Telipogon diabolicus (Orchidaceae, Oncidiinae), a new species from southern Colombia

Marta Kolanowska¹, Dariusz L. Szlachetko¹, Ramiro Medina Trejo³

¹ Department of Plant Taxonomy and Nature Conservation, The University of Gdańsk, Wita Stwosza 59, 80-308 Gdańsk, Poland ² Department of Biodiversity Research, Global Change Research Institute AS CR, Bělidla 4a. 603 00 Brno, Czech Republic ³ Sibundoy Valley, Alto Putumayo, Colombia

Corresponding author: Marta Kolanowska (martakolanowska@wp.pl)

Academic editor: V. Droissart | Received 31 March 2016 | Accepted 28 June 2015 | Published 8 July 2016

Citation: Kolanowska M, Szlachetko DL, Trejo RM (2016) Telipogon diabolicus (Orchidaceae, Oncidiinae), a new species from southern Colombia. PhytoKeys 65: 113–124. doi: 10.3897/phytokeys.65.8674

Abstract

A new species of the orchid genus Telipogon, T. diabolicus, is described and illustrated. The information about its habitat is provided. The novelty resembles T. tabanensis and T. guacamayensis and it is characterized by the translucent flowers, the glabrous, distinctly clawed petals, the transversely elliptic lip, and the gynostemium ornamented with long setose hairs on both sides and shorter hairs at the apex.

Keywords

Andean orchid, biodiversity, new species, Putumayo

Introduction

The Neotropical genus Telipogon was established about 200 years ago by Karl Kunth (1816) who recognized only two species within newly published taxon: T. angustifolius and T. latifolius. The former orchid was earlier recognized as Tradescantia nervosa and transferred to Telipogon by Druce (1917). During the 19th century, over 40 new species within the genus were described by Reichenbach (e.g. Reichenbach 1854, 1877). Pfitzer (1887) included Telipogon in Notylieae tribe while Schlechter (1915) proposed to unite Trichoceros, Telipogon and Stellilabium in a separated subtribe named Telipo-
goninae. Dressler and Dodson (1960) classified those genera in *Ornithocephalus* alliance, but Schlechter’s proposal was accepted by subsequent morphological taxonomists (e.g. Burns-Balogh and Funk 1986, Dressler 1993, Szlachetko 1995). The results of molecular studies provoked Chase et al. (2003, 2015) to lump all genera mentioned before together with over 50 other taxa in Oncidiinae.

Until 2005 about 190 specific epithets were applied to *Telipogon*. Williams et al. (2005) revealed that, according to the results of phylogenetic studies, *Stellilabium* is embedded within *Telipogon* and 36 species of the former genus were transferred by the authors to *Telipogon*. The novelties within the genus have been frequently published in the last years (e.g. Dressler 2007, Nauray Huari and Galán de Mera 2008, Baquero and Fortunato 2012, Jiménez Pérez 2012, Collantes and Martel 2015) and so far a total of about 250 specific epithets are listed under *Telipogon* according to The International Plant Names Index (2016).

In the most recent catalogue of Colombian plants (Bernal et al. 2015) almost 3600 orchid species representing nearly 250 genera are included. However, there is no doubt that hundreds of species occurring in this country remain undiscovered. Only in 2015 over 20 novelties were published based on material collected in Colombia (e.g. Kolanowska and Szlachetko 2015, Rodríguez Martínez and Blanco 2015, Szlachetko and Kolanowska 2015, Vieira-Uribe and Jost 2015). During the recent studies on Colombian orchids a distinctive species of *Telipogon* was found and it is described here as new species.

**Description of the new species**

*Telipogon diabolicus* Kolan., Szlach. & Medina Tr., sp. nov.
urn:lsid:ipni.org:names:77155897-1
Figs 1, 2

**Diagnosis.** Species similar to *T. tabanensis* and *T. guacamayensis*, distinguished by the translucent, relatively small flowers with sepals reaching 9-10 mm in length, transversely elliptic lip and prominently clawed petals.

**Type.** COLOMBIA. Putumayo/Nariño: Páramo de Bordoncillo, 3180 m, 7 Nov 2015, R. Medina et al. S15/13 (Holotype JAUM!; Isotype JAUM!; UGDA-DLSz! - drawing).

**Description.** Stem 5.5–9 cm tall, stem abbreviated. Leaves 2–4.5 × 0.4–1.3 cm, conduplicate, relatively fleshy, ovate-lanceolate to oblanceolate, attenuate towards the base, subacute. Inflorescence 6–9 cm long, 2–3-flowered, peduncle triquetrous. Flowers simultaneous, tepals translucent with reddish veins, gynostemium and lip callus dark violet-maroon. Floral bracts 7–9 mm long, cucullate, ovate, acute. Pedicel and ovary 15–20 mm long, triquetrous. Sepals similar, keeled on the back side. Dorsal sepal 9–9.5 × 4–4.5 mm, concave, ovate-elliptic, acute, 3-veined. Lateral sepals 9–10 × 3–4 mm, concave, ovate-elliptic, acute, somewhat oblique, 3-veined. Petals 10–12 × 9–9.3 mm,
Telipogon diabolicus (Orchidaceae, Oncidiinae), a new species...

Figure 1. Telipogon diabolicus Kolan., Szlach. & Medina Tr. A Dorsal sepal B Petal C Lateral sepal D Lip E Gynostemium F Setae of the gynostemium. Drawn by N. Olędryńska from the holotype. Scale bars: A–D = 5 mm, E = 2 mm.

Rhombic in outline, broadly elliptic ovate to transversely elliptic above prominent claw, acuminate, 9-veined, claw basally thickened and densely ciliolate with papillate margins. Lip 9–9.3 mm long, 10–11 mm wide, transversely elliptic, acute at the apex, 15-veined, margins glandular-ciliate, basal margins with short spines; callus 3–4 mm × 2.5–3 mm, ovate-cordate, densely ciliate with several setae spread all over its surface. Gynostemium about 3 mm tall, clinandrium 3-lobed, lateral bundles of setose hairs elongate up to 3 mm long, the dorsal bundle covering the anther much shorter, area around the stigma papillate, with several setae. Capsule 15–20 mm long.

**Etymology.** The specific name refers to the distinctive gynostemium which resembles devil’s head.

**Distribution and ecology.** So far this species is known exclusively from southern Colombia, on the border between departments Putumayo and Nariño. It was found
Figure 2. *Telipogon diabolicus* Kolan., Szlach. & Medina Tr. A–B Plant habit C Flower closeup. Photos by M. Kolanowska.

growing epiphytically in wet, dwarf montane forest at the edge of páramo. The population which was observed during the field study consists of about 30 specimens of which only several were adult, flowering plants.
Telipogon diabolicus (Orchidaceae, Oncidiinae), a new species...

**Conservation status.** IUCN Red List category: Critically Endangered, [CR B2ab(iii)]. This species is only known from the type specimens, which represent one location in highly vulnerable habitat near the main road Pasto-Mocoa. It is expected that the current reconstruction of this road will have negative impact on the habitat of *T. diabolicus*.

**Discussion.** The new species can be misidentified with its Colombian congener *T. tabanensis* Dodson & R. Escobar (1993) and Ecuadorian *T. guacamayensis* Dodson & R. Escobar (in Dodson 1989a), but both those orchids are characterized by yellow flowers with dark (wine-red to maroon) gynostemium and callus (vs flowers translucent in *T. diabolicus*). Flowers of both *T. tabanensis* and *T. diabolicus* are resupinate (non-resupinate in *T. guacamayensis*), but those of *T. tabanensis* are much larger – sepals are about 17 mm long (vs 9–10 mm in *T. diabolicus*), petals reach 20 mm in length (vs 12 mm). Petals of the former are densely spinose-hirsute at the base while in the new species and in *T. guacamayensis* (Fig. 3) they are glabrous. In both *T. tabanensis* (Fig. 4) and *T. guacamayensis* the lip is 17-veined (vs 15-veined in *T. diabolicus*) and it is subtrullate (*T. guacamayensis*) or elliptic (*T. tabanensis*). All three species are

---

**Figure 3.** Telipogon guacamayensis Dodson & R. Escobar. A Dorsal sepal B Petal C Lateral sepal D Lip E Lip, side view. Redrawn by N. Olędrzyńska from original illustration presented by Dodson and Escobar (in Dodson 1989a). Scale bars: 5 mm.
Figure 4. *Telipogon tabanensis* Dodson & R. Escobar A Habit B Flower C Dorsal sepal D Petal E Lateral sepal F Lip G Gynostemium and lip callus, side view. Redrawn by M. Staroń from original illustration presented by Dodson and Escobar (1993). Scale bars: A–F = 10 mm, G = 5 mm.
characterized by presence of prominent, more or less cordate basal lip callus which is about 6 mm long in *T. tabanensis* and *T. guacamayensis* (up to 4 mm in *T. diabolicus*). Only in *T. diabolicus* the basal lip margin is covered with short spines. The additional difference between *T. tabanensis* and the new species is found in the gynostemium ornamentation. In the former orchid it is covered with equally long setose hairs while in *T. diabolicus* (and *T. guacamayensis*) the lateral bundles of hairs are elongated, longer than the dorsal bundle covering the anther.

The most distinguishing character of the new species are prominently clawed petals. At the best of our knowledge, this character is not found in any other Colombian species of the genus. Interestingly, at least 3 species from Peru share this feature, i.e. *T. intis* Braas (Fig. 5), *T. lueri* Dodson & Bennett (Fig. 6) and *T. mendiolae* Dodson & Bennett (Fig. 7). In the first of the Peruvian species aforementioned the obtuse lip has 17 nerves, petals are acute and gynostemium is sparsely setose on clinandrium. *T. mendiolae* can be characterized by transversely elliptic, obtuse lip with 17 nerves, and transversely elliptic, shortly apiculate petals. Flowers of this species are about twice larger than those of *T. diabolicus*. *T. lueri* differs from our new species by having twice larger flowers, densely setose gynostemium and petals with 11 nerves.

*Telipogon diabolicus* somewhat resembles also Ecuadorian *T. ecuadorensis* Schltr. (Fig. 9) and *T. bruchmuelleri* Rchb.f. (Fig. 8) known from Ecuador and Venezuela. In all aforementioned species the lip is similar in form, i.e. more or less transversely elliptic with ovate-cordate basal callus. Unlike in *T. diabolicus* the gynostemium of *T. bruchmuelleri* and *T. ecuadorensis* is densely covered by setose hairs (vs setose hairs found only on clinandrium), and petals are sessile (vs clawed).
Figure 6. *Telipogon lueri* Dodson & Bennett A Sepals B Petal C Lip D Gynostemium. Redrawn by N. Olędrzyńska from original illustration presented by Dodson and Bennett (*in* Dodson 1989b). Scale bars: 20 mm.

Key to identification of *T. diabolicus* and similar species

1. Petals distinctly clawed ............................................................................................................... 2
   – Petals subsessile...................................................................................................................... 5
2. Gynostemium almost glabrous, very sparsely setose exclusively on clinan-drium ......................................................................................................................... *T. intis*
   – Gynostemium densely covered by hairs .............................................................................. 3
3. Lip ecallose ........................................................................................................................................ 4
   – Lip with prominent, ovate-cordate callus .............................................................................. *T. diabolicus*
**Figure 7.** *Telipogon mendiola* Dodson & Bennett. **A** Dorsal sepal **B** Petal **C** Lateral sepal **D** Lip **E** Gy-nostemium. Redrawn by N. Olędrzyńska from original illustration presented by Dodson and Bennett (*in* Dodson 1989b). Scale bars: **A–D** = 10 mm, **E** = 3 mm.

| Step | Description | Species |
|------|-------------|---------|
| 4    | Petals transversely elliptic          | *T. mendiola* |
| –    | Petals ovate                                | *T. lueri* |
| 5    | Petals densely spinose-hirsute at the base | *T. tabanensis* |
| –    | Petals glabrous                              | 6 |
| 6    | Petals 5- or 7-veined                      | *T. bruchmuelleri* |
| –    | Petals 9-veined                              | 7 |
| 7    | Lip 13 × 12 mm, 17-veined                 | *T. guacamayensis* |
| –    | Lip 23 × 26 mm, 15-veined                | *T. ecuadoresensis* |
**Figure 8.** *Telipogon ecuadorensis* Schltr. A Dorsal sepal B Petal C Lateral sepal D Lip E Gynostemium. Redrawn by N. Olędrzyńska from Schlechter (1929).

**Figure 9.** *Telipogon bruchmuelleri* Rchb.f A Flower B Gynostemium and lip callus. Redrawn by N. Olędrzyńska from Dodson and Dodson (*in* Dodson 1984). Scale bars: 5 mm.
Acknowledgments

We are grateful to Alexander Hirtz for providing data on *T. guacamayensis* and to Natalia Oleńdrzyńska and Magdalena Staroń for preparing line drawings. We are grateful to Carlos Luis Leopardi Verde, Carlos Martel and Antonio Galán de Mera for their valuable comments on the manuscript. The study described here was financed by the Faculty of Biology, University of Gdańsk and supported by the grant nr 14-36098G of the Grantová agentura České republiky (GA ČR).

References

Baquero L, Fortunato RH (2012) *Telipogon sarae* (Oncidiinae) una especie nueva para Ecuador; *Telipogon sarae* (Oncidiinae), a new species from Ecuador. Orquideología 29(1): 5–14.

Bernal R, Gradstein SR, Celis M (2015) Catálogo de plantas y líquenes de Colombia. Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá.

Burns-Balogh P, Funk VA (1986) A phylogenetic analysis of the Orchidaceae. Smithsonian Institution, 1–79. doi: 10.5479/si.0081024x.61

Chase MW, Cameron KM, Barrett RL, Freudenstein JV (2003) DNA data and Orchidaceae systematics: a new phylogenetic classification. In: Dixon KW, Kell SP, Barrett RL, Cribb PJ (Eds) Orchid conservation. Natural History Publications, Kota Kinabalu, 69–89.

Chase MW, Cameron KM, Freudenstein JV, Pridgeon AM, Salazar G, van den Berg C, Schuiteman A (2015) An updated classification of Orchidaceae. Botanical Journal of the Linnean Society 177: 151–174. doi: 10.1111/boj.12234

Collantes B, Martel C (2015) *Telipogon koechlinorum* (Orchidaceae), a new species from Machu Picchu, Peru. Brittonia 67: 113–117. doi: 10.1007/s12228-015-9363-7

Dodson CH (1984) Orchids of Ecuador. Icones Plantarum Tropicarum series 1, fascicle 10. Marie Selby Botanical Gardens, 901–1000.

Dodson CH (1989a) Orchids of Ecuador. Icones Plantarum Tropicarum, series 2, fascicle 6. Missouri Botanical Garden, 501–600.

Dodson CH (1989b) Orchids of Peru. Icones Plantarum Tropicarum series 2, fascicle 2. Missouri Botanical Garden, 101–200.

Dodson CH, Escobar R (1989) *Telipogon guacamayoensis* Dodson & Escobar. In: Dodson CH (Ed.) Orchids of Ecuador, Icones Plantarum Tropicarum 2. Missouri Botanical Garden, St. Louis, 589.

Dodson CH, Escobar R (1993) Ocho especies nuevas del genero *Telipogon* en Colombia. Orquideología 18: 237–260.

Dressler RL (1993) Phylogeny and Classification of the Orchid Family. Dioscorides Press, 1–314.

Dressler RL (2007) Neue *Telipogon*-Arten in West-Panama III. Orchideen Journal 14(1): 12–16.

Dressler RL, Dodson CH (1960) Classification and phylogeny in the Orchidaceae. Annals of the Missouri Botanical Garden 47: 25–67. doi: 10.2307/2394615
Druce GC (1917) Nomenclatural notes: chiefly African and Australian. Botanical Society and Exchange Club of the British Isles, Reports 4: 601–653.

Jiménez Pérez I (2012) Cuatro especies nuevas de Telipogon (Orchidaceae) de los bosques montanos de Bolivia. Brittonia 64: 296–304. doi: 10.1007/s12228-012-9241-5

Kolanowska M, Szlachetko DL (2015) Fourth species of Duckeella (Orchidaceae) discovered in Colombia. Polish Botanical Journal 60: 37–39. doi: 10.1515/pbj-2015-0002

Kunth K (1816) Telipogon. In: Bonpland A, von Humboldt A (Eds) Nova Genera et Species Plantarum. Librairie Grecque-Latine-Allemande, Paris, vol. 1, 335–336.

Nauray Huari W, Galán de Mera A (2008) Ten new species of Telipogon (Orchidaceae, Oncidiinae) from southern Peru. Anales del Jardín Botánico de Madrid 65: 73–95. doi: 10.3989/ajbm.2008.v65.i1.247

Pfitzer EHH (1887) Entwurf einer natürlichen Anordnung der Orchideen. Carl Winter, 105 pp.

Reichenbach HG (1854) Orchideae Schlambilaneae. Bonplandia, Zeitschrift fuer die gesammte Botanik 2: 277–284.

Reichenbach HG (1877) Orchideae Wallisianae novae. Linnaea 41: 99–118.

Rodríguez Martínez L, Blanco MA (2015) A new species of Camaridium (Orchidaceae: Maxillariinae) from the cloud forests of Colombia. Phytotaxa 222: 61–66. doi: 10.11646/phytotaxa.222.1.6

Schlechter R (1915) Die Orchideen: ihre Beschreibung, Kultur und Züchtung – Handbuch für Orchideenliebhaber, Züchter und Botaniker. P. Parey, 836 pp.

Schlechter R (1929) Figuren-Atlas zu den Orchideenfloren der südamerikanischen Kordillerenstaaten. Repertorium Specierum Novarum Regni Vegetabilis 57: 1–142.

Szlachetko DL, Kolanowska M (2015) A New Species of Scelochilus (Orchidaceae) from Colombia. Systematic Botany 40: 94–103. doi: 10.1600/036364415X686396

Szlachetko DL (1995) Systema Orchidalium. W. Szafer Institute of Botany, Polish Academy of Sciences, 152 pp.

IPNI (2016) The International Plant Names Index. http://www.ipni.org [accessed 1 June 2016]

Vieira-Uribe S, Jost L (2015) A colorful new species of Neooreophilus (Pleurothallidinae: Orchidaceae) from the eastern Andes of Colombia and Ecuador. Lankesteriana 15: 213–217. doi: 10.15517/lank.v15i3.21752

Williams NH, Whitten WM, Dressler RL (2005) Molecular systematics of Telipogon (Orchidaceae: Oncidiinae) and its allies: nuclear and plastid DNA sequence data. Lankesteriana 5: 163–184.