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INVITED PAPER*

THREE NEW *MASDEVALLIA* SPECIES (ORCHIDACEAE:
PLEUROTHALLIDINAE) FROM PERU

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ABSTRACT. Three new *Masdevallia* species are described, illustrated and compared with similar species. A brief taxonomic discussion is held about the justification for describing the new taxa as *Masdevallia* and not as belonging to any of the recently proposed segregated genera. The first species is most similar to *M. rimarima-alba* but differs in having a more tubular flower and a narrower lip, the second species is similar to *M. dudleyi* and *M. nunezii* but differs in the richly pubescent sepals, and the third species is distinguished from other similar and multiflowered *Masdevallia* species by the rugose lip.

KEY WORDS: Orchidaceae, *Masdevallia*, Pleurothallidiinae, Epidendreae, new species, Peru, taxonomy

In the most traditional circumscription, genus *Masdevallia* Ruiz & Pav., is a large genus in the Pleurothallidiinae, distributed throughout the New World tropics from Mexico in the north to southern Bolivia, primarily along the Andes, but with a few species occurring in Brazil as well. The systematic classification of *Masdevallia* has changed considerably over the years, however, and many groups of species have been transferred to new genera, such as, *Dracula* Luer, *Dryadella* Luer, *Porroglossum* Schltr., *Scaphosepalum* Pfitzer and *Trisetella* Luer.

These transfers were to a considerable extent based on vegetative features in addition to flower morphology, which is user-friendly and makes the genera relatively easy to identify, even without the presence of flowers. A modern classification of the remaining about 350 species of *Masdevallia* (Luer 1986) included vegetatively rather similar plants, which made it easy to spot a *Masdevallia* even without flowers and from several meters distance. Recently, however, molecular work with DNA sequencing has complicated the picture (Abele *et al.* 2005, Pridgeon & Chase 2001), which led Luer to propose a division of the genus, by then about 500 species rich, into 16

new genera, in addition to three already described segregates and the original *Masdevallia* (Luer 2006).

Many growers and scientists have not accepted this proposition and maintain the genus more or less as it was circumscribed by Luer in 1986. For practical reasons, in addition to strict taxonomic reasons, we chose to follow a broader concept of the genus and therefore describe the species treated here as members of *Masdevallia* *sensu* Luer 1986, but at this time without placing them in any particular subgenus or section.

Masdevallia hortilankesteriani Dalström & Ruiz-Pérez, *sp. nov.*

TYPE: Peru. Junín. Terrestrial along road Comas-Cochas, S11°41.008', W075° 04.22', 2800 m. 13 Nov. 2011, *S. Dalström 3510* (holotype, USM). FIGS. 1–4.

Diagnosis: *Masdevallia hortilankesteriani* is similar to the sympatric *M. rimarima-alba* Luer (Fig. 5.) but differs by a more compact vegetative habit, a more campanulate flower with longer and thicker sepaline tails and a narrower lip.

Geophytic or lithophytic *herb.* *Plant* medium in size, caespitose, root-thickness medium for the

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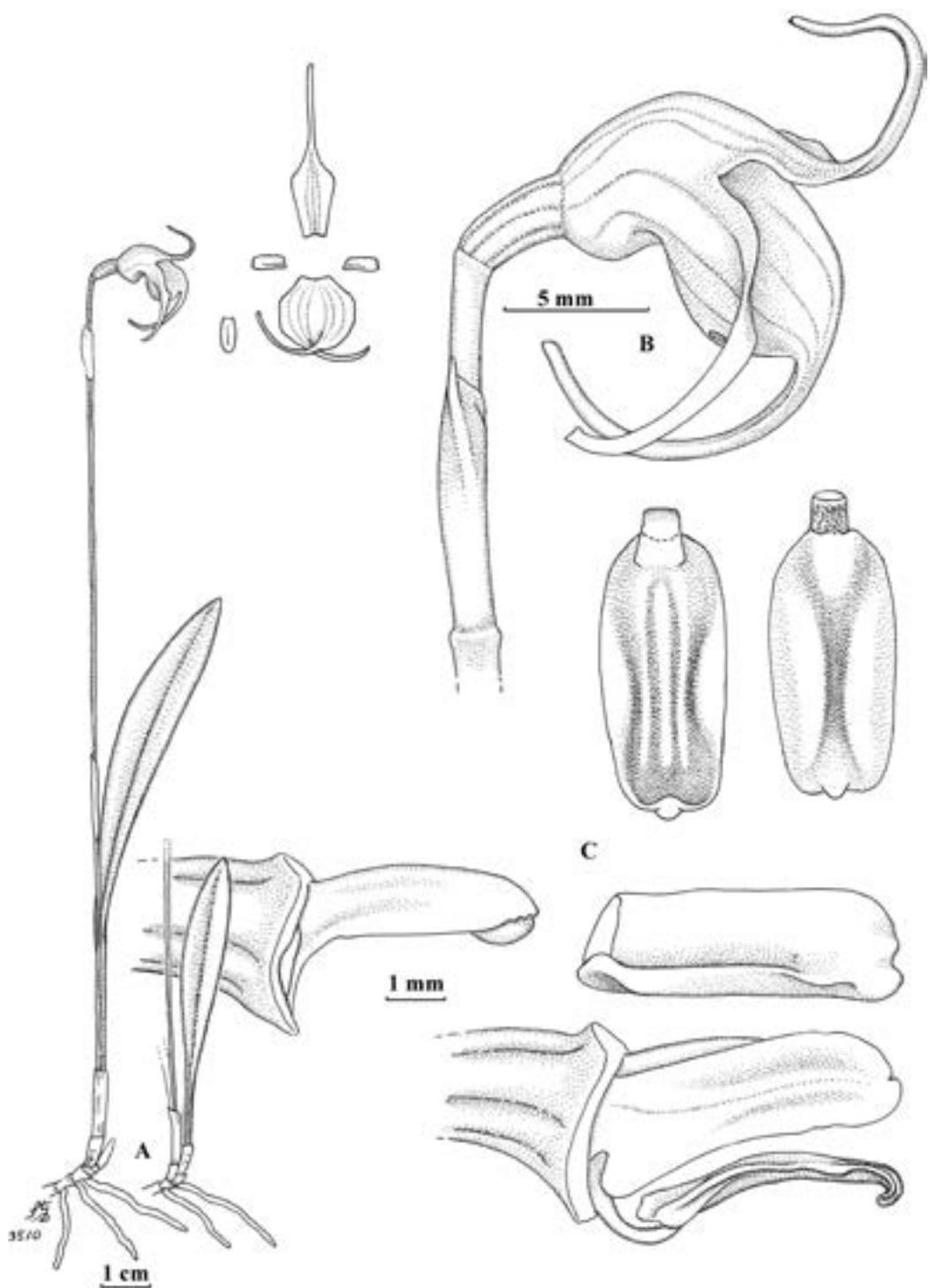


FIGURE 1. *Masdevallia hortilankesteriani*. A — Plant habit, with a dissected flower. B — Flower lateral view. C — Column, lip and petal views. Drawn from the holotype by Stig Dalström.



FIGURE 2. *Masdevallia hortilankesteriani* in natural habitat. Photo by Stig Dalström.

genus. *Ramicauls* erect, slender, 1.0–2.5 cm long, enclosed basally by 3 to 4 tubular sheaths. *Leaf* erect, coriaceous, petiolate, blade basally conduplicate and cuneate, elliptic, obtuse to acute, 6–10 × 0.8–1.1 cm, including the 1.5–3.0 cm long petiole. *Inflorescence* erect, terete, single-flowered, with a to ca. 15 cm long peduncle; *peduncular bract* 1, tubular, below the middle of the peduncle, ca. 1.7–1.8 cm long; *floral bract* appressed, tubular, ca. 1 cm long; *pedicel* ca. 2.0–2.2 cm long; *ovary* smooth, ca. 0.4 cm long. *Flower* attractive, campanulate; *dorsal sepal* white to pale rose, with purple longitudinal stripes along the 3 veins, glabrous and carinate externally, glabrous to microscopically pubescent internally, slightly concave, cuneate, angulate-obovate and connate to the lateral sepals for ca. 13 mm, acuminate into a dorsally rather thick, frontally dull greenish yellow, ventrally purplish tail, ca. 36 × 10 mm, including the ca. 16–17 mm long tail; *lateral sepals* similar in texture and coloration, 3-veined, connate for ca. 13 mm, angulate-ovate, acuminate with apical, rather thick, slightly recurved tails, ca. 30 × 16 mm, including the ca. 13–15 mm long tails; *petals* white, cartilaginous, obliquely oblong and apically truncate and obliquely bilobed, with a ventral fleshy ridge, extending from a lobed, or “toothed”, base, continuing along the lower edge and diminishing near the apex, ca. 6 × 2 mm; *lip* whitish, heavily flushed with brownish purple, with darker longitudinal ventral stripes and a dark purple-brown apex, hinged on the column foot, with a basal swelling and shallowly notched, cuneate, oblong-elliptic, apically truncate, recurved and bluntly apiculate, dorsally slightly canaliculate between



FIGURE 3. *Masdevallia hortilankesteriani* in natural habitat. Photo by Stig Dalström.



FIGURE 4. *Masdevallia hortilankesteriani* flower. Photo by Stig Dalström.

low fleshy ridges, 5.0 × 2.5 mm; *column* white with brown-purple ventral stripes, semi-terete, straight, ca. 4 mm long, with an equally long, curved foot that is slightly pubescent dorsally near the apex; *anther cap* white and campanulate; *pollinia* not seen.

PARATYPES: Peru. Junín. Terrestrial along road Comas—



FIGURE 5. *Masdevallia rimarima-alba*, Huasahuasi. Photo by Stig Dalström.

Cochas, S11°41.008', W075° 04.22', alt. 2800 m. 13 Nov. 2011, *S. Dalström 3508* (USM).

DISTRIBUTION: *Masdevallia hortilankesteriani* is only reported from steep grassy and rocky slopes of the Andes near the town of Comas, in the region of Junín, where it often grows in full sun along the road.

ETYMOLOGY: Named in honor of Lankester Botanical Garden and its staff, in recognition of their support for orchid research in general and in the New World tropics in particular.

Masdevallia karelii Dalström & Ruíz-Pérez, *sp. nov.*

TYPE: Peru. Puno, Sandia, along Rio Chullo in dense, mossy cloud forest, S14°20.769', W69°26.836', alt. ca. 2700 – 2800 m, 25 Nov. 2010, *S. Dalström 3533* (holotype, USM). FIGS. 6–8.

Diagnosis: *Masdevallia karelii* is most similar to species such as *Masdevallia dudleyi* Luer, *M. nunezii* Luer & Dalström, *M. juan-albertoi* Luer & M. Arias, and *M. terborchii* Luer, all occurring in the highlands

of central Peru, but our new species is distinguished from them all by the rich magenta sepaline pubescence.

Epiphytic herb. Plant medium to tall in size, caespitose, root-thickness medium for the genus. *Ramicauls* stout and erect, blackish in the wild, (presumably from a benign fungus) 3.5–3.8 cm long, basally enclosed by 3 to 4 tubular sheaths. *Leaf* erect, coriaceous, petiolate, blade basally conduplicate and cuneate, elliptic to ovate, obtuse, 10–16 × 1.8–2.3 cm, including the to ca. 5 cm long blackish-flushed petiole. *Inflorescence* erect, slender, single-flowered, with a to ca. 13 cm long peduncle; *peduncular bract* above the middle of the peduncle, tubular ca. 0.9 cm long; *floral bract* tubular, to ca. 1.3 cm long; *pedicel* ca. 2 cm long; *ovary* smooth, ca. 0.8 cm long, densely covered by blackish dots in the wild. *Flower* campanulate, attractive; *dorsal sepal* basally dark yellow, then rich magenta purple, and apically white with 3 greenish veins and tail, minutely and scatteredly pubescent externally, and richly covered internally above the middle by long purple-magenta hairs, concave, cuneate, angulate-obovate, connate with the lateral sepals for ca. 1.2 cm, then obtuse to acute with a slender, gently curved tail, ca. 5.5 × 1.5 cm, including the 3.5 cm long tail; *lateral sepals* similar in color and texture, connate for ca. 1.4 cm, angulate-ovate, acute with a slender, recurved apical tail, ca. 5.0 × 2.7 cm, including the ca. 3 cm long tail; *petals* white, shortly unguiculate, cartilaginous, oblong, truncate and obliquely bilobed apically, and with a large, incurved basal lobe, or tooth, continuing as a fleshy keel along the lower edge, diminishing towards the apex, ca. 6 × 2 mm; *lip* whitish with magenta flush and specks, and a brownish apex, hinged on the column foot, with a basal swelling, the hypochile cordate to truncate, ovate to pandurate, the epichile with down-folded edges, acute, dorsally shallowly canaliculate between swollen longitudinal ridges, ca. 5.0 × 2.7 mm; *column* white with brown-purple ventral stripes, semiterete, straight, ca. 4.5 mm long, with an equally long, curved foot; *anther cap* white, campanulate; *pollinia* not seen.

DISTRIBUTION: *Masdevallia karelii* is only reported from a limited area near Sandia, Puno, Peru, where it grows epiphytically on mossy trunks and branches, commonly near and sometimes on the ground among mossy debris, at 2600 – 2800 m.

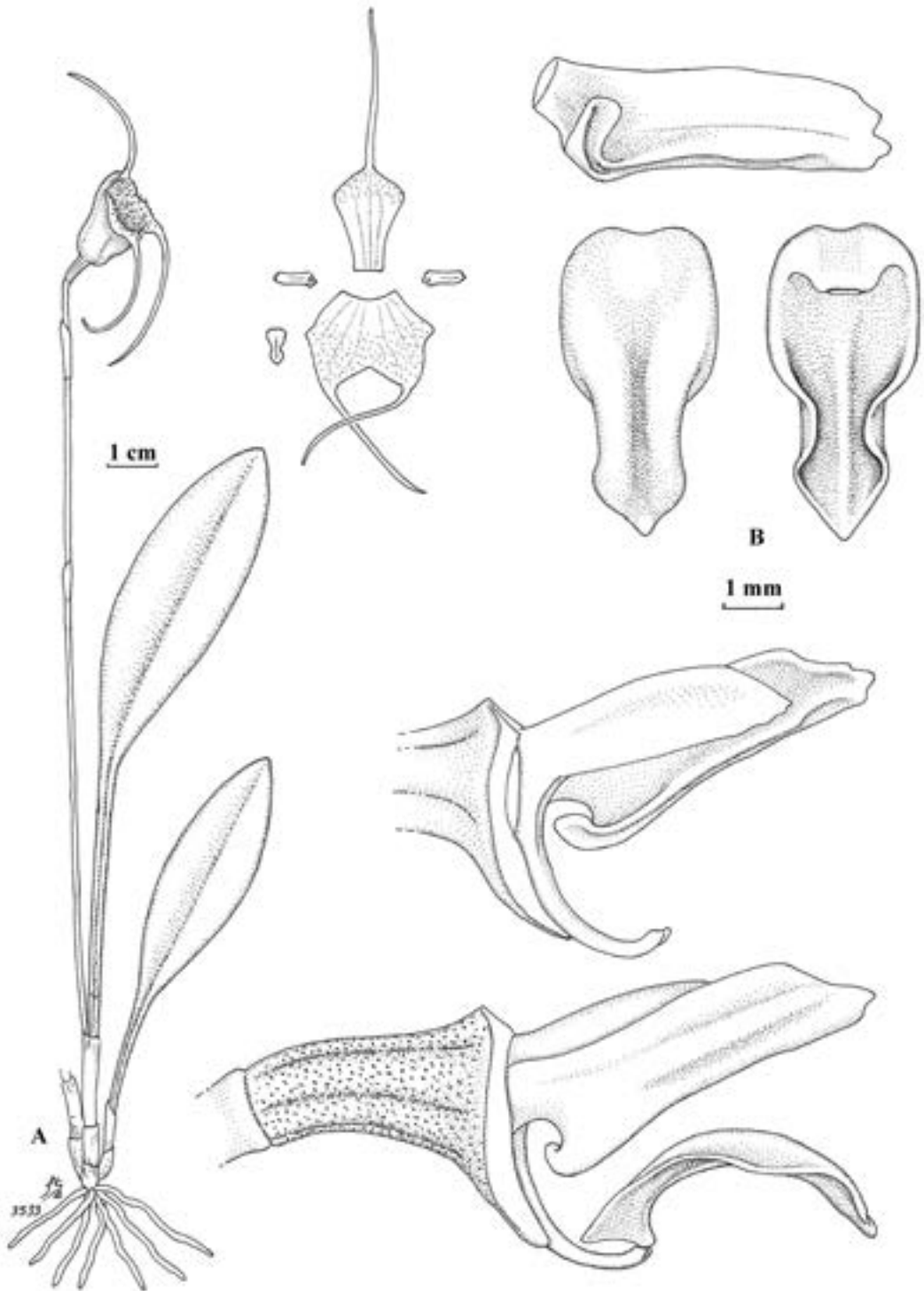


FIGURE 6. *Masdevallia karelii*. A — Plant habit with a dissected flower. B — Column, lip and petal views. Drawn from the holotype by Stig Dalström.

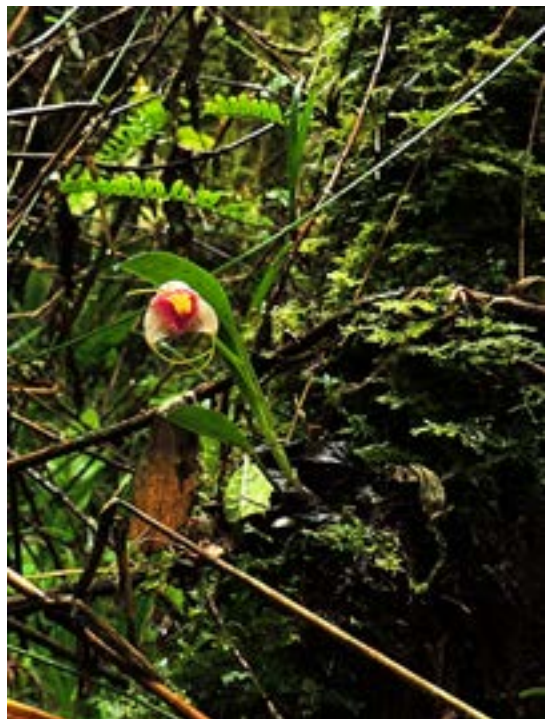


FIGURE 7. *Masdevallia karelii* in natural habitat (S. Dalström 3533). Photo by Karel Deburghgraeve.

EPONYMY: Named in honor of Karel Deburghgraeve who participated in the discovery of this colorful species.

Masdevallia rugosilabia Dalström & Ruíz-Pérez, *sp. nov.*

TYPE: Peru. Huancavelica, Salcabamba, Tayacaja, Huanca, alt. 2000 m, 8 June 2011, field-collected and flowered in cultivation by Perúflora 7 Dec. 2011, S. Dalström 3491 (holotype, USM). Figs. 9, 10.

Diagnosis: *Masdevallia rugosilabia* is distinguished from all other species in the genus by the combination of a tall, slender, distantly successive- or bi-flowered, terete peduncle bearing carnose, nodding flowers with a concave and rugose epichile of the lip.

Epiphytic herb. Plant slender but tall for the genus, caespitose, root-thickness medium sized. *Ramicauls* erect 9.0–9.5 cm long, enclosed basally by 3 to 4 tubular sheaths. *Leaf* erect, coriaceous, slender, petiolate, the blade basally conduplicate and cuneate, ovate to elliptic, acute to obtuse, ca. 15.0 × 2.2 cm, including the 3.0



FIGURE 8. *Masdevallia karelii* flower (S. Dalström 3533). Photo by Stig Dalström.

cm long petiole. *Inflorescence* dark purple, erect and slightly curved, successive flowered and producing (at least) 2 nodding flowers, rather thin, with a to ca. 16 cm long peduncle and a to ca. 4 cm long rachis; *peduncular bracts* 3, below the middle, ca. 5–10 mm long; *floral bracts* tubular, ca. 1.5 cm long; peduncle ca. 1.6 – 2.0 cm long; *ovary* ca. 0.4 cm long, weakly carinate. *Flower* nodding, campanulate; *dorsal sepal* dark brownish purple externally, dark yellowish brown covered by darker spots internally and with a dull, dark yellowish tail, slightly concave, glabrous externally and verrucose to rugose internally, connate with the lateral sepals for ca. 6–7 mm, oblong and weakly angulate-ovate, with a fleshy acuminate sepaline tail, ca. 20 × 4–5 mm, including the ca. 10 mm long tail; *lateral sepals* similar in color and texture, connate for ca. 10 mm, angulate-ovate, with a fleshy, slightly curved, short sepaline tail, ca. 15 × 10 mm, including the 5 mm long tail; *petals* white, thickly cartilaginous, truncate oblong, apically weakly constricted, then truncate and weakly trilobed, with a low, fleshy ridge emerging near the base and diminishing near the middle, and with an additional

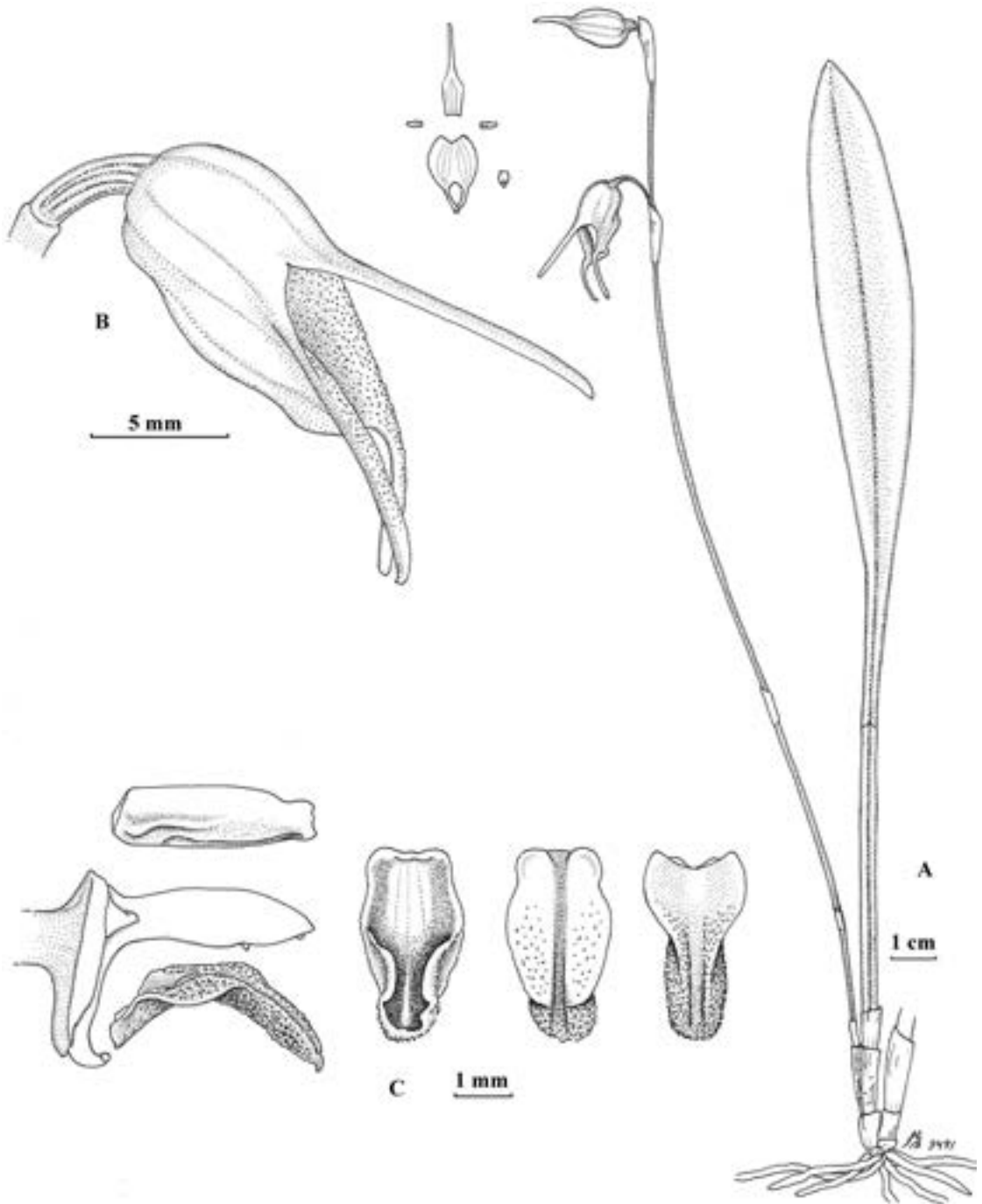


FIGURE 9. *Masdevallia rugosilabia*. A — Plant habit with a dissected flower. B — Column, lip and petal views. Drawn from the holotype by Stig Dalström.



FIGURE 10. *Masdevallia rugosilabia* flower (S. Dalström 3491). Photo by Stig Dalström.

fleshy ridge along the lower edge, emerging from near the middle up to the apex, *ca.* 3.5×1.2 mm; *lip* pale purple, hinged on the column foot, with a basal swelling, truncate to cordate, the hypochile flattened ovate and weakly rugose, the epichile down-folded and convex from above, rounded, rugose, dorsally canaliculate from near the base to the apex, *ca.* 3.5×2.0 mm; *column* white, semiterete straight, *ca.* 4 mm long, with an equally long, curved foot; *anther cap* white, campanulate; *pollinia* 2, flattened pyriform.

DISTRIBUTION: Known only from the type locality in central Peru.

ETYMOLOGY: The name refers to the rugose lip of the flower.

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