

## New species of *Stellilabium* (Orchidaceae) from Colombia

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*Summary:* Two new species of the Neotropical orchid genus *Stellilabium* are described and illustrated based on Colombian material. Their taxonomic affinities as well as their systematic position and its relation to related genera is discussed.

*Keywords:* biodiversity, Neotropics, taxonomy, *Telipogon*, *Stellilabium*, sp. nov.

The Republic of Colombia has a unique and extremely rich orchid flora with almost 3600 registered species (BERNAL et al. 2015) and numerous discoveries published every year (e.g. CARNEVALI et al. 2012; GIRALDO & DALSTRÖM 2012; ORMEROD 2013; BRAEM et al. 2014; KOLANOWSKA et al. 2014; LEOPARDI-VERDE et al. 2014; SZLACHETKO & KOLANOWSKA 2014; VIEIRA-URIBE & LARSEN 2015). Within these plants one of the most interesting groups consists of species which mimic female tachinid flies and which are pollinated by sexual deception (AYASSE 2006): *Trichoceros* Kunth, *Telipogon* Kunth and *Stellilabium* Schltr. As assumed by XU et al. (2012), speciation in orchids characterized by this pollination syndrome may happen rapidly and even in sympatry explaining the remarkable species diversity observed in this plant group.

The three genera mentioned above were included by SCHLECHTER (1914) in the separated, newly created subtribe Telipogoninae. This concept was accepted by numerous subsequent orchidologists (e.g. BURNS-BALOGH & FUNK 1986; DRESSLER 1993; SZLACHETKO 1995), however, the results of molecular studies did not confirm any of the previous taxonomic proposals of oncidoid orchid classification and prompted CHASE et al. (2003, 2015) to lump the three genera mentioned before together with over 60 other taxa in the large subtribe Oncidiinae of Cymbidiaceae.

While the generic concept of *Trichoceros* is widely accepted, the specific composition of *Telipogon* and *Stellilabium* has been discussed for years. *Telipogon* was described in early XIX century (KUNTH 1816) and until XX century about 50 species were recognized in the genus. Almost 100 years after genus description, SCHLECHTER (1914) proposed to distinguish an unusual representative of *Telipogon*, *T. astroglossus* Rchb. f. the tepals of which were similar and the lip was 3-lobed by creating a new, monospecific taxon named *Stellilabium*. Several years later the same author (SCHLECHTER 1921) established the new genus *Dipterosteale* with a new species *D. microglossus* Schltr. Simultaneously, Schlechter described the monotypic genus *Sodiroella* which resembled *Stellilabium*, but the lip of which was glabrous and the column was adorned with two appendages. In 1961, GARAY & DUNSTERVILLE (1961) revealed that Schlechter's *Sodiroella ecuadorensis* is conspecific with previously described *Telipogon pogonostalix* Rchb. f. and they proposed to transfer this orchid to *Stellilabium*. *Dipterosteale* was basically ignored until 1982, when BRAAS & LÜCKEL suggested its restitution and transferred to this genus *Stellilabium morganiae* Dodson (BRAAS & LÜCKEL 1982a). Simultaneously, BRAAS & LÜCKEL (1982b) proposed to include *Trichoceros bergoldii* Garay & Dunst. in the separated, monospecific genus *Darwiniella* based on lack of pseudobulbous stem thickening and flowers showing characters of *Telipogon* and *Stellilabium*.

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The restored concept of *Dipterosteles* was accepted by GARAY & ROMERO-GONZÁLEZ (1998) who transferred additional 9 species to this genus, but *Darwiniella* was most often considered as a member of *Stellilabium* (DRESSLER 1999). In 1999, DRESSLER presented broad a concept of *Stellilabium* including representatives of *Darwiniella*, *Dipterosteles* and *Sodiroella*. The author recognized four sections within the genus distinguishable based on gynostemium lobation and the form of lateral lobes of the lip. The distinctiveness of *Stellilabium*, *Telipogon* and *Trichoceros* was accepted until 2005, when WILLIAMS et al. (2005) published results of genetic studies according to which *Stellilabium* is embedded within *Telipogon* and should be merged with the latter genus. The authors included in their study 11 *Telipogon* (about 10% of known species) and 7 *Stellilabium* representatives (about 15% of known species). The morphology of the two genera is indeed similar. However, according to DRESSLER (2003), they may be distinguished based on peduncle and rachis form (flattened in *Stellilabium*, cylindrical or triquetrous in *Telipogon*). The additional character usually used to separate these taxa is the form of tepals – in *Stellilabium* sepals and petals are similar in size and shape, while in *Telipogon* the petals are larger and broader than sepals. The representatives of the two genera are adopted to different ecological conditions: *Stellilabium* is usually twig epiphytic, whereas *Telipogon* is epiphytic, lithophytic or terrestrial. In the narrower, morphological concept, *Stellilabium* includes about 50 species distributed from Mexico to Bolivia with the greatest diversity observed in Costa Rica (11 species, DRESSLER 2003) and Ecuador (about 10 species, JØRGENSEN & LEÓN-YÁNEZ 1999).

The recent studies on Colombian orchids revealed the existence of two distinctive *Stellilabium* species which do not fit the morphological characteristic of any known genus representative and they are described here as new species. Their taxonomic affinity is discussed and information about their distribution is provided.

### Taxonomic treatment

#### *Stellilabium fernandezii* Szlach. & Kolan., sp. nov. (Fig. 1)

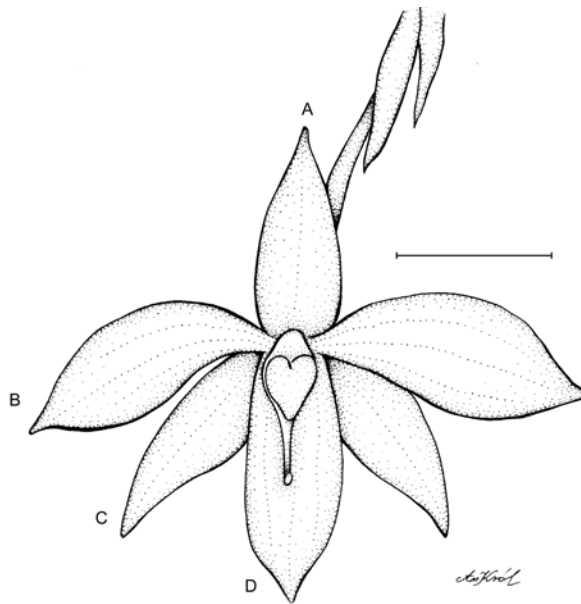
**Diagnosis.** In general appearance and flower morphology the plant is similar to Panamanian *Stellilabium aciculare* Dressler and Ecuadorian *S. hirtzii* Dodson. It differs from the former in having a glabrous lip and gynostemium, and from the latter in having falcate, obovate-oblancheolate petals, larger than sepals and an unlobed lip.

**Type.** Colombia, Risaralda, Mpio. Mistrató. En la via San Antonio de Chami y Mistrató. Sitio Las Partidas, 1700 m, 6 Apr 1992, J.L. Fernandez & Estud. Sist. Vegetal. 10133 [COL, holotype!].

**Description.** Plant tiny. Leaves 2–3, 10 mm long, 2 mm wide, oblanceolate, acute. Inflorescence 15 mm long, 3-flowered, peduncle somewhat flattened. Flowers tiny, glabrous, non-resupinate. Floral bracts 2.2 mm long, ovate-lanceolate, acute. Pedicellate ovary 4.5 mm long. Dorsal sepal 3 mm long, 1 mm wide, oblong-ovate, acute to acuminate, 1-nerved. Petals 3.1 mm long, 1.1 mm wide, obovate-oblancheolate, acuminate, falcate, 3-nerved. Lateral sepals 2.8 mm long, 0.8 mm wide, lanceolate, acute, falcate, 1-nerved. Lip 2.5 mm long, 1 mm wide, ligulate, acute, unlobed, 3-nerved. Gynostemium 1.7 mm long, glabrous. Rostellum linear, much elongate.

**Etymology.** Dedicated to J. L. Fernandez, co-collector of the type specimen.

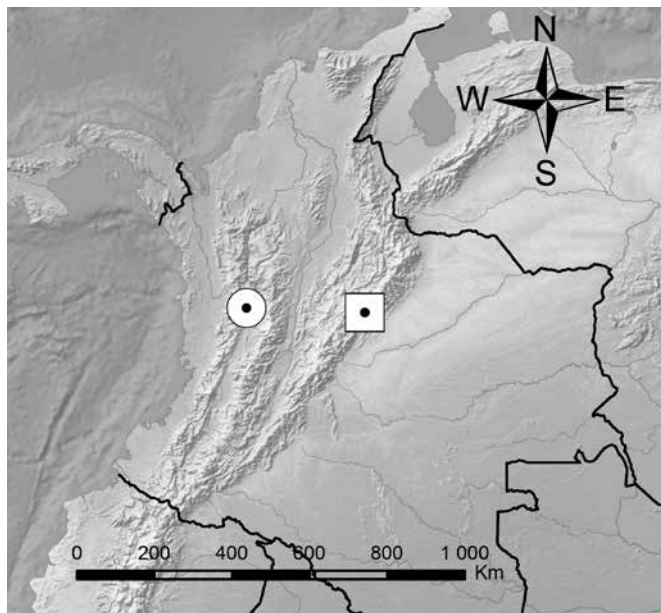
**Distribution.** Known exclusively from Colombia, western Andean Cordillera, where it occurs at the altitude of about 1700 m (Fig. 2).



**Figure 1.** Flower of *Stellilabium fernandezii* Szlach. & Kolan. A – dorsal sepal; B – petal; C – lateral sepal; D – lip. Scale bar = 2 mm. Drawn by A. Król from the holotype.

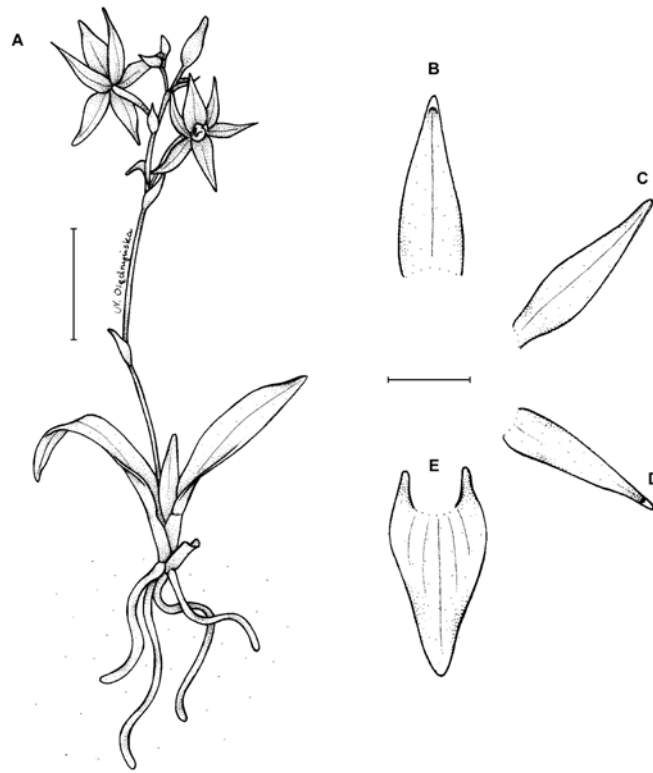
**Habitat and ecology.** This species was found growing in a low, wet forest which is cloud-capped for most part of the day. Flowering occurs in April.

**Notes.** *Stellilabium fernandezii* is similar in habit and general flower morphology to *S. aciculare* described from Panama. Both species share similar lip morphology which is unlobed, more or less ligulate. Unlike *S. aciculare*, the lip of the new species is completely glabrous. The lip of its Panamanian congener is minutely hispid along margins and nerves. The gynostemium



**Figure 2.** Distribution of *Stellilabium fernandezii* (circle) and *Stellilabium boyacaense* (square).

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**Figure 3.** *Stellilabium hirtzii* Dodson: A – habit; B – dorsal sepal; C – petal; D – lateral sepal; E – lip. Scale bars A = 8 mm, B–E = 2 mm. Redrawn by N. Ołędryńska from original drawing presented by DODSON (1984).

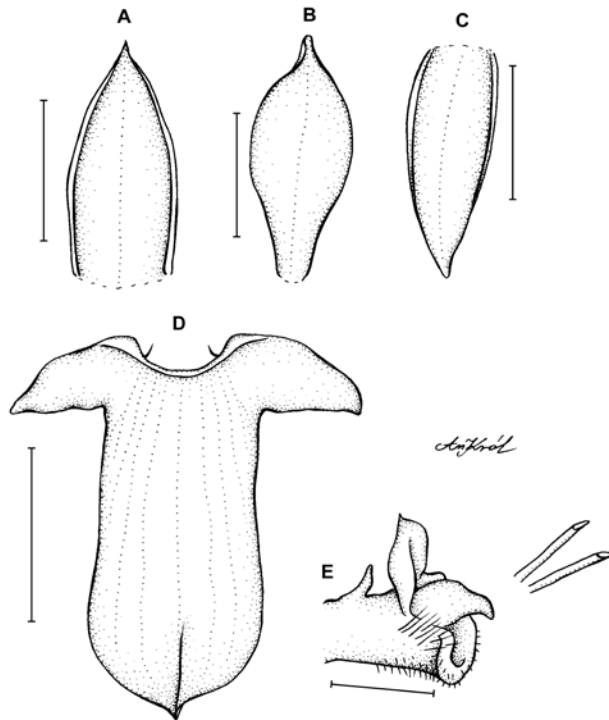
of *S. fernandezii* is glabrous, whereas in *S. aciculare* it is setose and hispid. Both species can be easily separated by the form of petals which are falcate, obovate-oblancoelate, 3-nerved and glabrous in the former and ovate-lanceolate, 5-nerved, minutely ciliate along margins in the latter. *S. fernandezii* somewhat reminds of *S. hirtzii* Dodson (Fig. 3) known from Ecuador, but the lip of the latter is ovate-lanceolate with small, but prominent, digitate basal auricles, and petals are lanceolate, 1-nerved, somewhat falcate.

***Stellilabium boyacaense* Szlach. & Kolan., sp. nov. (Fig. 4)**

**Diagnosis.** Plant similar to *Stellilabium alticola* Dodson & R. Escobar, from which it differs in acuminate petals and gynostemium being covered by short, simple setose hairs on both anther sides and ciliate below stigma.

**Type.** Colombia, Boyacá, Mpio. Miraflores-San Bernardo, Vereda Cardozo, 27 Dec 1984, *P. Bernal s.n.* [COL, holotype!].

**Description.** Plant tiny. Leaf 1.6 mm long, 2 mm wide, elliptic, subobtuse. Inflorescence 20 mm long, 2-flowered, peduncle rounded in cross section. Flowers tiny, glabrous, non-resupinate. Floral bracts 1 mm long, ovate-lanceolate, acute. Pedicellate ovary 5 mm long. Dorsal sepal 3.5 mm long, 1.6 mm wide, ovate-lanceolate, acute, 1-nerved. Petals 4 mm long, 1.8 mm wide, obovate, acuminate, 1-nerved. Lateral sepals 3.5 mm long, 1.6 mm wide, oblong lanceolate, acute, subfalcate, 1-nerved. Lip 4.5 mm long, 4 mm wide at the base, 3-lobed; the middle lobe 4 mm long, 2.6 mm wide, ligulate, shortly acuminate, 9-nerved; lateral lobes 0.7 mm long, 0.5 mm



**Figure 4.** Dissected perianth of *Stellilabium boyacaense* Szlach. & Kolan. A – dorsal sepal; B – petal; C – lateral sepal; D – lip, E - gynostemium. Scale bars A–D = 2 mm, E = 0.5 mm. Drawn by A. Król from the holotype.

wide, obliquely triangular-ovate, subacute, flat. Gynostemium 0.8 mm long, tufts of hairs on both anther sides, setose, ciliate below stigma. Rostellum linear.

**Etymology.** In reference to the place of origin of the type specimen.

**Distribution.** Known exclusively from Colombia, eastern Andean Cordillera (Fig. 2).

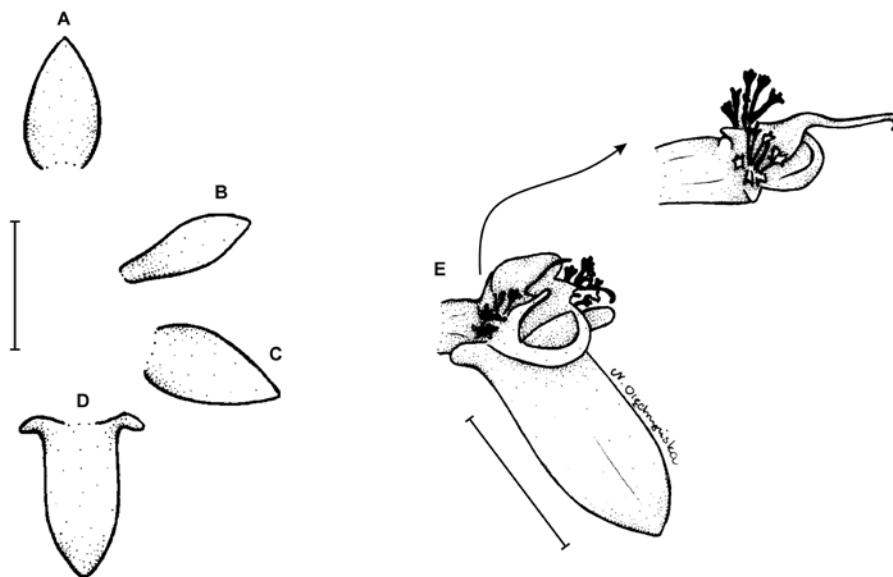
**Habitat and ecology.** No data on the habitat. Flowering occurs in December.

**Notes.** The new species is similar to its Andean congener, *S. alticola* (Fig. 5), described by DODSON & ESCOBAR (1998). Both are similar in general flower morphology. Plants representing the new species are much smaller than *S. alticola*, hardly reaching 2 cm height. The lip in both species is 3-lobed, but the lateral lobes of *S. boyacaensis* are obliquely triangular-ovate, subacute and flat, whereas those of *S. alticola* are ovate-lanceolate, acute and basally twisted. Petals of *S. boyacaensis* are obovate, acuminate and ligulate-lanceolate, obtuse in *S. alticola*. Additionally, both species can be easily distinguished by the gynostemium cover. In *S. alticola*, there are two tufts of setose hairs, apically stellate. In *S. boyacaensis*, hairs of both tufts are setose and the gynostemium below stigma is ciliate.

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**Figure 5.** *Stellilabium alticola*. A – dorsal sepal; B – petal; C – lateral sepal; D – lip; E – lip and gynostemium. Scale bars = 2 mm. Redrawn by N. Olędryńska from the original drawing presented by DODSON & ESCOBAR (1998).

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