

## A NEW SPECIES OF *STELLILABIUM* (ORCHIDACEAE) SEGREGATED FROM *S. MORGANIAE*

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**Abstract.** A new species of *Stellilabium* Schltr. is described and illustrated based on material collected in Colombia. The new species is most similar to *S. morganiae* Dodson, but differs from it in flower morphology. The gynostemium appendages of the new entity are ovate and widely spreading; in *S. morganiae* they are relatively small, not spreading, and oblong-ovate, and do not exceed the lip basal part in width.

**Key words:** distribution, flora of Colombia, Neotropics, *Stellilabium*

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### INTRODUCTION

According to the most recent catalogue of plants and lichens of Colombia (Bernal *et al.* 2015), ca 26% of the national flora is unique, not found in other countries. The percentage of endemic species is highest within Orchidaceae (41%); this is a consequence of numerous factors including a predominantly epiphytic habit, anemochory, and frequently occurring pollinator specificity (Dodson 2003). It has been suggested that pollinator-mediated selection is crucial to the species diversity of orchids (Johnson 2006) and that sexually deceptive plants are a prime example of rapid radiation (Xu *et al.* 2012).

Pseudocopulation has been reported in species representing eight South and Central American genera of Orchidaceae (Dodson 1962; Dod 1976; Calvo 1990; Christensen 1994; van der Cingel 2001; Singer 2002; Singer *et al.* 2004; Blanco & Barboza 2005; Ciotek *et al.* 2006; Gaskett 2011). One of them is *Stellilabium* Schltr., which comprises ca 50 species of small epiphytes producing tiny resupinate flowers, distributed in western South

America and Venezuela, along Panama and Costa Rica to Mexico in the north. According to Dressler (1981, 1993), the plants offer no reward to their pollinators. Apparently, tachinid flies may pollinate the flowers by pseudocopulation. Endemic species are common within this genus. Many of them are known exclusively from the type location, such as *S. smaragdinum* Pupulin & M. A. Blanco (Costa Rica; Pupulin & Blanco 2002), *S. butcheri* Dressler (Panama; Dressler 1999), *S. valdiviesoanum* Kolan. & Medina Tr. (Colombia; Kolanowska & Medina Trejo 2016), *S. jostii* Dodson (Ecuador; Dodson 2004), *S. cuscoense* Christenson & Repasky (Peru; Christenson & Repasky 2008) and *S. pampatamboense* Dodson & R. Vásquez (Bolivia; Dodson & Vásquez 1989). The highest number of endemics has been reported from Ecuador (e.g., Dodson 1980, 1982, 1984, 2004), among them *S. morganiae* Dodson discovered in 1980 (Dodson & Dodson 1980) and described based on a single population found in the province of Cotopaxi growing at 1500 m a.s.l. It was known exclusively from the *locus classicus* until 2012, when the first record of this species from southern Colombia

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was published (Kolanowska *et al.* 2012), based on a single observation from Valle de Sibundoy. During the last four years we were able to gather more records of Colombian populations corresponding to *S. morganiae*, and after comparing them with the Ecuadorian plants, including the type specimen, we came to the conclusion that the Colombian populations represent another species not described before.

#### TAXONOMIC TREATMENT

*Stellilabium latialatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* Figs 1 & 2

HOLOTYPE: COLOMBIA. Colombia. Dept. Putumayo. Near San Francisco. N1 11.993 W76 51.683. 6 Sep 2016. R. Medina T. *et al.* S16/42 (JAUM – plant in alcohol).

PARATYPE: Dept. Putumayo, sine coll. *Cult.* R. Medina 435 (JAUM).

ILLUSTRATION: A photograph of the new species also appears in the *Galería de Orquídeas de Colombia* (Ortiz Valdivieso & Uribe Vélez 2007) as *S. microglossum*.

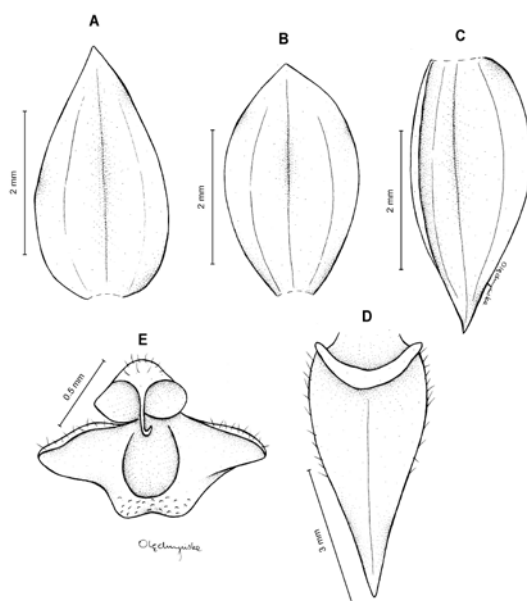
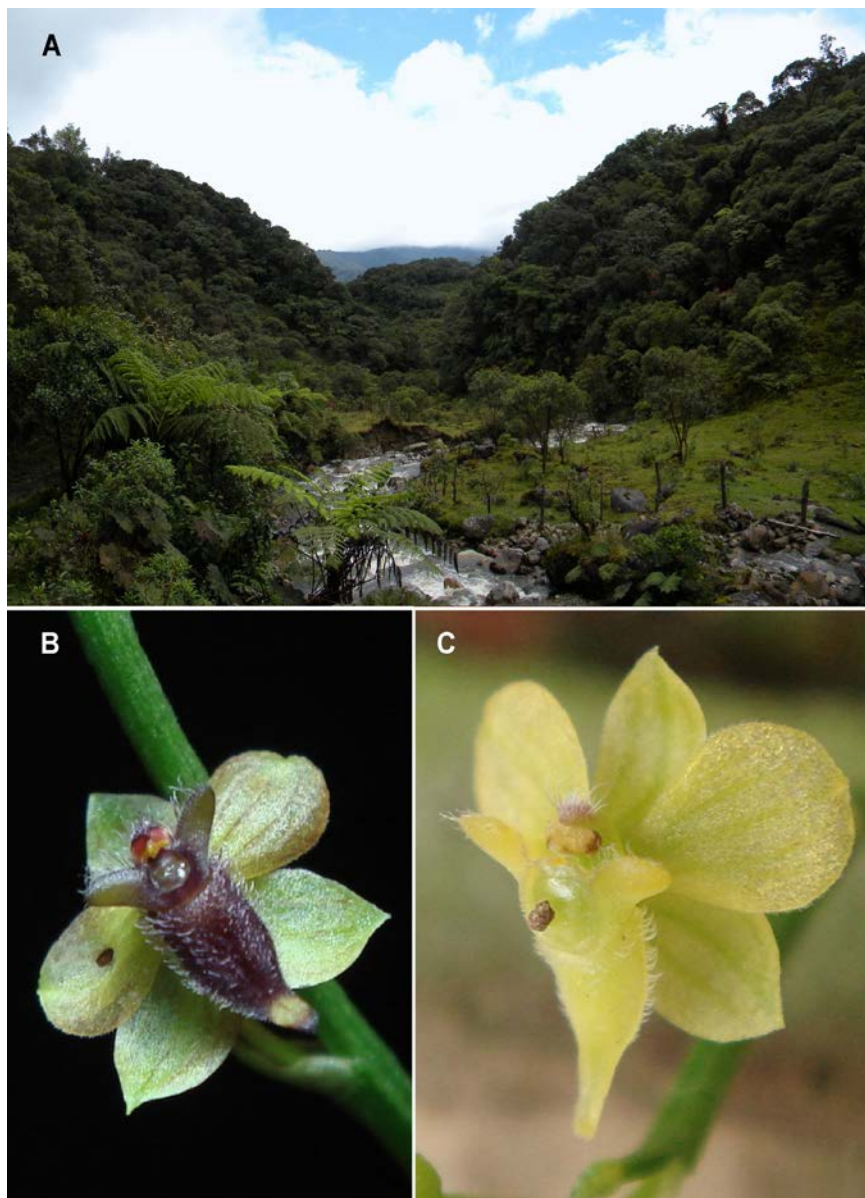


Fig. 1. *Stellilabium latialatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* – dissected perianth. A – dorsal sepal, B – petal, C – lateral sepal, D – lip, E – gynostemium. Drawn by N. Ołędzińska from the holotype.



Fig. 2. *Stellilabium latialatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* A – habit, B – leaves, C – flower (dorsal sepal removed), D – flower (side view), E – lip and gynostemium, F – gynostemium. Photos by M. Kolanowska (A) and R. Medina T. (B–F).

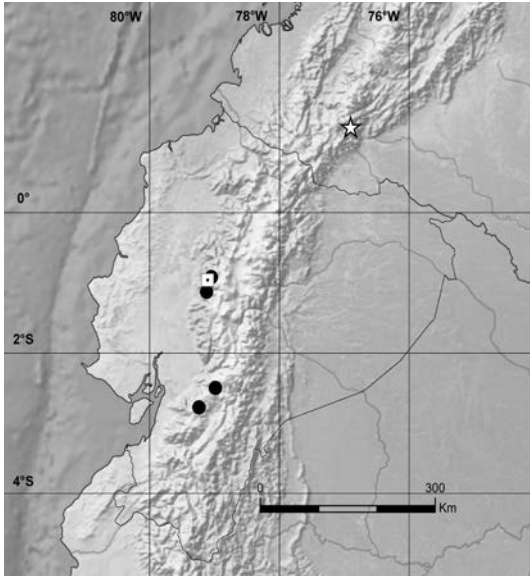


**Fig. 3.** *Stellilabium latialatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* A – area where the new species was found, B & C – color forms of the new species. Photos by M. Kolanowska (A) and R. Medina T. (B & C).

**DIAGNOSIS.** Species similar to Ecuadorian *S. morganiae* Dodson but distinguished by its broad, spreading gynostemium wings.

**DESCRIPTION.** Plant up to 16 cm tall. Leaves 2–3, up to 2 cm long, 0.6 cm wide, narrowly

ovate-lanceolate, acute. Inflorescence successively 3(5)-flowered, rarely branching. Floral bracts *ca* 3 mm long, ovate-triangular, acute. Ovary 9 mm long. Flowers 8–9 mm in diameter. Dorsal sepal 3.6–4.0 mm long, 2.0–2.9 mm wide when expanded, concave, ovate, acute, 3-veined, minutely

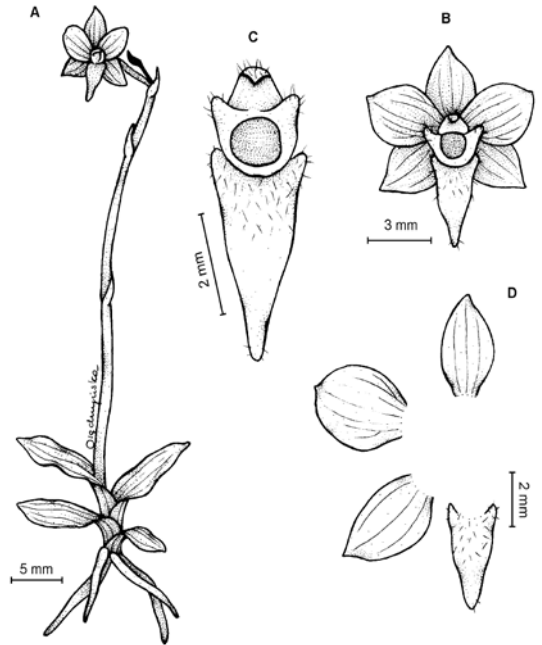


**Fig. 4.** Distribution map of *Stellilabium laticolatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* (☆), *S. morganiae* Dodson (□) and *S. microglossum* (Schltr.) Dodson (●).

ciliate along margins. Petals 3.5–4.8 mm long, 2.0–3.5 mm wide, elliptic-obovate to obovate, obtuse with minute acute apiculus at apex, 5-veined, minutely ciliate along margins. Lateral sepals 3.9–4.1 mm long, 1.9–3.0 mm wide, concave, obliquely ovate, acute, 3-veined, lateral vein sometimes dichotomous, glabrous, margin glandular. Lip 3.5–5.0 mm long, 2.0–2.5 mm wide, unlobed, narrowly ovate, distinctly narrowing in apical third, apex obtuse; glandular-ciliate at base, basal 1/2–2/3 long-ciliate, especially along margin, apical part shortly

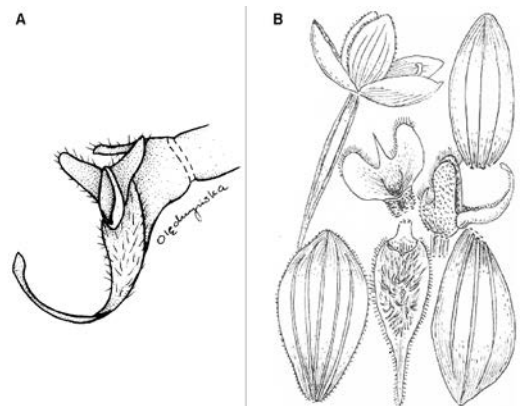


**Fig. 5.** Ecuadorian specimens of *Stellilabium laticolatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* Photos by A. Hirtz.

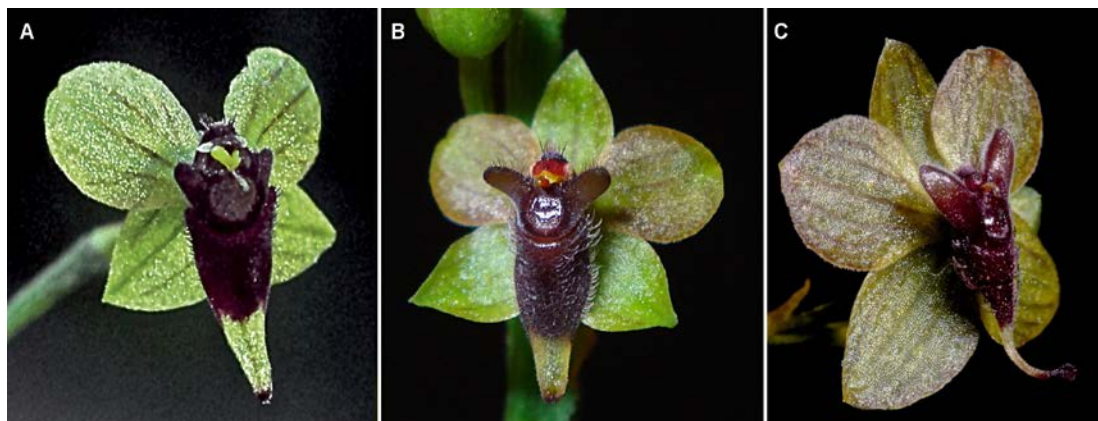


**Fig. 6.** *Stellilabium morganiae* Dodson. A – habit, B – flower, C – gynostemium and lip, D – dissected perianth. Redrawn by N. Ołędryńska from Dodson’s original illustration.

ciliate. Gynostemium 1.2–2.0 mm long, robust, swollen just above base. Column part slightly longer than anther, apically ciliate, alate; wings obliquely ovate, obtuse, externally long-ciliate, ciliate on underside. Stigma large, suborbicular, concave.



**Fig. 7.** *Stellilabium microglossum* (Schltr.) Dodson A – gynostemium and lip (redrawn by N. Ołędryńska from Dodson 1980), B – original illustration of *Dipterostele microglossa* (Mansfield 1929).



**Fig. 8.** Comparison of flowers of *Stellilabium morganiae* Dodson (A – type specimen), *S. latialatum* Kolan., Medina Tr. & Lipińska, *sp. nov.* (B) and *S. microglossum* (Schltr.) Dodson (C). Photos by A. Hirtz (A & C) and R. Medina T. (B).

**ETYMOLOGY.** From Latin *lat alatis* meaning broadly winged, in reference to the broad wings of the gynostemium.

**DISTRIBUTION AND ECOLOGY.** This species is known exclusively from the Colombian department of Putumayo, where it was growing at 2000–2400 m a.s.l. on mossy tree trunks and large branches of *Tibouchina lepidota* (Bonpl.) Baill. (Melastomataceae) along the river (Figs 3 & 4). Additional records came from Ecuador, but without precise information on locality and habitat (Fig. 5).

**INFRASPECIFIC VARIATION.** So far two color variations of the new species were found – one with uniformly light yellow flowers with greenish veins, the other with a dark violet lip becoming yellowish in the apical part (Fig. 3).

**TAXONOMIC NOTES.** The new species is similar to *Stellilabium morganiae* and *S. microglossum* (Schltr.) Dodson, from which it differs in flower morphology. In *S. morganiae* the gynostemium appendages are relatively small, not spreading, and oblong-ovate, and they do not exceed the lip basal part in width (Figs 6–8). The gynostemium appendages of the new entity are ovate and widely spreading. Moreover, the anther in *S. morganiae* is large, about the same size as the stigma, while in the new species it is much shorter. In *S. microglossum* the lip is small in relation to other tepals, with the apex elongated into an upturned

hook, apically somewhat swollen (Figs 6–8), and its gynostemium appendages are large, oblong-ovate, and upcurved. Little is known about the habitat preferences of these three species, but both *S. microglossum* and *S. morganiae* were reported from elevations up to 1800 m a.s.l., while the new species seems to be restricted to high-montane areas above 2000 m a.s.l.

**ACKNOWLEDGEMENTS.** The research described here was supported by the Grant Agency of the Czech Republic (GA ČR, grant no. 14-36098G), and by the University of Gdańsk (538-L150-B244-16). We are grateful to Alex Hirtz for providing photos of Ecuadorian *Stellilabium* species, Natalia Olędrzyńska for preparing the line drawings, and the anonymous reviewers for helpful remarks on the manuscript.

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