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New species of *Ceratostema* (Ericaceae) from Ecuador
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INTRODUCTION: The genus *Ceratostema* Juss. includes over 30 described species well represented in the Andean cloud forests, particularly in Ecuador, which is known for its high biodiversity and endemism (Luteyn 2002). These forests harbor a remarkable diversity of ericaceous species adapted to montane habitats. Despite significant exploration of the Andes in Ecuador over several centuries, new species within *Ceratostema* continue to emerge (Luteyn 2005; Jiménez et al. 2021; Cornejo et al. 2024; Jiménez et al. 2024a; Jiménez et al. 2024b). Here, we describe new species from Ecuador based on recent collections by Ecuagenera, contributing to their ongoing efforts to document and conserve the unique flora of the region.

TAXONOMY

Ceratostema doucettei H.Medina & J.Portilla, *sp. nov.*

ETYMOLOGY: Named for Alfonso Doucette who first recognized the species as new.

TYPE: ECUADOR. Morona-Santiago: between Canton Logrono y canton Taisha, ca. 400–800 m, the wild plant collected by Ecuagenera, *EG-514* (holotype: HA).

DIAGNOSIS: The new species is most similar to *Ceratostema bracteolatum* Luteyn but can be distinguished by the flat to convex leaves (vs. bullate), scale-like basal bracteoles (vs. apical, clasping the calyx and concealing the hypanthium at anthesis), and longer stamens (70.0 mm long vs. 37–38.0 mm long).

DESCRIPTION: Erect to ascending epiphytic shrubs; well-developed lignotubers, spheroid, scaly, gray to reddish brown, ca. 10.0 cm in diam., young branches erect, pubescent; stems terete, glabrate, erect to arching, to 45.0 cm long, 0.2–0.5 cm in diam., arising from the lignotuber, the bark reddish-brown, cracking longitudinally and exfoliating, twigs terete, new growth densely pubescent, glabrous and striate after exfoliation. Leaves spiral, pinnately veined; petiole pale green, subterete, pubescent becoming glabrous with age, 0.3–0.4 cm long, 0.1 cm in diameter; blades thin-coriaceous, ovate to narrowly ovate, flat to convex, apically subacute to obtuse, base obtuse, the margins entire, 3.7–4.9 cm long, 1.2–2.0 mm wide, the upper and lower surface glabrous, darker green, the midrib and lateral nerves lighter in coloration above, not raised, and inconspicuous beneath, the reticulate veinlets obscure. Inflorescence terminal, flew

flowered raceme of nutant flowers; floral bracts reduced, triangular ca. 1.8–2.0 mm long, 1.0 mm wide; pedicel slightly incurved, purple, pubescent, terete, articulated with calyx, 6.5–7.2 mm long, 2.1–2.3 mm wide. Flowers 4-merous, nutant; calyx hypanthium red, densely pubescent, 5.0–6.2 mm long, 5.0–6.9 mm wide; calyx limb red to green heavily suffused with red, densely pubescent, campanulate, 16.6–18.5 mm long, 10.1–12.5 mm wide; lobes similar in color and texture to the rest of the limb, narrowly triangular, apex acute, sinuses acute, 16.0–18.0 mm long, 4.5–6.2 mm long (at base); corolla thick-carnose, reddish-purple, becoming dark purple toward the tip, pubescent, glabrous internally, tubular, weakly inflated toward the base, 23.0–26.0 mm long (excluding the lobes), 5.7–5.9 mm in diameter at the base and 3.7–3.8 mm in diameter at the throat; lobes 4, dark-purple, spreading, narrowly triangular, long-acuminate, sinuses acute, pubescent externally, 19.2–20.0 mm long, 2.0 mm wide at base; stamens 8, sometimes unequal with each other, ca. 70.0 mm long; filaments whitish green, suffused with purple, connate into a tubular corona, glabrous, 8.8–10.0 mm long, ca. 1.5 mm wide (dissected); anthers 58.1–61.0 mm in total length, with two orange-brown thecae, 17.9–18.3 mm long, 0.8 mm wide, each connate for their length, attenuated into free, light brown, filiform tubules, 38.0–40.5 mm long, 0.4–0.8 mm wide, dehiscing by terminal pores; style whitish-green glabrous, filiform, exerted, 43.0 mm long, 0.4 mm in diameter; stigma truncated. Fruits not seen.

Ceratostema portillae A.Doucette & H.Medina, *sp. nov.*

ETYMOLOGY: Named for Jose Portilla, president of Ecuagenera, responsible for the discovery and collection of the species presented here.

TYPE: ECUADOR. Zamora-Chinchipec: Yacuambi, ca. 1600–1800 m, the wild plant collected by Ecuagenera, *EG-506* (holotype: HA).

DIAGNOSIS: The new species is most similar to *Ceratostema zamorana* M.M.Jiménez & Vélez-Abarca but can be distinguished by the linear leaves (vs. ovate-lanceolate to elliptic), the smaller, deltoid lobes of the limb (vs. ovate), obtuse sinuses (vs. acuminate), and the 3-merous flowers (vs. 5-merous).

DESCRIPTION: Ascending to pendent epiphytic shrubs; well-developed lignotubers, spheroid, farinose, gray to reddish brown, ca. 9.1–10.3 cm in diam., young branches ascending to pendent; stems terete, glabrate, arching, to 1 m long, 0.2–1.2 cm in diam., arising from the lignotuber, the bark grayish-brown, cracking longitudinally and exfoliating, twigs terete, new growth densely pubescent, glabrous and striate after exfoliation. Leaves alternate; petiole pale green, sometimes suffused with pink, subterete, pubescent becoming glabrous with age, 0.2–0.3 cm long, 0.1 cm in diameter; blades thin-coriaceous, linear, apex acute, base obtuse, the margins entire, 5.7–9.2 cm long, 0.5–0.7 cm wide, the upper and lower surface glabrous, darker green on the upper surface,

without obvious lateral nerves. Inflorescence a raceme of pendent flowers; floral bracts reduced, triangular 2.3–4.2 cm long, 0.9 mm wide; pedicel straight, clavate, tan suffused with rose, microscopically pubescent, terete, articulated with calyx, 19.1–24.4 mm long, 0.9–2.9 mm wide. Flowers 3-merous, pendent; calyx hypanthium green, suffused with purple along the articulation with the pedicel, glabrous, hexagonal, 2.1–3.3 mm long, 5.1–5.7 mm wide; calyx limb, patelliform, truncate, 4.5–6.5 mm long, 12.8–14.2 mm wide; lobe similar in color and texture to the rest of the limb, deltoid, apex acute, sinuses obtuse, 4.5–6.5 mm long, 3.5–4.0 mm wide; corolla thick-carnose, pinkish-purple, nitid, glabrous internally and externally, tubular, 30.6–34.7 mm long (excluding the lobes), 12.1–12.4 mm in diameter at the base and 9.7–10.2 mm in diameter at the throat; lobes 6, dull pink externally, dark purple internally, spreading, narrowly triangular, long-acuminate, sinuses acute, 16.9–17.7 mm long, 5.2 mm wide; stamens 12, sometimes unequal with each other, ca. 37.0 mm long; filaments whitish green, connate into a tubular corona, glabrous for most of their length, microscopically pubescent behind the theca, 6.2–6.9 mm long, ca. 2.4 mm wide; anthers 31.9–33.4 mm in total length, with two orange-brown thecae, 5.8–6.3 mm long, 0.5 mm wide, each connate for their length, attenuated into free, straw-colored, filiform tubules, 24.9–26.1 mm long, 0.2–0.6 mm wide, dehiscing by terminal pores; style whitish-green, suffused with rose toward the apex, glabrous, filiform, exerted, 49.3 mm long, 0.6 mm in diameter; stigma truncated. Fruits not seen.

NOTES: The new species also bears some similarity to *Ceratostema pedunculatum* Luteyn, but can be distinguished by the clavate pedicels (vs. terete), the glabrous calyx lobes (vs. pilose), the obtuse sinuses of the calyx lobes (vs. acute), and the ventricose corolla (vs. not ventricose at base).

Ceratostema guachisacae A.Doucette, H.Medina & J.Portilla, *sp. nov.*

ETYMOLOGY: Named for Angel Guachisaca who first discovered the species.

TYPE: ECUADOR. Zamora Chinchipe: Barrio Romerillos Alto, near Shaime, ca. 1600 m, the wild plant collected by Ecuagenera, *EG-508* (holotype: HA).

DIAGNOSIS: The new species is most similar to *Ceratostema sieteiglesiana* H.Garzón & M.M.Jiménez but can be distinguished by the spirally arranged leaves (vs. alternate), which tend to be larger (3.5–7.3 cm long vs. 1.7–5.5 cm long) and lanceolate (vs. (falcate to subfalcate). Florally the new species can be distinguished from *C. sieteiglesiana* by the merosity (four petals and eight stamens vs. five petals and ten stamens) and the larger calyx lobes that are ovate (25.7–27.0 mm long, 10.3–12.2 mm wide vs. 12.7–19.1 mm long, 5.0–6.5 mm wide).

DESCRIPTION: Ascending epiphytic shrubs; well-developed lignotubers, spheroid, farinose, grayish brown, ca. 4.4–6.3 cm in diam., young branches ascending; stems terete,

glabrous, arching, to 1 m long, 0.1–0.7 cm in diam., arising from the lignotuber, the bark gray to reddish-brown, exfoliating in membranous flakes, the twigs terete, glabrous and striate after exfoliation. Leaves spiral, pinate venation; petiole pale green, glabrous, 0.4–0.5 cm long, 0.2 cm in diameter; blades thin-coriaceous, lanceolate, apex acuminate, subacute, the margins entire, 3.5–7.3 cm long, 0.9–1.9 cm wide, the upper and lower surface glabrous, darker green and shiny on the upper surface. Inflorescence a raceme of nutant flowers; floral bracts reduced, ovate, 3.2–9.7 mm long, 1.0–1.3 mm wide; pedicel straight, terete, green suffused with red, articulated with calyx, 11.5–11.8 mm long, 2.8 mm in diam. Flowers 4-merous, nutant; calyx hypanthium red, with four undulate crests, glabrous, quadrilateral, 5.2–5.8 mm long, 5.7–10.3 mm wide (the smallest measurements excluding the undulate crests); calyx limb, campanulate, truncate, 23.2–28.0 mm long, 21.2–33.5 mm wide; lobe similar in color and texture to the rest of the limb, ovate, apex acute, sinuses acute, 25.7–27.0 mm long, 10.3–12.2 mm wide; corolla thick-carnose, red, nitid, microscopically pubescent externally, glabrous internally, tubular, ventricose towards the base, 20.8–25.5 mm long (excluding the lobes), 8.7–10.8 mm in diameter at the base and 7.0–7.2 mm at the throat in diameter at the throat; lobes 4, dull dark purple, spreading, narrowly triangular, long-acuminate, sinuses acute, 21.3–22.0 mm long, 3.7 mm wide; stamens 8, sometimes unequal with each other, ca. 39.7–42.4 mm long; filaments white, connate into a tubular corona, glabrous for most of their length, microscopically pubescent behind the theca, 6.2–6.9 mm long, ca. 2.5 mm wide; anthers 35.6–38.7 mm in total length, with two orange-brown thecae, 5.7–6.0 mm long, 1.0 mm wide, each connate for their length, attenuated into free, straw-colored, filiform tubules, 28.9–32.0 mm long, 0.3–0.8 mm wide, dehiscent by terminal pores; style whitish-green, suffused with rose toward the apex, glabrous, filiform, exerted, 53.5 mm long, 0.6 mm in diameter; stigma truncated. Fruits not seen.

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