

TWO NEW SPECIES OF *EPISTEPHIUM* (ORCHIDACEAE, VANILLOIDEAE) FROM COLOMBIA

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Abstract. Two new species of Neotropical Orchidaceae, *Epistephium epiphyticum* Szlach. & Kolan. and *E. cardonae* Szlach. & Kolan., are described and illustrated based on Colombian material. So far the new entities are known exclusively from the type locations. Both species are placed within a key to Colombian *Epistephium* Kunth.

Key words: biodiversity, Neotropics, South America, taxonomy

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INTRODUCTION

The genus *Epistephium* Kunth was proposed by Karl Kunth (1822) in *Synopsis Plantarum Aequinoctialium Orbis Novi*. The generic name is derived from the Greek *epi-* ('upon') and *stephanos* ('crown'), referring to the shallow cup, the so-called calyculus, observed at the apex of the ovary. The nominal species of this Neotropical genus is *E. elatum* Kunth, which was described based on Colombian material.

The genus comprises terrestrial erect plants with chartaceous to coriaceous leaves. Showy flowers are gathered in terminal or axillary racemes. The lip usually is ornamented with a central row of retrorse, barbate or lacerate crests (Cameron 2003). The gynostemium is elongate, more or less incurved at the apex only. The conspicuous column part is connate with the lip in the lower half. The anther is incumbent, ellipsoid-ovoid to ellipsoid-conical, motile and 2-chambered. The four pollinia are oblong and very powdery. The 3-lobed ventral stigma is transversely elliptic, cup-like, and deeply concave in the center (Szlachetko & Rutkowski 2000).

So far *ca* 25 species of *Epistephium* have been described (Carnevali & Ramírez-Morillo 2003),

10 of them recorded from Colombia (Ortiz Valdivieso & Uribe Vélez 2007). Their occurrence was reported from northern Argentina to Guiana and Belize. The plants usually are found growing in open grassy areas or savannas on lateritic soil. The altitudinal range of *Epistephium* extends from 100 m up to 1200 m a.s.l. (Garay 1978; Cameron 2003; Carnevali & Ramírez-Morillo 2003).

The genus is poorly understood due to the insufficiency of herbarium collections and difficulties in hydrating and examining flowers from dried material. A comprehensive revision of the herbarium material stored in the National Colombian Herbarium produced descriptions of five new *Epistephium* species (Szlachetko *et al.* 2013a, b).

Recent studies of Columbian vanilloid orchids revealed the existence of another two species of the genus, described here as new.

DESCRIPTIONS OF THE NEW SPECIES

Epistephium epiphyticum Szlach. & Kolan.,
sp. nov. Fig. 1

Epiphytic plant characterized by sessile leaves, petals subequal in width to sepals and entire, ovate lip, nearly free from the gynostemium and ornamented with several

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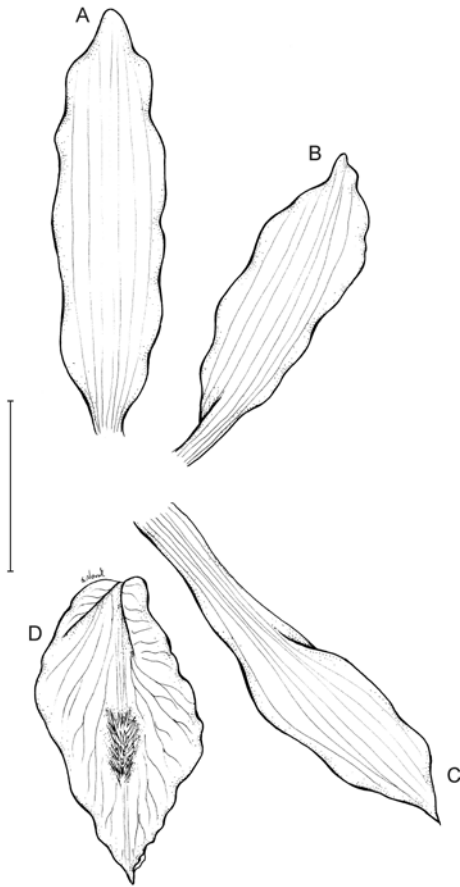


Fig. 1. *Epistephium epiphyticum* Szlach. & Kolan. – dissected perianth. A – dorsal sepal; B – petal; C – lateral sepal; D – lip. Drawn by S. Nowak from the holotype. Scale bar = 20 mm.

folded running from the base up to the lip apex, and a crest of subulate appendages in the central part.

HOLOTYPE: COLOMBIA, Antioquia. Mun. Santo Domingo, Correg. Santiago, sector La Negra, 9 km de Santiago, 13 Aug. 1986, R. Callejas, S. Churchill, P. Acebedo, C. J. Castaño & M. Escobar 2382 (HUA).

Stem erect, over 50 cm high. Leaves 9–13 cm long, 3.5–6.0 cm wide, ovate-lanceolate to ovate, acute or short-acuminate, cordate at base. Inflorescence terminal, erect, ca 25 cm long, several-flowered, rather dense. Flowers 4–5 cm long, ± thin in texture, purplish, fragrant. Floral bracts 7–9 mm long, cymbiform, acute. Ovary up to 17 mm long,

cylindrical, sessile, crowned with shallow denticulate cup. Dorsal sepal 48–50 mm long, ca 13 mm wide, oblong, obtuse. Lateral sepals 46–48 mm long and 10–11 mm wide, oblong, acute. Petals 38–40 mm long, 9–10 mm wide, oblong-elliptic, obtuse. Lip 28–30 mm long, 19–20 mm wide, nearly free from the column, ovate in outline, undulate, apex short-acuminate, subacute, recurved; disc with several folds running from base up to lip apex, ornamented in center by crest of subulate appendages extending for ca 10 mm. Gynostemium elongate, slender, erect.

ETYMOLOGY. In reference to the epiphytic life form.

HABITAT AND ECOLOGY. Epiphytic in humid tropical forest at ca 1150 m a.s.l. Flowering in August.

DISTRIBUTION. Known only from the Colombian Central Cordillera (Fig. 2).



Fig. 2. Distribution of *Epistephium epiphyticum* Szlach. & Kolan. (circle) and *E. cardonae* Szlach. & Kolan. (square) in Colombia.

NOTES. This species resembles *E. amplexicaule* (Ruiz & Pav.) Poepp. & Endl. and *E. frederici-augusti* Rchb. f. but is easily distinguished from both of them by having small floral bracts and a smaller lip, ovate in outline, with an acute recurved apex and ornamented with a crest of subulate appendages in the central part. The unique feature of *E. epiphyticum* is its lip nearly free from the gynostemium.

The new species was found in humid tropical forest, a habitat uncommon for the genus; most *Epistephium* species prefer open areas characterized by warm climate. This is the first report of an epiphyte within the genus.

Epistephium cardonae Szlach. & Kolan., *sp. nov.*

Fig. 3

Terrestrial plant characterized by shortly petiolate leaves and an entire quadrate-orbicular lip ornamented with 3 longitudinal folds and retrorsely bearded in the apical part.

HOLOTYPE: COLOMBIA, Amazonas. Santa Isabel, sitio sabanas de Solarte, 71°10'W 1°05'S. 4–6 Dec. 1996, M. V. Arbeláez, U. Matapi & N. Matapi 690 (HUA).

Stem branching, at least 100–150 cm tall, sometimes over 150 cm tall. Leaves basally attenuate into short petiole 2.5–3.0 cm long, blade up to 13 cm long, 2.3–4.5 cm wide, lanceolate, ovate-lanceolate or lanceolate-elliptic, shortly acuminate, acute. Inflorescences few, axillary, racemose, up to ca 15 cm long, several-flowered. Flowers purplish, ca 2.5 cm long. Floral bracts minute, ca 2.5 mm long, triangular-ovate. Ovary up to 35 mm long, sessile, crowned with shallow cup. Dorsal sepal 24–25 mm long, 3.8–4.0 mm wide, oblong-lanceolate, acute. Lateral sepals 16–17 mm long, 3.8–4.0 mm wide, obliquely oblong, obtuse to short acuminate. Petals 19–20 mm long, 2.7–4.0 mm wide, oblong-elliptic, acute. Lip 15–16 mm long, 5.2–5.5 mm wide, shortly clawed, quadrate-orbicular in outline, acute and shortly acuminate at apex, margins undulate; disc with 3 longitudinal folds, retrorsely bearded on apical 1/3. Gynostemium elongate, slender, erect.

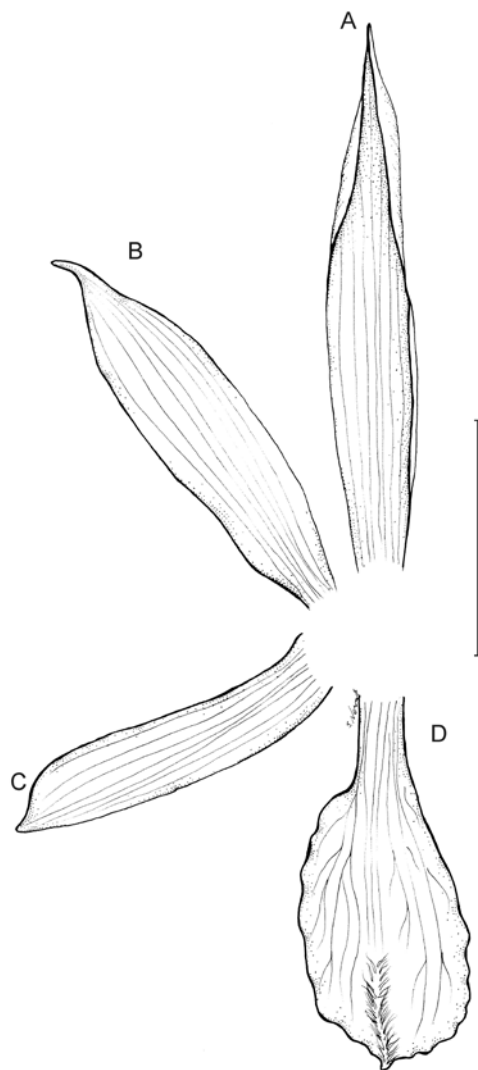


Fig. 3. *Epistephium cardonae* Szlach. & Kolan. – dissected perianth. A – dorsal sepal; B – petal; C – lateral sepal; D – lip. Drawn by S. Nowak from the holotype. Scale bar = 10 mm.

ETYMOLOGY. Named to honor Felipe Alfonso Cardona Naranjo, Curator of the herbarium of the University of Antioquia (HUA).

HABITAT AND ECOLOGY. Grows in scrub on white sand and decaying organic matter at 100–150 m elev. Flowering in December.

DISTRIBUTION. Known only from the Colombian department of Amazonas (Fig. 2).

NOTES. This species resembles *E. parviflorum* Lindl., from which is easily distinguished by its narrower lip bearded on the apical 1/3 (vs lip basally retrorsely bearded) and longer leaf petiole (2.5–3.0 cm vs 0.5–0.6 cm long).

KEY TO THE COLOMBIAN SPECIES
OF *EPISTEPHIUM*

1. Plants small, 8–23 cm tall. Leaves shortly petiolate, elliptic to elliptic-obovate, widest near middle or above . . . *E. ellipticum* R. O. Williams & Summerh.
- 1* Plants much higher, at least 40 cm tall, usually much taller. Leaves sessile or petiolate, oblong-lanceolate to broadly elliptic-ovate, widest in basal part 2
 2. Leaves amplexicaul 3
 - 2* Leaves non-amplexicaul 12
3. Lip orbicular or ovate to transversely elliptic, truncate, acuminate or shortly apiculate at apex 4
- 3* Lip \pm oblong-obovate, \pm incised at apex 5
 4. Lip orbicular in outline, disc papillose-barbate along median nerve in upper half
. *E. frederici-augusti* Rchb. f.
 - 4* Lip ovate to transversely elliptic in outline, disc with only a tuft of fleshy hairs or subulate appendages in center 6
5. Lip transversely elliptic in outline, wider than long *E. rhombilabium* Szlach., Mytnik & Baranow
- 5* Lip ovate in outline, longer than wide
. *E. epiphyticum* Szlach. & Kolan.
6. Lamellae or hairs running from base to apex of lip lamina 7
 - 6* Cristate lamellae or hairs of various kinds present only in lip center 9
7. Floral bracts up to 15 mm long, sepals to 30 mm long, thick and stiff, lip covered by 8 mm long hairs along midvein
. *E. trianae* Szlach., Mytnik & Baranow
- 7* Not showing above combination of features 8
8. Lip in basal 23 mm connate with gynostemium; free part broadly rhombic or broadly ovate, margins more or less undulate, crenulate-serrulate, adorned in upper part by cuneate, lacerate calli along midvein *E. lamprophyllum* Schltr.
- 8* Lip nearly free from column, broadly obovate or subrotund, undulate, shortly lacerate and ciliolate at margin; disc through longitudinal center with bearded crest of subulate appendages extending from base nearly to apex, and in front of crest a cluster of numerous folds
. *E. amplexicaule* Poepp. & Endl.
9. Lip apically deeply incised, hence appearing bilobed 10
- 9* Lip sinuously notched at apex 11
 10. Lip with oblique lamella just above base of lip on either side of crest, clinandrium 3-lobed
. *E. hernandii* Garay
 - 10* Lip without lamellae on sides of central crest, clinandrium unlobed *E. duckei* Huber
11. Floral bracts to 20 mm long, sepals 10–17 mm wide, petals 55–66 mm long and 26 mm wide
. *E. brevicristatum* R. E. Schult.
- 11* Floral bracts to 15 mm long, sepals to 10 mm wide, petals to 55 mm long and to 20 mm wide
. *E. elatum* Kunth
12. Leaves petiolate, petiole very prominent, at least 1 cm long 13
 - 12* Leaves sessile or subsessile, petiole up to 0.5 cm long if present 15
13. Petals *ca* 4 times longer than wide, lip prominently clawed, fleshy hairs along midvein in upper part of lip *E. parviflorum* Lindl.
- 13* Petals up to twice longer than wide 14
 14. Lip shortly clawed, 16×5.5 mm, quadrate-orbicular in outline
. *E. cardonae* Szlach. & Kolan.
 - 14* Lip sessile, $20\text{--}23 \times 18\text{--}24$ mm, deltoid in outline *E. sessiliflorum* Lindl.
15. Flowers small, sepals up to 25 mm long 16
- 15* Flowers medium-sized, sepals over 35 mm long 17
16. Lip transversely elliptic-flabellate in outline, disc strongly thickened and covered by soft hairs along midvein in basal half, and by very long hairs above
. *E. garayi* Szlach., Mytnik & Baranow
- 16* Lip almost orbicular in outline, disc with two lamellae running from base to the center of lip, covered by long hairs (to 5 mm long) from center to apex of lip along midveins
. *E. subrepens* Hoehne
17. Leaves subsessile
. *E. kubiyouense* Szlach., Mytnik & Baranow
- 17* Leaves shortly petiolate 18
 18. Lip with oblong thickening running from base of claw to apex of lamina, covered densely by fleshy soft hairs *E. sclerophyllum* Lindl.
 - 18* Lip without oblong thickening, central part with crested lamellae, densely hairy above, with two papillate keels below
. *E. araracuarae* Szlach., Mytnik & Baranow

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REFERENCES

- CAMERON K. M. 2003. *Epistephium*. In: A. M. PRIDGEON, P. J. CRIBB, M. W. CHASE & F. N. RASMUSSEN (eds), *Genera Orchidacearum. 3: Orchidoideae (Part Two), Vanilloideae*, pp. 306–309. Oxford University Press, Oxford.
- CARNEVALI G. & RAMÍREZ-MORILLO I. M.. 2003. *Epistephium*. In J. A. STEYERMARK, P. E. BERRY, K. YATSKIEVYCH & B. K. HOLST (eds), *Flora of the Venezuelan Guyana 7*: 353–356. Missouri Botanical Garden, St. Louis.
- GARAY L. A. 1978. Orchidaceae (Cypripedioideae, Orchidoideae, Neottioideae). In: G. HARLING & B. SPARRE (eds), *Flora of Ecuador. 9*: 1–305. Department of Systematic Botany, University of Goteborg and Section for Botany, Riksmuseum, Goteborg.
- KUNTH K. 1822. *Synopsis Plantarum Aequinoctialium orbis novi. 1*. Levrault, Paris.
- ORTIZ VALDIVIESO P. & URIBE VÉLEZ C. 2007. *Galería de Orquídeas de Colombia* (CD edition). Asociación Bogotana de Orquideología, Bogotá.
- SZLACHETKO D. L. & RUTKOWSKI P. 2000. *Gynostemia* Orchidialium. 1. Apostasiaceae, Cypripediaceae, Orchidaceae (Thelymitroideae-Vanilloideae). *Acta Bot. Fenn.* **169**: 1–322.
- SZLACHETKO D. L., MYTNIK-EJSMONT J. & BARANOW P. 2013a. Drei neue *Epistephium*-Arten (Orchidaceae, Vanilloideae). *Die Orchidee* **64**(1): 14–18.
- SZLACHETKO D. L., MYTNIK-EJSMONT J. & BARANOW P. 2013b. New species of the genus *Epistephium* (Orchidaceae, Vanilloideae). *Pl. Syst. Evol.* **299**: 1519–1522.

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