FOUR NEW SPECIES OF CRANICHIS (ORCHIDACEAE, SPIRANTHOIDEAE, CRANICHDINAE) FROM COLOMBIA

DARIUSZ L. SZLACHTKO & MARTA KOLANOWSKA

Abstract. Four new species of the Neotropical genus Cranichis Sw. are described and illustrated based on Colombian material. The new entities are placed within a key for identification of Colombian members of the genus. Information about their ecology and distribution is provided.

Key words: Andes, biodiversity, Neotropics, taxonomy

INTRODUCTION

Consisting of over 3000 species, the Colombian orchid flora is one of the world’s richest (Ortiz Valdivieso & Uribe Vélez 2007). The subfamily Spiranthoideae is represented by over 200 species within ca 30 genera (Dueñas Gómez & Fernández-Alonso 2007, 2009; Ormerod 2007, 2008, 2009a, b). While generic delimitation among the Neotropical terrestrial orchids is the subject of ongoing discussion between taxonomists around the world due to the incompatibility of morphological (Dressler 1993; Szlachetko 1995; Szlachetko & Rutkowski 2010) and molecular findings (Salazar et al. 2003; Álvarez-Molina & Cameron 2009), the separateness of Cranichis Sw. is not questioned.

The genus was first described by Olof Swartz in 1788, and the nominal species C. muscosa Sw. was selected more than 150 years later by Acuña (1939). Morphologically Cranichis is clearly defined since the transfer of two monotypic taxa, Pseudocranichis Garay and Exalaria Garay & G. A. Romero, from the genus.

Species of the genus are easily distinguished from other cranichioid orchids by their villous-hairy roots, distinctly petiolate, suberect or arcuately spreading leaves, nonresupinate flowers, petals much narrower than sepals, and cochleate lip, often with conspicuously marked, colored reticulate veins. The gynostemium is relatively massive, often swollen at the apex, without a column-foot. The motile anther is oblong to ovate and 2-chambered. The inconspicuous caudiculae are formed from the apices of pollinia. The clinandrium is usually thick, massive and spacious. The single viscidium is thick and relatively small, and the hamulus is usually elongate, finger-like, thick, and directed towards the anther (Szlachetko & Rutkowski 2010).

Representatives of Cranichis are found in lowlands as well as in montane forest growing terrestrially or lithophytically, usually in humus and Sphagnum tussocks. Their occurrence has been reported from 350 up to 3000 m a.s.l. (Carnevali & Ramirez-Morillo 2003; Cribb 2003).

As currently recognized, the genus embraces ca 60 species distributed from Florida and Mexico to Bolivia and Argentina. Ortiz Valdivieso and Uribe Vélez (2007) placed 19 species of Cranichis in the most recent list of Colombian Orchidaceae. Most of the national representatives, except Crachinis muscosa and C. parvula Ranz, were found in Colombia’s submontane and montane regions in litter of the Andean forest and shrubs of subparamo and...
paramo. Their occurrence in Colombia was also reported from pastures and rocky slopes (Dueñas Gómez & Fernández-Alonso 2009). The last comprehensive revision of Colombian Cranichis was made over 50 years ago (Schneider 1953), but the recent studies on the national Orchidaceae revealed the existence of two new species in the country (Szlachetko & Kolanowska 2013).

During the course of study on north Andean Cranichidinae, three distinct species of Cranichis were found and are described here as new.

DESCRIPTIONS OF THE NEW SPECIES

Cranichis cristalinensis Szlach. & Kolan., sp. nov.

Fig. 1

Species appears similar to C. sylvatica A. Rich. & Gal. and C. werffii Garay but the petals are widest at the apex and the lip is sessile, suborbicular, much thickened in the center.


Plants to 40 cm tall. Leaves 2, basal, petiolate; petiole to 6.5 cm long, narrow; blade up to 5.3 cm long and 2.2 cm wide, oblong- or ovate-lanceolate, acute, rounded or truncate at base. Scape erect, delicate, glandular in the upper third, enclosed in 4 sheaths. Inflorescence to 5.5 cm long, subdensely many-flowered. Flowers small, inconspicuous. Floral bracts 4.5 mm long, lanceolate, acuminate, glabrous or sparsely glandular. Pedicel and ovary up to 7.5 mm long, papillate. Sepals glabrous. Dorsal sepal 3.5 mm long, 2.1 mm wide, ovate, subobtuse, rather cochleate in center, 3-nerved. Petals 3.1 mm long, 1.3 mm wide, oblong-spathulate, rounded at apex, subfalcate, glabrous along margins, 1-nerved. Lateral sepals 3.2 mm long, 2.1 mm wide, ovate to elliptic-ovate, acute to shortly acuminate, somewhat oblique, slightly concave, 3-nerved. Lip 3 mm and wide, suborbicular in outline, sessile, greatly thickened in center, apical margins slightly wavy. Gynostemium 1.8 mm long.

ETYMOLOGY. In reference to the name of the place of origin of the type specimen.

ECOLOGY. Terrestrial in high-montane forest with Drimys granadensis (Winteraceae) at ca 3200 m a.s.l. Flowering in November.

DISTRIBUTION. So far known only from the Eastern Cordillera of the Andes, Colombian department of Cundinamarca.

NOTES. Cranichis cristalinensis seems related to C. sylvatica A. Rich. & Gal. and C. werffii Garay, but is easily separable from both species by the petals and lip form. The petals of the new entity are widest at the apex and the lip is sessile, suborbicular, and much thickened in the center.

Cranichis queremalensis Szlach. & Kolan., sp. nov.

Fig. 2

Species similar to C. parvula Renz but the petals are attenuate toward the base and apex with only the outer margin shortly and densely ciliate, and the lip elliptic-suborbicular, very thin, and almost flat with a recurved apex.
Craniichis queremalensis Szlach. & Kolan., sp. nov.

Plants to 20 cm tall. Leaves 3, basal, petiolate; petiole to 4.5 cm long, narrow; blade up to 4.5 cm long and 2 cm wide, elliptic-suborbicular, base subcordate, obtuse to subobtuse at apex. Scape erect, delicate, glabrous, enclosed distantly in 4 sheaths, of which the lower ones are leafy. Inflorescence to 4 cm long, subdensely many-flowered. Flowers small, inconspicuous. Floral bracts 4 mm long, lanceolate, acuminate, glabrous. Pedicel and ovary up to 8 mm long, glabrous. Sepals glabrous. Dorsal sepal 3 mm long, 1.1 mm wide, oblong-elliptic-ovate, subobtuse, rather cochleate in center, 3-nerved. Petals 3 mm long, 0.6 mm wide, oblong-lanceolate, subacute to subobtuse, subfalcate, densely and shortly ciliate along outer margin except for base and apex, 1-nerved. Lateral sepals 3 mm long, 1.2 mm wide, ovate to elliptic-ovate, subobtuse to subacute, slightly oblique, slightly concave, 3-nerved. Lip 3 mm long, 2 mm wide, elliptic-suborbicular in outline, widest near middle, apex with short, triangular, recurved, acute apiculus, lamina almost flat, nerves 3, obscure, with 1 or 2 branches and several knob-like swellings on nerves. Gynostemium 1.1 mm long.

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

**Ecology.** This species was found on the roadside in an area covered with premontane forest. Alt. 1430–1550 m. Flowering in December.

**Distribution.** So far it is known only from the pacific slope of the Western Andean Cordillera, department of Valle del Cauca Colombia.

**Notes.** Craniichis queremalensis appears to be related to its Colombian-Ecuadorian congener *C. parvula*, originally described from the Colombian department of Meta. *Craniichis queremalensis* is characterized by petals attenuate toward the base and apex with only the outer margin shortly and densely ciliate, the lip elliptic-suborbicular, very thin, and almost flat with a recurved apex. Petals of *C. parvula* are oblong-ligulate, rounded at the apex and glabrous on the margins, with the lip similar in shape to *C. queremalensis* but cochleate in the center, with numerous knob-like projections and a straight apex.

**Craniichis schlechteri** Szlach. & Kolan., sp. nov.

Species similar to Ecuadorian *C. macroblepharis* Rchb. f. but with the lip prominently auriculate and petals long-ciliate along the margins.

Plants to 40 cm tall. Leaf 1, basal, petiolate; petiole to 3.5 cm long, narrow; blade up to 6 cm long and 3.7 cm wide, ovate, acute, subcordate at base. Scape erect, delicate, glabrous in lower half, otherwise glandular, enclosed in 5 sheaths. Inflorescence subdensely many-flowered. Flowers small, inconspicuous, glabrous. Floral bracts 5 mm long, lanceolate, acuminate. Pedicel and ovary up to 10 mm long. Dorsal sepal 4.5 mm long, 1.5 mm wide, oblong-ovate above narrow base and attenuate towards obtuse apex, rather cochleate in center, obscurely 3-nerved. Petals 4 mm long, 0.6 mm wide, oblong-lanceolate to linear-lanceolate, acute at apex, subfalcate, margins covered by long and soft cilia except base and apex, 1-nerved. Lateral sepals 4.5 mm long, 1.8 mm wide, ovate to elliptic-ovate, subobtuse, slightly oblique, slightly concave, obscurely 3-nerved. Lip 2.5 mm long, 1.6 mm wide, oblong-ovate in outline, sessile, basally auriculated, apex elongate, subobtuse, incurved, nerves 3, protruding, sparsely branching. Gynostemium 1.5 mm long.

**ETYMOLOGY.** Named in honor of Rudolf Schlechter, an eminent orchid taxonomist.

**ECOLOGY.** No habitat record. Alt. 1200–1300 m. Flowering in July. This species most probably is autogamous.

**DISTRIBUTION.** So far known only from the eastern slope of the Andean Central Cordillera, Colombian department of Huila.

**NOTES.** The new species appears to be similar to its Ecuadorian congener *C. macroblepharis* but is easily separable from the latter by having an auriculate base of the lip and long-ciliate petal margins.

**Cranichis rotundifolia** Szlach. & Kolan., sp. nov.

Species similar to *C. diphylla* Sw. but distinguished by its suborbicular leaf blade, spatulate, apically rounded petals, and the lip broadly ovate and obtuse, with two anastomosed veins.

**HOLOTYPE:** COLOMBIA, Nariño, Pasto, Correg. de El Encano. Isla La Corota, Alt. 2700 m. 14 Nov. 1980, O. S. Benavides 2699 (PSO).

Plant up to ca 30 cm tall. Roots fleshy, fasciculate, puberulent. Leaf 1, basal, petiolate; petiole ca 3 cm long; blade ca 5 cm long, 3.5 cm wide, suborbicular, subacute, subcordate at the base. Scape ca 25 cm long, slender, erect, remotely few-sheathed; spike ca 6 cm long, densely many-flowered. Flowers glabrous, translucent white. Floral bracts 3–4 mm long, lanceolate, acute. Pedicel and ovary 5–6 mm long, very sparsely glandular-ciliate. Dorsal sepal 3.1 mm long, 1 mm wide, narrowly elliptic, obtuse, 3-veined. Petals 2.5 mm long, 1 mm wide, spatulate, apex rounded, 1-veined. Lateral sepals 2.9 mm long, 1.5 mm wide, obliquely ovate, subobtuse, 3-veined. Lip ca 2 mm long, 1.6 mm wide, concave, sessile, broadly ovate, obtuse, with two anastomosed veins. Gynostemium 1.1 mm long.
ETYMOLOGY. In reference to the leaf shape.

ECOLOGY. The species was found growing terrestrially on humid soil in high-montane humid forest. Alt. 2700 m. Flowering in November.

DISTRIBUTION. So far this species is known only from Laguna de la Cocha in southern Colombia.

NOTES. Species similar to *C. diphylla* but distinguished by its suborbicular leaf blade (vs ovate to ovate-lanceolate), the spathulate, apically rounded petals (vs linear-oblanceolate, acute to obtuse) and the lip broadly ovate and obtuse, with two anastomosed veins (vs lip ovate to broadly elliptic, disc obcordately papillose-thickened with 3 branching, often glandular veins). Vegetatively the new species seems to resemble *C. tenuis* Rchb. f., from which it differs by the form of its perianth segments as well as by the shorter floral bracts and ovaries. In the floral parts *C. rotundifolia* resembles *C. fendleri* Schltr., especially in having spathulate petals and a broadly ovate lip. The two species are easily distinguished by a series of characters. In *C. fendleri* there are 3–4 oblong-elliptic to ovate-lanceolate, acute leaves, an oblong-lanceolate dorsal sepal and a lip with 3 anastomosed veins.

**KEY TO THE COLOMBIAN SPECIES OF CRANICHIS**

1. Petals with long hairs or cilia along the margins ........................................ 2
1'. Petals without long hairs on the margins ...... 3
2. Lip ovate-saggitate in outline, acute, almost flat ............................................ *C. wageneri* Rchb. f.
2'. Lip oblong-ovate in outline, apex elongate, sub-obtuse, incurved ........................ *C. schlechteri* Szlach. & Kolan
3. Petals ciliate ........................................ 4
3'. Petals with entire or slightly erose margins, glabrous ........................................ 15
4. Scape glabrous ........................................ 5
4'. Scape glandular or glandular-pubescent 6. petals linear-ligulate to oblong-oblanceolate .......................... *C. muscosa* Szlach.
5. Lip ovate-elliptic, base saccate ......................... *C. crumenifera* Garay
5'. Lip oblate to suborbicular .......................... 6
6'. Petals linear-ligulate to oblanceolate .......... 7
7. Lip midvein unbranched .......................... *C. engelii* Rchb. f.
7'. All lip veins branching .......................... *C. muscosa*
8. Ovary glabrous ........................................ 9
8'. Ovary glabrous ........................................ 11
9. Lip without any additional projections on the surface ........................................ 10
9'. Lip with spiculate pustules or knob-like projections .......................... *C. schlimii* Rchb. f.
10. Lateral sepals obscurely 3-veined, lip oblate at the apex .......................... *C. brachyblephara* Schltr.
10'. Lateral sepals obscurely 1-veined, lip truncate at the apex with short, triangular, acute apiculus ........................................ *C. zaruchii* Szlach. & Kolan.
11. Inflorescence elongate, raceme 8–12 cm long, longer than the leaf blade .......................... *C. antioquiensis* Schltr.
11'. Raceme up to 4–7 cm long, shorter than the leaf blade .......................... 12
12. Leaf blade elliptic-suborbicular, obtuse to sub-obtuse at apex ........................................ *C. queremalensis* Szlach. & Kolan.
12. Leaf blade ovate to elliptic, acute or acuminate
13. Flowers ca 3 mm in diameter, ovary ca 5–6 mm long
14. Sepals attenuate towards the apex, petals minutely ciliate along margins, lip longer than wide
14'. Sepals rounded at the apex, petals pubescent along margins, lip as long as wide
15. Petals margins erose
16. Petals oblong-spathulate
17. Petals lanceolate to oblong-oblanceolate
18. Leaves narrowly oblanceolate to linear-lanceolate
19. Leaves narrowly oblong-lanceolate to linear-lanceolate
20. Leaves ovate, ovate-lanceolate to orbicular
21. Leaves 2, blade oblong-ovate-lanceolate
22. Floral bracts subequal or longer than ovary
23. Lateral sepals obliquely oblong-triangular, outer margin forming a lobe
24. Lateral sepals obliquely ovate with expanded basal

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