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Five new orchid species in the Pleurothallidinae subtribe (Orchidaceae) from Tropical America

Pięć nowych gatunki storczyków z podplemienia Pleurothallidinae (Orchidaceae) z Ameryki tropikalnej

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Pleurothallidinae with more than 5000 species are the most diverse and numerous group of orchids. This subtribe occurs exclusively in tropical America, with a range extending from Florida and the Caribbean on the north to the northern parts of Argentina on the south. Pleurothallids are predominantly epiphytes growing above 1000 m a.sl. Taxonomical studies reveal new species each year. Herein we propose 5 new species representing Stelis, Lepanthes and Muscarella.

Key words: Pleurothallids, epiphyte, Neotropics, Brazil, Panama, Colombia, Ecuador

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Introduction

Pleurothallidinae with more than 5000 species are one of the largest and diverse group of orchids. Pleurothallids are found exclusively in the Neotropics, however, the majority of species occur in Colombia and Ecuador, and now the Andean area is considered the center of diversification for Pleurothallidinae (Luer 1986).

Research on Pleurothallidinae began in the 17th century and has accelerated since the 19th century (Luer 1986). Over time, many genera and species were proposed. Nevertheless, many of the names appeared to be superfluous and have been considered synonyms nowadays (Luer 1996). Carlyle Luer was the most influential researcher of Pleurothallidinae. Since the beginning of his studies in 1975, he has solely published 2909 accepted names (Karremans 2016) within the subtribe. The *Icones Pleurothallidinarum*, series of Luer's monographs comprises almost all known species of Pleurothallidinae arranged in various taxonomic systems. Luer used only classical taxonomy methods; thus, his propositions about the genus idea were based on morphological similarity. When Pridgeon et al. (2001) released the first molecular analyses, Luer rearranged his classifications.

Within the subtribe, some species are found to be terrestrial and lithophytic plants, but most of them are epiphytes growing at various altitudes up to 4000 m (Higgins 2009). Most of the Pleurothallidinae grow epiphytically on trees, frequently on branches densely covered by mosses (Crain 2012), located near river banks or waterfalls.

Taxonomic treatment

Stelis Sw.

J. Bot. (Schrader) 2: 239. 1800; **Generitype**: *Stelis ophioglossoides* (Jacq.) Sw. [≡*Epidendrum ophioglossoides* Jacq.] - Cogniaux *in* Martius, Fl. Bras., Orchid. 3(4): 342. 1896. - Williams, Fl. Panama, Orchid. 3(2):161. 1946. - Williams, Orchid. Mexico: 75. 1951. - Ames & Correll, Fieldiana, Bot. 26(1): 155. 1952. - Lemee, Fl. Guyane francaise: 396. 1955. - Schweinfurth, Fieldiana, Bot.30(1): 163. 1958. - Schultes, Nat. Orchid. Trinidad & Tobago: 69. 1960. - Foldats, Fl. Venezuela, Orchid. 15(2): 43. 1970. - Garay *in* Howard, Fl. Lesser Antill., Orchid.: 90. 1974. - Hamer, Orquid. El. Salvador 2: 339. 1981. - Atwood, Selbyana 10: 112. 1987. - Miller & Warren, Orchids High Mountain Atlantic Rain Forest SE Brazil: 81. 1994. - Ackerman, Orchid Fl. Puerto Rico & Virgin Isl.: 154. 1995. - Mc Leish, Pearce & Adams, Nat. Orchid. Belize: 246. 1995. - Christenson, Mem. New York Bot. Gard. 76(1): 335. 1997. - Nir, Orchid. Antill.: 350. 2000. - Vasquez & Ibisch, Orquid. Bolivia 1: 382. 2000. – Szlachetko &

Margońska, Ann. Bot. Fenn. 2002. - Hammel & al., Manual de Plantas de Costa Rica III: 521. 2003. - Pridgeon & al., Genera Orchid. 4: 405. 2005. - Szlachetko & al. Orchids of French Guiana I: 211. 2012.

The genus *Stelis* nowadays includes ca. 900 species (Luer 2009) or, in the broad concept of genus, 1100 (Karremans 2016). Its representatives are distributed from Mexico to Argentina and are predominantly epiphytes. The genus was described early in Pleurothallidinae history, in 1799, by Swartz based on *Stelis ophioglossoides* (Jacq.) Sw. and similar species. The taxon is characterized by flowers being triangular in outline with similar, frequently partially fussed sepals and small, inconspicuous petals. At the base of the lip, there is a small, shiny structure called glenion.

Stelis jacobi Rykacz. *sp. nov.* (Fig. 1)
Holotype: Brazil, *sine coll., s.n.*, 14 April 1898 (E!, duplicate L!), holotype drawing: UGDA!
Etymology: Species named to honour Jakub Fikowicz-Krośko
Planta perparva caespitosa, foliis ellipticis sessilis crassis, sepalis triangularibus, labelli disco lamellato ad basim.

Description: Plant small, up to 8 cm, with inflorescence, caespitose. Ramicaul 1,5 cm long, covered by 2-3 sheaths at the base. Leaf 2,3-4 cm long, 0,7-1,1 cm wide, coriaceous, elliptic to elliptic-ovate, obtuse, and narrowly cunneate in the petiole. Inflorescence is erect up to two times longer than the leaf, congested, distance between flowers 2,5-3 mm, lower 1/3 sterile. Flower bracts are prominent, up to 3 mm long and 1.5 mm wide. Pedicel 2 mm long. Ovary 0,3 mm long. Column 0,75 mm long. Dorsal sepal: 2 mm long, 1,9 mm wide, triangular, obtuse, 3-veined, glabrous, margin glabrous. Petals 1 mm long, 0,5 mm wide, semilunate, concave, apex rounded, 1-veined, glabrous, margin sparsely ciliate. Lateral sepals 1,75 mm long, 1,5 mm wide, connate up to ¾, triangular, obtuse, 3-veined, glabrous, margin glabrous. Lip: 1mm wide, slightly concave, apex rounded, 3 calli at the base of the lip.
Ecology: Epiphyte. Flowering in April.
Distribution: Probably Brazil, as *Stelis jacobi* was imported together with *Sophronitis grandiflora*.

Fig. 1. *Stelis jacobi* Rykacz. *sp. nov.*, drawing from holotype.

Drawn by M. Rykaczewski

Stelis barbarae Rykacz. *sp. nov.* (Fig. 2)

Holotype: Panama, Chiriqui, Bugaba, alt. 2000 m, *ex cult.,* (BM!, barcode: 000084042), holotype drawing: UGDA!

Etymology: Species named to honor my passed-away mother-in-law, Barbara Elżbieta Krośko

Planta magna caespitosa prolificans, racemo alta, laxo folio elliptico multibreviore, sepalis ellipticis intus pubescentibus.

Description: Plant large, scandens. Ramicaul 4 cm long, covered by 2 disjunct sheaths, the first at the base and the second in the middle of the ramicaul. Leaf 8,5 cm long, 3,7 cm wide, coriaceous, elliptic, obtuse, narrowly cuneate in to petiole. Inflo-

rescence, arched, much longer than the leaf, lax, 37 cm long, lower 2/3 sterile. Flower bracts are prominent, up to 3 mm long, 2 wide. Pedicel 4 mm long. Ovary is 1,75 mm long. Column 0,75-1 mm long. Dorsal sepal 5 mm long, 5 mm wide, broadly ovate, obtuse, 3 veined basally, then in the middle outer veins forked, connate at the apex, glabrous, margin pubescent. Petals 1-1,3 mm long, 2 mm wide, semilunate, deeply concave, apex rounded, 3-veined. Lateral sepals: 5 mm long, 4 mm wide, connate basally, ovate, obtuse, 3-veined, glabrous, margin pubescent. Lip: 1,5 mm wide, 1 mm long, rectangular, triangular in cross-section, concave in the middle, apex obtuse, without callus. Flowers are yellow with white pubescence on the margins.

Ecology: Epiphyte. Flowering in June.

Distribution: Panama.

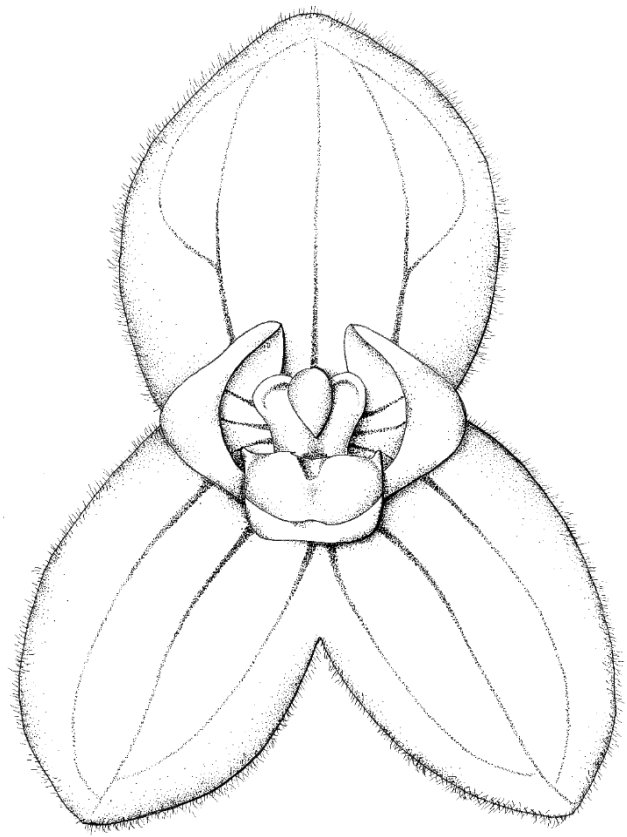

Fig. 2. *Stelis barbarae* Rykacz. *sp. nov.*, drawing from holotype.

Drawn by M. Rykaczewski

Lepanthes Sw.

Nov. Act. Soc. Sc. Upsal. 6: 85. 1799; **Generitype**: *Lepanthes ovalis* (Sw.) Fawc. & Rendl. [≡*Epidendrum coccina* Sw.]. - Cogniaux in Martius, Fl. Bras., Orchid. 3(4): 593. 1896. - Williams, Fl. Panama, Orchid. 3(2):187. 1946. - Williams, Orchid. Mexico: 81. 1951. - Ames & Correll, Fieldiana, Bot. 26(1): 194. 1952. - Lemée, Fl. Guyane française: 397. 1955. - Schweinfurth, Fieldiana, Bot. 30(1): 248. 1958. - Foldats, Fl. Venezuela, Orchid. 15(3): 453. 1970. - Hamer, Orquid. El. Salvador 2: 49. 1981. - Atwood, Selbyana 10: 93. 1987. - Ackerman, Orchid Fl. Puerto Rico & Virgin Isl.: 95. 1995. - Mc Leish, Pearce & Adams, Nat. Orchid. Belize: 217. 1995. - Christenson, Mem. New York Bot. Gard. 76(1): 311. 1997. - Vásquez & Ibisch, Orquíd. Bolivia 1: 73. 2000. – Szlachetko & Margońska, Ann. Bot. Fenn. 173: 233. 2002. - Hammel & al., Manual de Plantas de Costa Rica III: 216. 2003. - Pridgeon & al., Genera Orchid. 4: 362. 2005. - Szlachetko & al. Orchids of French Guiana I:: 214. 2012 - Sambin & Chiron, Richardiana 16: 351. 2016.

The genus *Lepanthes* comprises about 600 mainly epiphytic species. Sepals are usually more or less triangular to oblong. Lateral sepals are free or fussy. Dorsal sepal is frequently dissimilar to laterals. The most prominent part of the flower are the petals, which are often brightly colored.

Lepanthes anastassiae Rykacz. *sp. nov.* (Fig. 3)

Holotype: Wolf *s.n.*, Colombia, Risaralda, Santa Rosa de Cobal, 4º50'N, 75º31'W, alt. 2970 m a.s.l (U!), holotype drawing: UGDA!

Etymology: Species named to honour Anastassia Kokalanowa-Hudemczuk

Planta parva caespitosa, folio anguste ovato, mucronato, petalis bilobis lobo superiore latissime oblongi, decurvis, apice bidentate, lobo inferiore decurvis anguste triangularis pubescentibus.

Description: Species caespitose. Ramicaul 4 cm long. Leaf 4 cm long, 1,5 mm wide, narrowly oblong, acute, apex mucronate. Inflorescence is single-flowered, subsequent, below the leaf. Pedicel 0,5 cm, Ovary 0,3 mm. Dorsal sepal 3,5 mm long, 2,5 mm wide, ovate, subacute, 3-veined, glabrous, margin glabrous. Petals: 4 mm long, 2 mm wide; upper lobe laterally oblong to narrowly rectangular, clavate, 1-veined; lower lobe narrowly triangular, obtuse at apex; pubescent. Lateral sepal: 3 mm long, 2 mm wide, connate to 1,7 mm, ovate, acute, 2-veined, glabrous, margin glabrous. Lip: 1,5 mm long, lateral lobes widely spread, appendix glabrous.

Ecology: Epiphyte

Distribution: Colombia

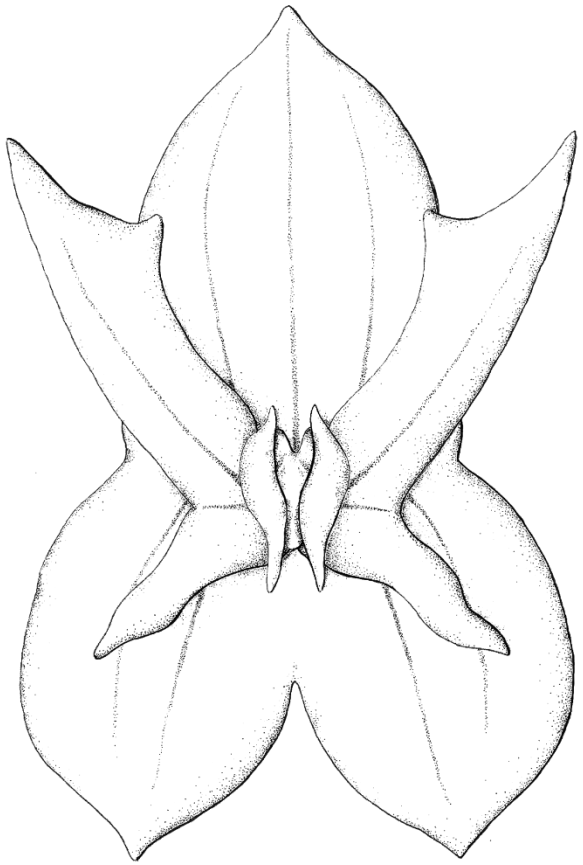

Fig. 3. *Lepanthes anastassiae* Rykacz. *sp. nov.,* drawing from holotype.

Drawn by M. Rykaczewski

Lepanthes andreasii Rykacz. *sp. nov*. (Fig. 4)
Holotype: Driessen *s.n.* 2018 (UGDA!), holotype drawing: UGDA!
Etymology: Species named to honour Andrzej Muszyński-Hudemczuk
Planta caespitosa, sepalis breviter ciliato glandularis, labelli laminis oblongis, appendice crassa subquadrata ciliata distinguitur.

Description: Species caespitose. Ramicaul 2,5-6 cm long. Leaf 1,4-2,5 cm long, 0,7-1 cm wide, narrowly oblong, acute, apex tridentate. Inflorescence: 0,9–1.6 cm long, single-flowered, subsequent, below the leaf. Pedicel 0,5 cm, Ovary 0,2 mm. Dorsal sepal 4 mm long, 3 mm wide, ovate, acuminate 3-veined, glabrous, margin irregular. Petals: 4 mm long, 1 mm wide, 3-veined, upper lobe narrowly oblong, 1-veined, lower

lobe oblong to triangular, obtuse at apex, pubescent. Lateral sepal: 5 mm long, 4 mm wide, connate to 2,5 mm, ovate, acuminate, shortly caudate, 2-veined, glabrous, margin ciliate, glandular. Lip: 1,1 mm long, appendix glabrous.

Ecology: Epiphyte. Flowering May.

Distribution: Panama

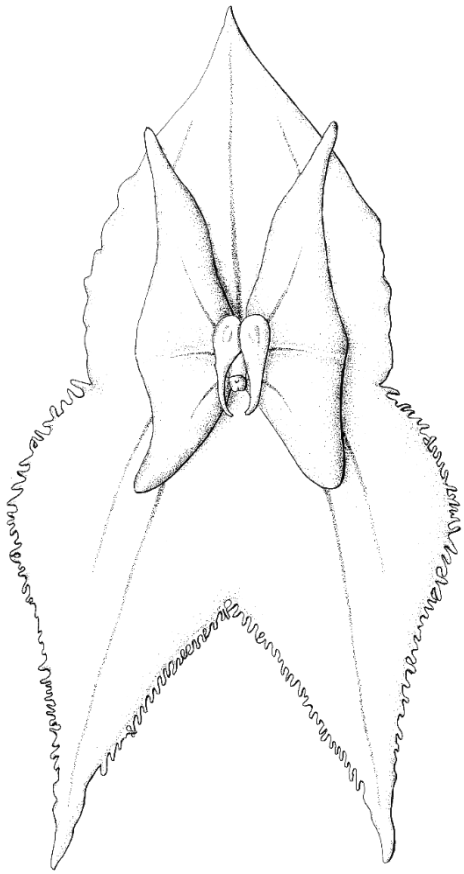

Fig. 4. *Lepanthes andreasii* Rykacz. *sp. nov.*, drawing from holotype.

Drawn by M. Rykaczewski

Muscarella (Luer) Luer

Monogr. Syst. Bot., Missouri Bot. Gard. 105: 117. 2005; **Generitype**: *Muscarella aristata* (Hook.) Luer [≡ *Pleurothallis aristata* Hook.]. - Szlachetko & al. Orchids of French Guiana I: 193. 2012.

Genus with 55 species found from Mexico to Bolivia. It was proposed in 2006 by Luer to highlight the distinctness of these species (long-tailed sepals, fimbriate or serrulate petals, lip often pyriform, thick, especially at the apex, with depression in the lower half and with small lateral lobes) from *Specklinia* (sepals without tails, petals usually glabrous, lip simple).

Muscarella mac-intoshii Rykacz. & Driessen *sp. nov.* (Fig. 5)

Holotype: Driessen *s.n.*, Suriname, alt. up to 200 m a.s.l., June 2017 (UGDA!), holotype drawing: UGDA!

Planta perparva caespitosa, sepalis lateralibus liberis, labello minute verruculoso.

Description: Plant caespitose. Ramicaul 0,2-0,5 cm long, enclosed by 2 sheaths. Leaf: 0,8-1 cm long, 0,2 cm wide, narrowly elliptic, obtuse. Inflorescence is a fascicle of successive flowers, 3 cm long. Floral bract 0,5-1 mm long. Pedicel 1,5 mm long. Ovary 1,5 mm long. Dorsal sepal 6-6,2 mm long, including 2 mm long tail, 1,9 mm wide, elliptic ovate, deeply concave, apex acuminate, acute, glabrous, margin glabrous, 3 veined. Petals 2,1 mm long, 0,9 mm wide, oblong-obovate, obtuse, margin fimbriate along the internal and in the apical third of the external part, 1-veined. Lateral sepals are 6 mm long, including a 2 mm long tail, 2-2,1 mm wide, connate to 1,5-2 mm, elliptic-ovate, apex acuminate, acute, glabrous, margin glabrous, 1-veined. Lip 2,1 mm long, 1 mm wide; middle lobe broadly ovate, verrucose, rounded, with a pair of longitudinal, verrucose calli, margin longciliate; lateral lobes small, rounded. Gynostemium 1,75 mm long,

Ecology: Minute plant found on tree bark. Flowering in June.

Distribution: Suriname. Alt. up to 200 m.

Notes. Species similar to *Muscarella semperflorens* but distinguished by 1-veined petals vs 3-veined.

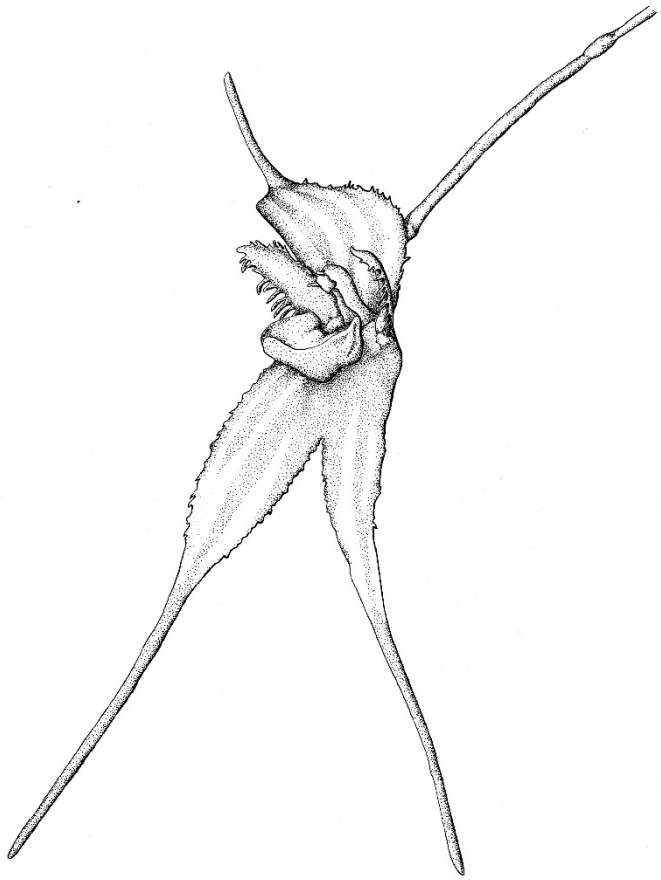

Fig. 5. *Muscarella mac-intoshii* Rykacz. & Driessen *sp. nov.*, drawing from holotype.

Drawn by M. Rykaczewski

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