

***OCTOMERIA CANDIDAE* (ORCHIDACEAE: PLEUROTHALLIDINAE), A NEW SPECIES FROM THE CORDILLERA DEL CÓNDOR, ECUADOR**

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ABSTRACT. A new species of *Octomeria* from southern Ecuador was found during an investigation on the orchids of the Cordillera del Cóndor. *Octomeria candidae* is described and illustrated; likewise, information on its distribution, habitat and conservation status is provided. The new proposed taxon is morphologically similar to *O. estrellensis*, from which it differs by its creeping habit, the narrowly ovate, long-acuminate sepals and petals, and the yellow lip with an acute apex.

RESUMEN. Una nueva especie de *Octomeria* del sur de Ecuador fue encontrada durante una investigación sobre las orquídeas de la Cordillera del Cóndor. Se describe e ilustra a *Octomeria candidae*; así mismo, información sobre su distribución, hábitat y estado de conservación es brindada. El nuevo taxón propuesto es morfológicamente similar a *O. estrellensis*, del cual se diferencia por su hábito rastrero, los sépalos y pétalos estrechamente ovados, largamente acuminados y el labelo amarillo con el ápice agudo.

KEY WORDS / PALABRAS CLAVE: Actividad minera, Conservación de orquídeas, Mining activities, New orchid species, nueva especie, *Octomeria estrellensis*, Orchid conservation, Zamora Chinchipe

Introduction. *Octomeria* R.Br. is a neotropical genus of Pleurothallidinae proposed by Robert Brown in 1813 when he described *Octomeria graminifolia* (L.) R.Br. (Pridgeon 2006, Luer 2010). According to previous molecular studies (Pridgeon *et al.* 2001, Pridgeon 2006), *Octomeria* is a monophyletic taxon. Plants of this genus are epiphytic, repent to caespitose. Leaves are conduplicate, flat to terete or semiterete; nevertheless, in some species the morphological boundaries are not clear. The flowers are fasciculate to solitary, emerging from the apex of the ramicaul. The sepals and petals are very similar, but unequal in size and the lateral sepals can be free or occasionally connate. The column is semiterete, usually with a sub-apical anther and stigma, the pollinarium is generally comprised of eight pollinia, except for one species (*O. splendida* Garay & Dunst.) which has only 6 pollinia (Cogniaux 1896, Luer 2010).

With approximately 160 species, *Octomeria* is distributed from Belize to northern Argentina, the center of diversity being from the Guianas to South Brazil (Forster 2007, Forster *et al.* 2012, Karremans *et al.* 2019). In Ecuador, 26 species of the genus are currently reported, of which, *O. doucetteana* L.E. Matthews, is the most recently described species for this country (Matthews 2018). In the Zamora Chinchipe province, there are eleven species registered (Luer 2010, 2011, Forster *et al.* 2012), which is the area with the highest diversity of the genus in the country. A recently discovered species from southeast Ecuador is described here.

Materials and methods. Plants of the new species were collected during a research on orchids of the Cordillera del Cóndor, under permits granted by the Ministerio del Ambiente de Ecuador. Some specimens

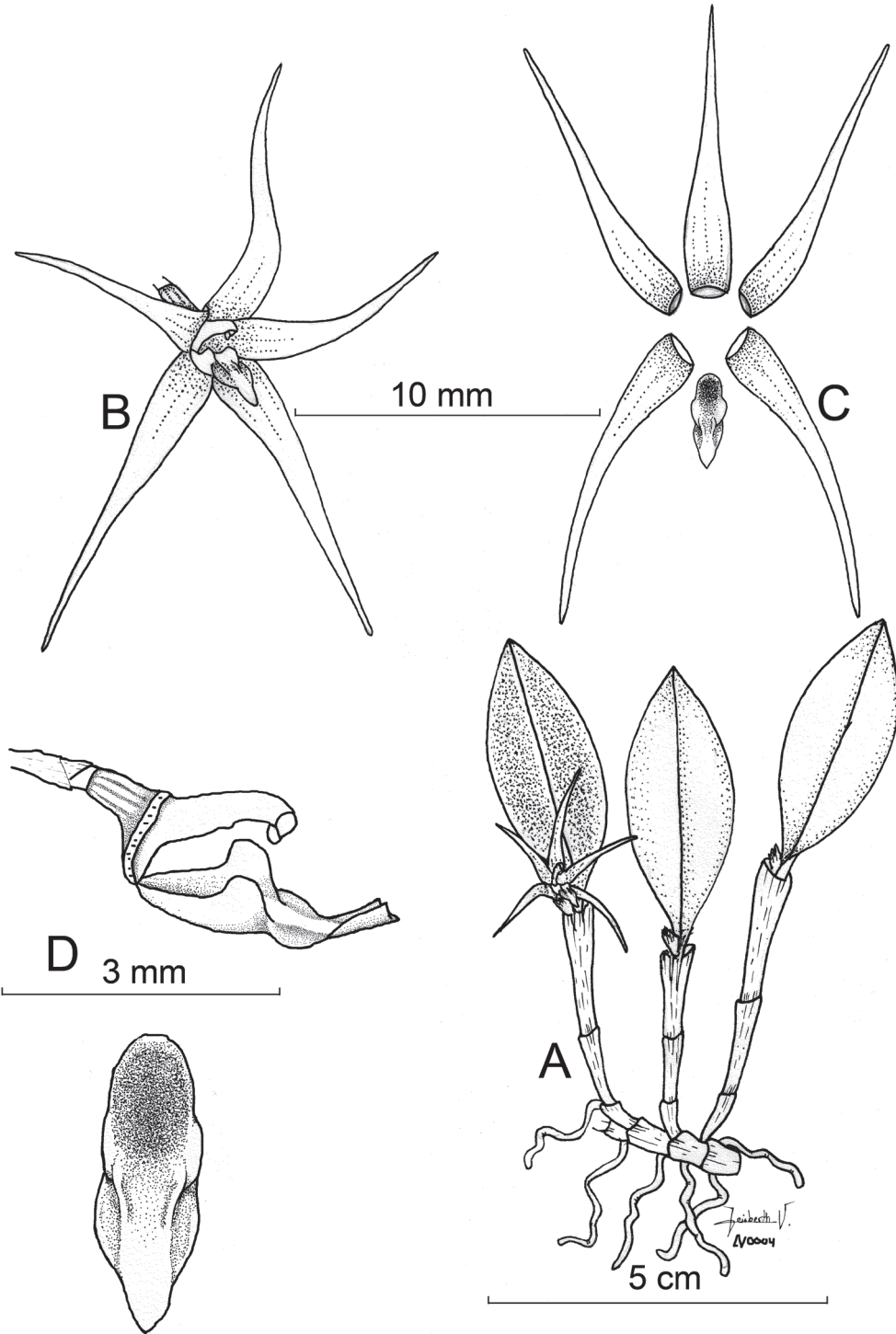


FIGURE 1. *Octomeria candidae* Vélez-Abarca, M.M.Jiménez & Baquero. **A.** Habit. **B.** Flower in 3/4 view. **C.** Dissected perianth. **D.** Part of the pedicel, ovary, column and lip in lateral view and lip dorsal view. Illustration by Leisberth Vélez-Abarca, based on the holotype, *Vélez-Abarca LV-0004* (ECUAMZ).

were cultivated and photographed at the Orquideario La Paphinia in Zamora, Ecuador. Fresh flowers and inflorescences of live plants were stored in 70% ethanol and glycerol. Measurements of the vegetative and floral parts were made from living and alcohol stored material.

Digital images were taken with a Panasonic® FZ300 camera with a Raynox DCR-150 50 mm lens; also, with a Canon® EOS 1100D camera with an EFS 18-58 mm lens and approximation lenses +10 Kernel Pro Optics 58 mm.

The taxonomic revision of *Octomeria* by Luer (2010) and other original descriptions from holotypes of related species (Hoehne 1950, Santos *et al.* 2020) were consulted and compared.

TAXONOMIC TREATMENT

Octomeria candidae Vélez-Abarca, M.M.Jiménez & Baquero *sp. nov.* (Fig. 1–4).

TYPE: Ecuador. Zamora Chinchipe: Cordillera del Cóndor flank, 890 m, 18 February 2020, L. Vélez LV0004 (holotype: ECUAMZ1)

DIAGNOSIS: Similar to *Octomeria estrellensis* Hoehne, from which it differs by the short, repent rhizome, the longer ramicauls, the narrowly ovate, long-acuminate dorsal sepal; and the yellow lip concave below the middle.

Plant small up to 8 cm tall, epiphytic, shortly repent. *Rhizome* stout, 5 mm thick, 0.5–1.0 cm long between ramicauls. *Roots* ca. 0.5 mm in diameter, flexuous, white. *Ramicauls* slender, erect, 0.5–5.0 cm long, cylindrical, with 1–3 internodes enclosed by loose, tubular, sheaths, which are torn with age. *Leaves* sometimes suffused with purple abaxially and at the edges of the adaxial part, erect, coriaceous, fleshy, elliptical to narrowly ovate, 1.5–4.0 × 0.8–1.2 cm, the midvein sulcate adaxially and carinate abaxially, margin entire, cuneate at the base into a petiole, 3 mm long. *Inflorescence* of a single flower, rarely 2 simultaneous, produced successively from the apex of the ramicaul; *peduncle* terete, 2.5–3.0 mm long; *floral bract* 1 infundibuliform, membranaceous, 2.5–3.0 mm long; *pedicels* cylindrical, 3 mm long; *ovary* 2 mm long, somewhat obconical, sulcate and slightly curved. *Sepals* and *petals* translucent pink

to orange, free, glabrous. *Dorsal sepal* lanceolate, long-acuminate, 1.0–1.2 × 0.2–0.3 cm, 3-veined. *Lateral sepals* lanceolate, falcate, long-acuminate, 1.0–1.2 × 0.1–0.2 cm, 3-veined. *Petals* narrowly ovate, long-acuminate, 1.0–1.2 × 0.2–0.3 cm, 3-veined. *Lip* yellow, oblong, panduriform, trilobed, glabrous, 3.0 × 1.5 mm, with lateral lobes erect, rounded, the apical lobe ovate, slightly thickened above the middle, concave below the middle; base truncate, not articulated to the column foot. *Column* semiterete, 2 mm long, foot 1.5 mm long, stigma ventral, clinandrium entire, margin slightly dentate. *Anther cap* subapical. *Pollinia* 8, in 2 sets of 4, yellow, clavate.

EPONYMY: Named after Candida Mashendo, wife of the main author, who first spotted this species.

DISTRIBUTION AND HABITAT: The holotype of this species was found in a flank of the Cordillera del Cóndor, located in the Zamora Chinchipe Province, Ecuador. The species is found between 890–980 m in low premontane forests on sandstone plateaus. The species grows as an epiphyte on branches of trees and shrubs of *Dacryodes peruviana* (Loes.) H.J.Lam, (Burseraceae) and *Schefflera* sp. (Araliaceae).

Octomeria candidae is morphologically similar and presumably related to species in sect. *Octomeria* subsect. *Octomeria* (*sensu* Luer 1986): *O. cochlearis* Rchb.f. (Reichenbach 1881), *O. montana* Barb. Rodr. (Barbosa Rodrigues 1882) *O. ochroleuca* Barb. Rodr. (Barbosa Rodrigues 1877), *O. lilliputana* W.Forst., F.Barros & V.C.Souza (Foster *et al.* 2013) and *O. estrellensis* Hoehne (Hoehne 1950), the latter being the most similar species, which is characterized by being the only small species known to have fleshy, obovate to elliptical leaves and an elongated peduncle. However, *O. candidae* is the second known species in the genus to share these characteristics. Despite the fact that both species are similar, *O. candidae* is distributed in southern Ecuador, and *O. estrellensis* is distributed further south in Brazil. *Octomeria candidae* is distinguished from *O. estrellensis* by the short repent habit, thicker rhizome (*vs.* caespitose habit, inconspicuous rhizome), the longer ramicauls, 5–50 mm long (*vs.* 5–10 mm long), the shorter

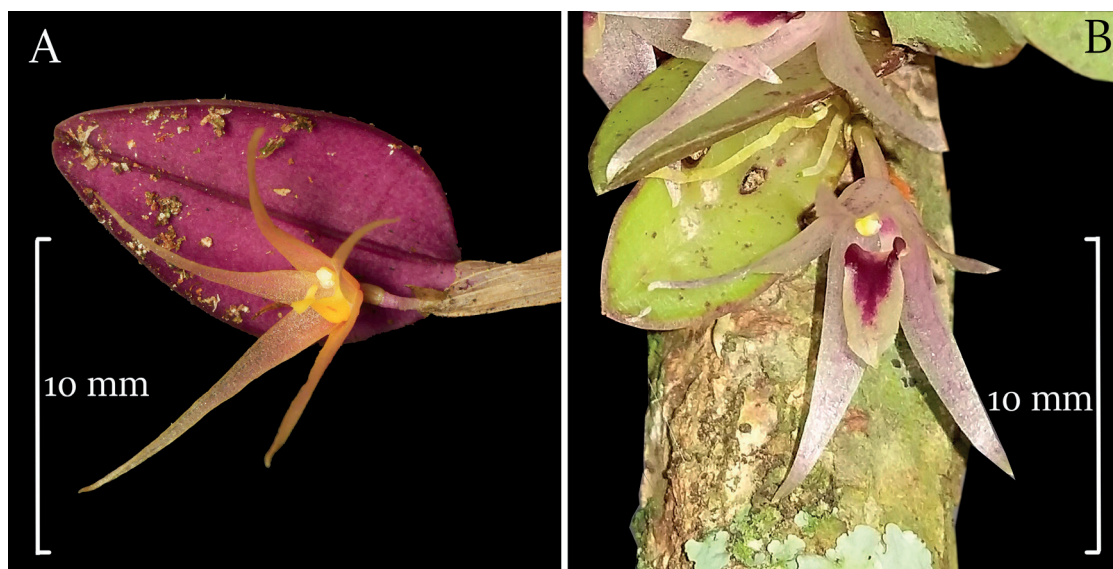


FIGURE 2. Comparison of flowers of *Octomeria candidae* Vélez-Abarca, M.M.Jiménez & Baquero and *O. estrellensis* Hoehne. **A.** Flower of *O. candidae* in situ. **B.** Flower of *O. estrellensis* in cultivation. Photos by Marco M. Jiménez (A) and Marcos Da Silva (B).

pedicels, 3 mm long (*vs.* 5 mm long), the dorsal sepal narrowly ovate, long-acuminate (*vs.* oblong-lanceolate, acute to acuminate), the petals narrowly ovate, long-acuminate (*vs.* oblong-lanceolate, acute to acuminate), and the yellow lip, concave below the middle, acute at the apex (*vs.* the red-purple at the base and center, and greenish yellow at the apical third, acute to rounded at the apex) (Fig. 2).

In the study area, a considerable population of *Octomeria candidae* was found, which expresses high vegetative variability. The individuals that were found under shade showed greater vegetative development, since they have more elongated ramicauls, larger and wider leaves, and green on the adaxial and abaxial surfaces (Fig. 3B). While those that receive direct sunlight in more degraded areas are smaller, they present a purplish-red pigmentation in the abaxial and adaxial side of the leaves, in some cases only abaxially (Fig. 3C). The flowers of individuals exposed to greater solar radiation have a larger size compared to the flowers of those that are under shade (Fig. 4).

Right, FIGURE 3. Morphological and color variation in leaves of *Octomeria candidae*. **A.** Variation in length, width and shape of the leaf blade, adaxial side. **B.** Adaxial and abaxial side of leaves with light coloration. **C.** Adaxial and abaxial side with green and light purple red, respectively and dark edges. **D.** Adaxial and abaxial side with intense green and purple red, respectively, in addition to having a completely obtuse apex. **E.** Blade adaxially green with dark edges and abaxially partially dark. Photos by Marco M. Jiménez and Leisberth Vélez-Abarca.

CONSERVATION STATUS: This species has not been found yet in other localities of Ecuador, currently reported only in the province of Zamora Chinchipe (Fig. 5). The known populations of this species grow in disturbed forests where mining activity is practiced. Because of the considerable presence (1–10) of individuals per phorophyte observed, future problems due to destruction of the habitat are expected for this species since it has only been found outside of protected areas.

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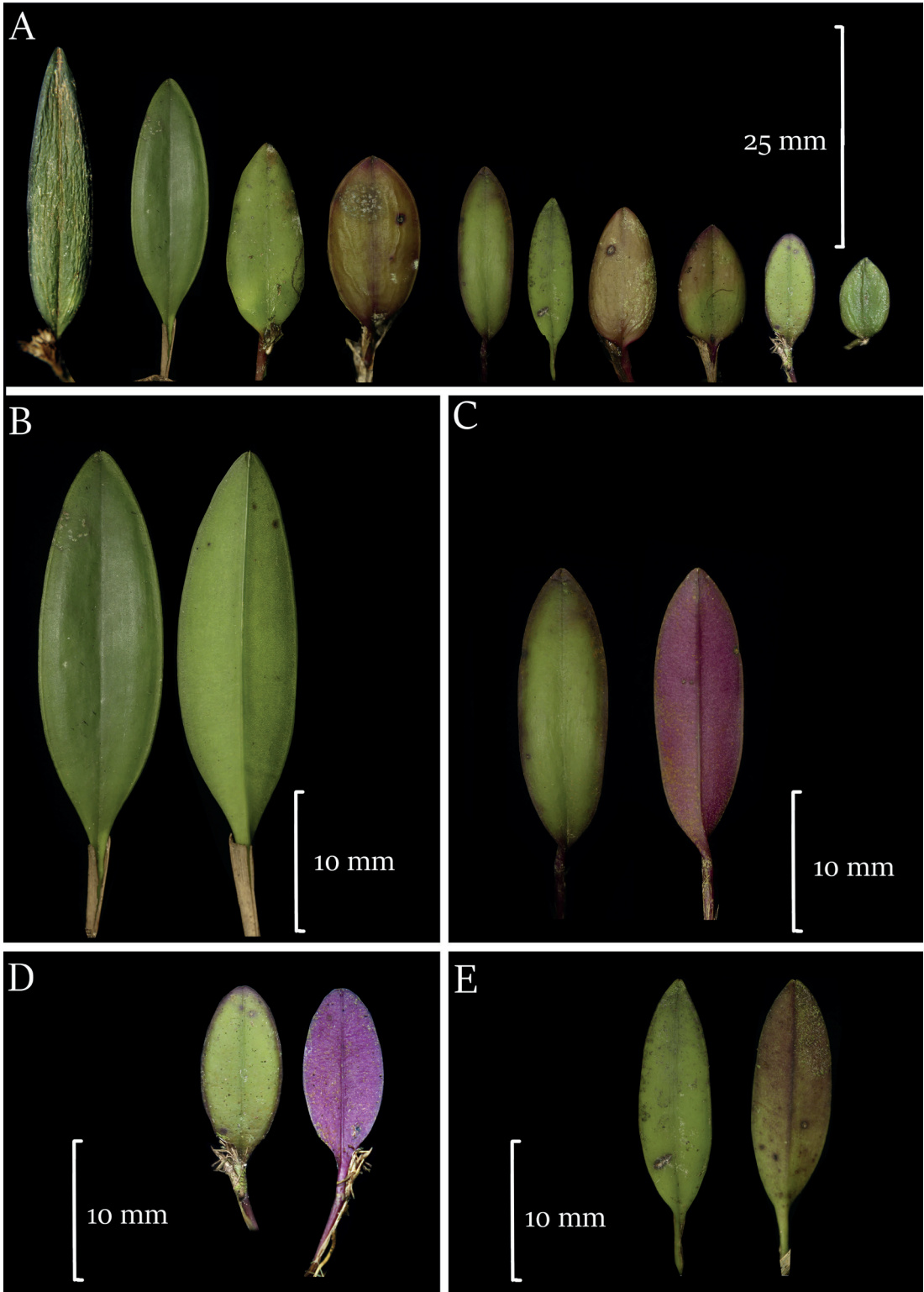




FIGURE 4. Comparison of two *Octomeria candidae* plants *in situ*. **A.** Large plant with slightly smaller flower. **B.** Smaller plant with slightly larger flowers. Photograph by Marco M. Jiménez (A), Leisberth Véle-Abarca.

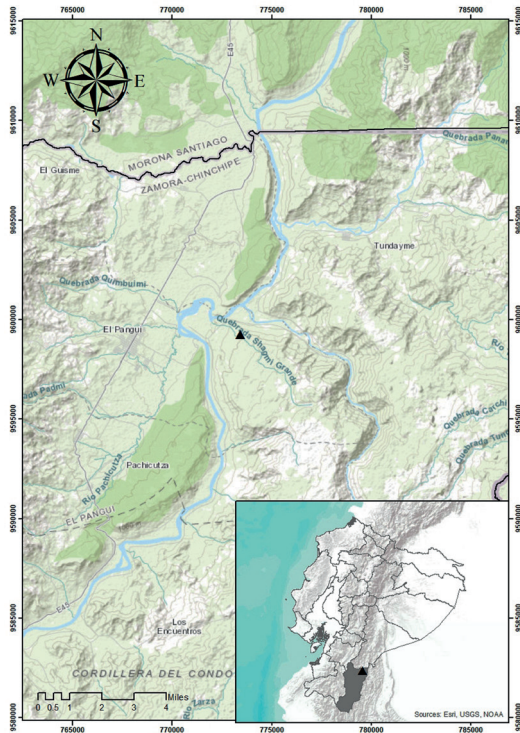


FIGURE 5. Distribution map of *Octomeria candidae* in Ecuador. Created by Marco F. Monteros.

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