightly higher altitude. In addition to the cleistogamous flowers, in *Masdevallia rostriflora* the body of the lip below the long-acuminate apex is slightly concave without the longitudinal convexity seen in *M. driesseniana*. The truncate base of the lip is solidly united to the base of a footless column.

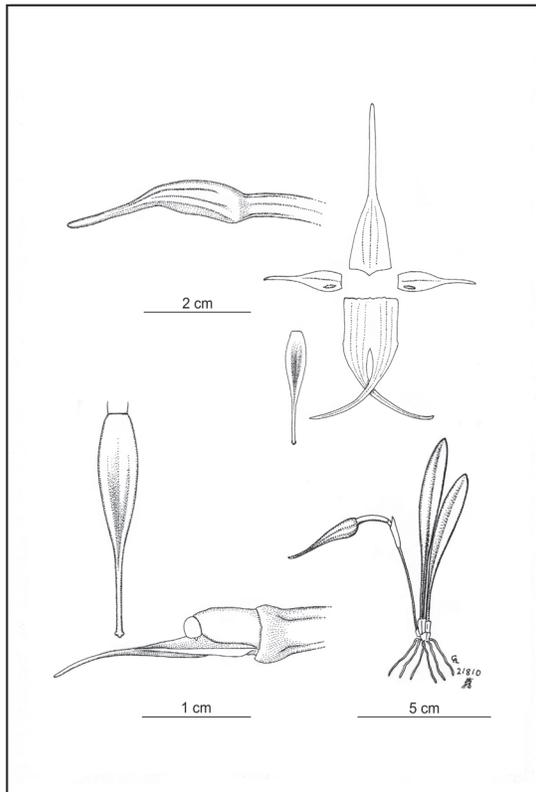
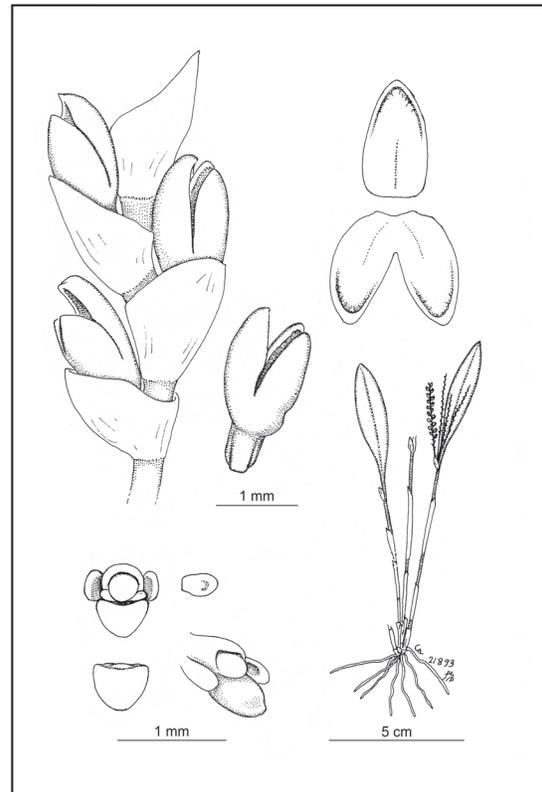
**Pleurothallis amentacea** Luer & Toscano, *sp. nov.* TYPE: BOLIVIA. Santa Cruz: Pojos, Huertas, 2900 m, 31 October 1928, J. Steinbach 8589 (Holotype: AMES; Isotype: BOLV), C. Luer illustr. 21893. Fig. 6.

This small, caespitose species of *Pleurothallis* subsect. *longiracemosae* Luer is characterized by minute, closed flowers borne erect, partially within comparatively large floral bracts; the sepals are concave and apparently single-veined; the petals are oblong and thickened at the apex; the minute, ovate lip is featureless; and the column is short with an apical anther and ventral stigma.

*Plant* small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4–7 cm long, with a tubular sheath from below the middle and 2 tubular sheaths below and at the base. *Leaf* erect, coriaceous, elliptical, acute at the tip, 4–6 cm long including a petiole 0.5 cm long, the blade 1 cm wide in the dry state, cuneate below into the petiole. *Inflorescence* 3–4 erect, distichous, congested, many-flowered racemes 3–4 cm long including the peduncle ca. 0.5 cm long, from a node below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels less than 1 mm long; ovary 0.3 mm long; color of flowers not stated; *sepals* fleshy, convex with an indistinct, midline thickening, without other visible veins, glabrous externally, sparsely pubescent within above the middle, the dorsal sepal ovate, subacute, 1 mm long, 0.6 mm wide, connate basally to the lateral sepals, the lateral sepals antrorse, ovate, oblique, 1 mm long, 0.6 mm wide, connate below the middle; *petals* thick, oblong, rounded and concave at the apex, 0.2 mm long, 0.1 mm wide, without visible vein; *lip* ovate, obtuse, featureless, 0.3 mm long, 0.4 mm wide, the base truncate, hinged to the base of the column; *column* stout, 0.3 mm long and wide, the anther apical, the stigma ventral.

**Etymology:** From the Latin *amentaceus*, “like a pussy willow,” referring to the inflorescence.

This species of *Pleurothallis* subsect. *longiracemosae* was collected in the early twentieth century by José Steinbach, and tentatively identified as a *Stelis*. Like some other members of this section, such as *Pleurothallis divaricans* Schltr. and *Pleurothallis univervia* Luer & Dodson, this new species does indeed resemble a *Stelis* but the morphology of sepals, petals, lip and column readily exclude *Stelis*. The flowers are distinct with fleshy, convex sepals; minute, oblong petals that are concave at the apex; and an ovate, featureless lip. The flowers are non-expanding and borne erect from within equally large floral bracts, giving the appearance of the catkins of a minute pussy willow.

FIGURE 5. *Masdevallia rostriflora* Luer & SijmFIGURE 6. *Pleurothallis amentacea* Luer & Toscano

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