MISCELLANEOUS NEW SPECIES IN THE PLEUROTHALLIDINAE (ORCHIDACEAE)

CARYLYE A. LUEHR and A. L.V. TOSCANO DE BRITO

ABSTRACT. Two new species of Crocodeilanthe, C. dewildei and C. steinbachii, three new species of Masdevallia, M. calochrysan, M. driesseniana and M. rostriflora, and one new species of Pleurothallis, P. amentacea, are described and illustrated.

KEYWORDS: Crocodeilanthe, Masdevallia, Pleurothallis, Stelis

Two species of Crocodeilanthe 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 Crocodeilanthe is related to Stelis Sw. Vegetatively, Crocodeilanthe is inseparable from many species of Stelis, which is reflected in portions of their DNA. Species of Crocodeilanthe are distinguished by morphology of the sepals, petals, lip and column. The sepals of Crocodeilanthe 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 antorse. The sepals of Stelis are either similar (Stelis sect. Stelis) or dissimilar with the lateral sepals more or less connate, often into a concave synsepalc Stelis sect. Humboldtia (Ruiz & Pav.) Pers.). These patterns do not occur in Crocodeilanthe. The petals of Crocodeilanthe are longer than wide. The petals of Stelis are usually wider than long. Many are thick with a transverse callosus. The lip of Crocodeilanthe 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 Crocodeilanthe 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.

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

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 expanded, 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 subquadratic lip with distinct callosities, and the latter by the three-lobed lip.

The authors are grateful to the staff of MO and SEL for making their specimens available for study, to herbaria cited herein that facilitated loans, to Nancy Karam and Wade Collier, volunteers at SEL, for help in assembling the illustrations, to Stig Dalström for inking the figures presented herein, all based on pencil drawings by the senior author, and to the generosity of the Pleurothallid Alliance for making the inking possible.

1 Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299 U.S.A. Mailing Address: 3222 Old Oak Drive, Sarasota, Florida 34239-5019, U.S.A.; cluer@juno.com
2 Marie Selby Botanical Gardens, 811 South Palm Avenue, Sarasota, Florida 34236-7726, U.S.A.; atoscano@selby.org
3 Orchid Herbarium of Oakes Ames, Harvard University Herbaria, 22 Divinity Avenue, Cambridge, Massachusetts 20138, U.S.A.

© President and Fellows of Harvard College, 2018
ISSN: 1938-2944, DOI: 10.3100/hpib.v23iss1.2018.n6, Published online: 30 June 2018
**Crocodeilanthe steinbachii** Luer & Toscano, *sp. nov.*

**TYPE:** BOLIVIA. Cochabamba: Chapare, Incacorral, 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 to the rounded bases of the lip, strongly connate to the base of the column; 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 drieseniana** Luer & Sijm, *sp. nov.*

**TYPE:** PANAMA. Chiriquí: near Amistad, 1300 m, collected by P. Dubbledam and A. Sijm, 2003, flowered in cultivation by Wiel Driesen 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* König, 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-oblanceolate, subacute to obtuse, 5–10 cm long including a petiole ca. 2 cm long, the blade 0.8–1.6 cm wide, narrowly rounded 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 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.

This species is related to *Masdevallia audax* König, 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, 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 drieseniana** Luer & Sijm, *sp. nov.*

**TYPE:** PANAMA. Chiriquí: near Amistad, 1300 m, collected by P. Dubbledam and A. Sijm, 2003, flowered in cultivation by Wiel Driesen 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* König, 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-oblanceolate, 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 externally, 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. Crocodelanthe dewildii Luer & Toscano

Figure 2. Crocodelanthe steinbachii Luer & Toscano

Figure 3. Masdevallia calochrysa Luer & Sijm

Figure 4. Masdevallia drieseniana 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 sepali 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 drieseniana, described herein, but differs with cleistogamous flowers and an ecallous lip.

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, 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 subnial, 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 drieseniana, 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. drieseniana. 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 connate 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 connate 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 amentaeus, “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 divaricants 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.