



## A new species of *Epidendrum* (Epidendroideae; Orchidaceae) from the Brazilian Atlantic Forest

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### Abstract

A new epiphytic species of *Epidendrum* from the Brazilian Atlantic Forest is described and illustrated. *Epidendrum campos-portoi* grows in Upper-Montane Ombrophilous Forest in the Parque Nacional do Itatiaia, southeastern Brazil. The new species differs from *E. subpurum*, the morphologically closest species, mainly in the thinner, cylindrical stem, not thickened, inflorescence in a raceme, and green flowers.

**Key words:** Endemism, epiphyte, Laeliinae, Neotropics, taxonomy

### Introduction

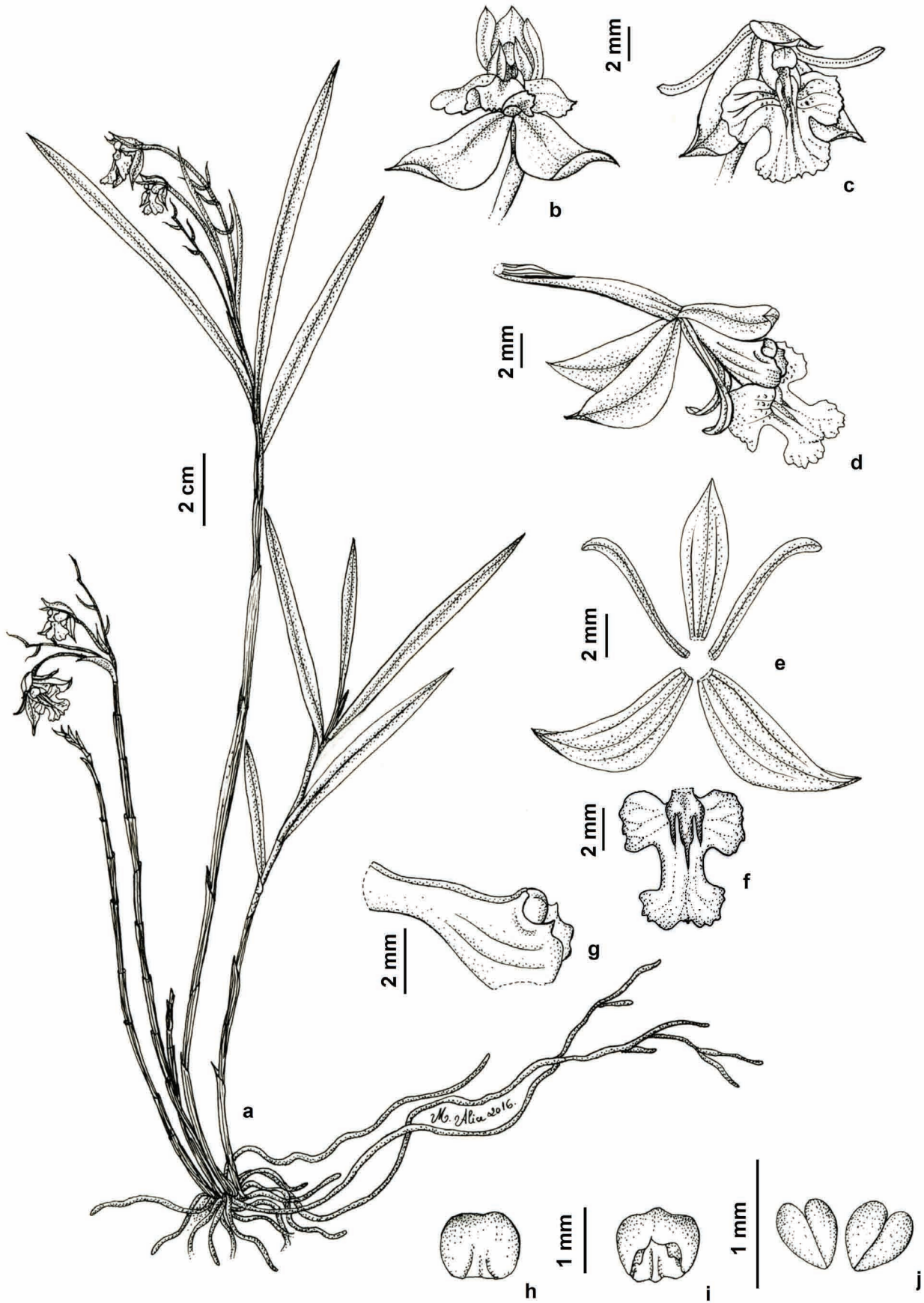
The genus *Epidendrum* Linnaeus (1763: 1347) includes more than 1,400 species and occurs from the southern United States to northern Argentina (Hágsater & Soto-Arenas 2005, Chase *et al.* 2015). Several infrageneric classifications (e.g. Lindley 1841, Bentham 1883, Brieger 1977) have been proposed, resulting in the splitting up of *Epidendrum* into sections or subgenera. Hágsater (1985) also intended to achieve a better understanding of the morphological affinities among the *Epidendrum* species and recognized 31 informal groups. Most of these species groups within *Epidendrum* were confirmed as monophyletic groups (Hágsater & Soto-Arenas 2005). In the last decades, the infrageneric classification of the genus has been continuously expanded and updated (eg. Hágsater & Saldaña 2006, 2009, 2015, 2016).

New species are being described in *Epidendrum* at a rate of roughly 25 per year (based on the 2006–2015 period), from which we estimate that the mark of 2,000 species may be reached by 2040. Studies in the Brazilian Atlantic Forest are partly responsible for the current numbers, since new species of *Epidendrum* have been frequently described for this phytogeographic domain (e.g. Frey & Castro Neto 2005, Forster & Souza 2007, Bolsanello 2012, Pessoa *et al.* 2012, 2014, 2016, Fraga *et al.* 2015). During floristic studies in the Parque Nacional do Itatiaia (PARNA Itatiaia), a large mature rain forest remnant in southeastern Brazil, a previously undescribed species of the genus was recognized.

### Material and Methods

The PARNA Itatiaia is located in the Mantiqueira Range in southeastern Brazil (22°14'–22°27'S, 44°34'–44°46'W), in the states of Rio de Janeiro (municipalities of Resende and Itatiaia) and Minas Gerais (municipalities of Bocaina de Minas and Itamonte) (ICMBio 2013). The specimens were pressed according to Guedes-Bruni (2002) and deposited at the herbaria ALCB and RB (acronyms according to Thiers 2016).

The new species was described and illustrated based on dried material. Terms for specific features of the genus were adopted from Hágsater & Soto-Arenas (2005). We used the classification of Waechter (1992) for the vertical division (strata) of the phorophyte, at 2-m intervals. Photographs, drawings, a map and ecological information on the new species are provided. The map was constructed using ARC-GIS software, version 10.2. Specimens and all available digital images of the morphologically similar species to the new species were analyzed, especially those deposited at K, RB, and SP.



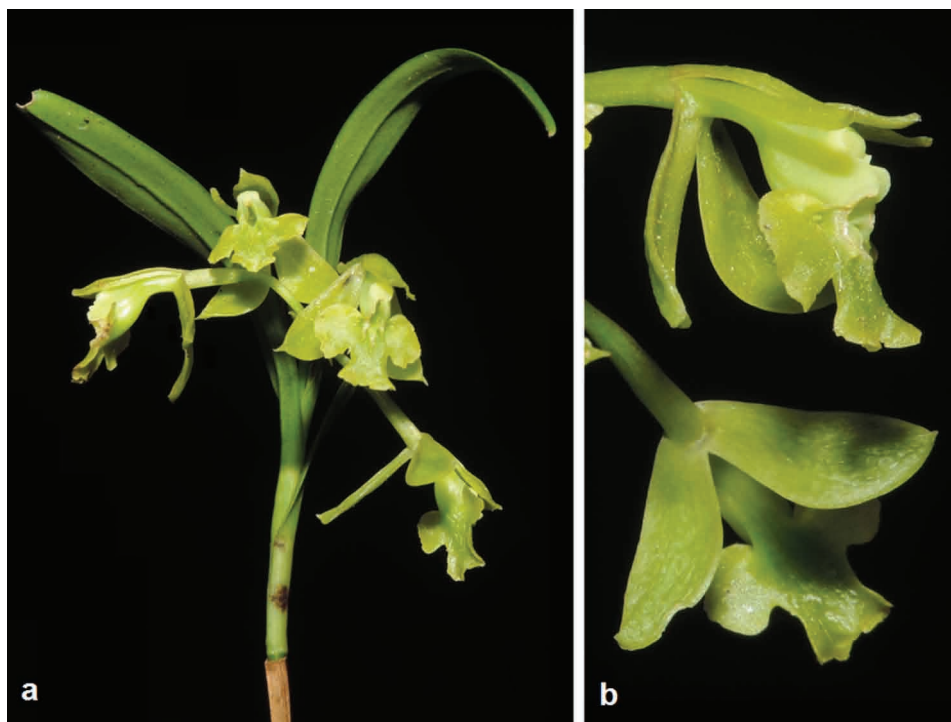
**FIGURE 1.** *Epidendrum campos-portoi* Barberena. A. Habit. B. Flower: diagonal view. C. Flower: frontal view. D. Flower: lateral view. E–F. Flower dissected. G. Column: lateral view. H. Anther: dorsal view. I. Anther: ventral view. J. Pollinia. Illustrated by Maria Alice Rezende based on *D.R. Gonzaga et al.* 678 (RB).

## Taxonomy

### *Epidendrum campos-portoi* Barberena, sp. nov. (Figs. 1, 2)

**Type**.—BRAZIL. Rio de Janeiro: Itatiaia [Resende], Região de Visconde de Mauá/Maromba, Trilha da Travessia Rancho Caído, Parque Nacional do Itatiaia, elev. 1,840 m, 12 May 2016, D.R. Gonzaga et al. 678 (Holotype RB!, isotype ALCB!).

Similar to *Epidendrum subpurum* Reichenbach (1854: 21), but differs in the thinner, cylindrical stems (0.1–0.15 cm vs. 0.4–0.8 cm wide; vs. thinly fusiform), not thickened (vs. thickened without forming an obvious pseudobulb); racemose inflorescence (vs. a double-raceme inflorescence); green flowers (vs. white or yellow-whitish flowers).



**FIGURE 2.** *Epidendrum campos-portoi* Barberena. A. Floriferous branch. B. Flowers (lateral and back view). Photograph by D.R. Gonzaga.

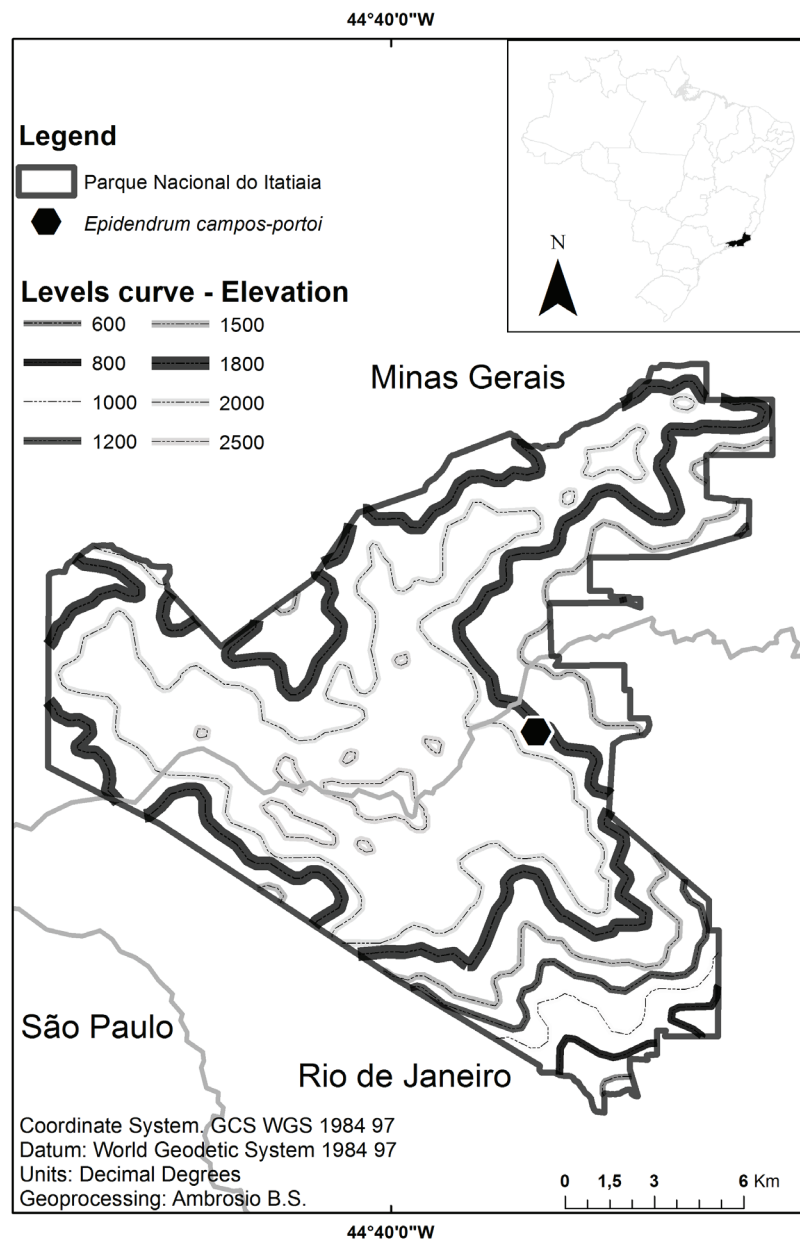
Epiphytic, erect, caespitose herb. Roots 13–16 × 0.15–0.2 cm, cylindrical, glabrous. Rhizomes inconspicuous. Stems 11.5–27 × 0.1–0.15 cm, green, not thickened, unbranched, cylindrical, covered with congested sheaths. Leaves 4–8.3 × 0.2–0.4 cm, green, 3–6, alternate, distichous, distributed along apical half of stems, subchartaceous, suberect, plane, linear, apex acuminate, margin entire. Inflorescence 2.8–4 cm long, terminal, in simple or compound raceme; spathaceous bract ca. 1.5 cm long, imbricate. Floral bracts 0.25–0.4 × 0.05–0.1 mm, shorter than pedicel+ovary, adpressed, linear, apex acuminate. Flowers 3–4, entirely green, resupinate, simultaneous; pedicel+ovary 0.9–1.1 cm long; dorsal sepal ca. 0.9 × 0.1 mm, oblong-linear, slightly convex, 3-veined, apex acute, margin entire, lateral sepals 0.7–0.8 × 0.2–0.25 cm, free, oblanceolate, 3-veined, falcate, slightly concave, apex apiculate, margin entire; petals ca. 0.8 × 0.05 cm, linear, 1-veined, apex slightly acute to rounded, margin entire; lip adnate to column, deeply trilobed, striated, slightly revolute, base of disk with three basal, laminar calli ca. 0.15 cm long, lateral lobes 0.25–0.3 × ca. 0.2 cm, suborbicular, apex rounded, margin erose, central lobe 0.25–0.35 × 0.3–0.4 cm, subquadrangular, apex emarginate, margin erose, column ca. 0.5 cm long, adnate to lip up to its apex, subcylindrical, slightly curved; anther apical, subquadrangular, clinandrium entire; pollinia 0.45–0.5 × ca. 0.2 cm, obovate, 4, slightly unequal, laterally flattened. Capsules not seen.

**Etymology**.—The specific epithet honors the noted botanist Paulo Campos Porto, who studied the orchids of the PARNA Itatiaia during the early 20<sup>th</sup> century and developed a list of orchid species from the area.

**Distribution and habitat**.—Endemic to Rio de Janeiro state, in Brazil (Fig. 3). *Epidendrum campos-portoi* occurs in Upper-Montane Ombrophilous Forest in PARNA Itatiaia, above 1,840 m elevation, where it grows as epiphyte in the basal strata of the phorophytes (0–2 m high). Although the species is so far known only from the type locality,

its occurrence in the bordering states of São Paulo and Minas Gerais can be expected, since the Mantiqueira Range extends through the three states, forming a continuous forest with high elevations (mostly above 1,000 m).

**Phenology:**—*Epidendrum campos-portoi* was observed with flowers in May. We presume that it also blooms in the field in June, since floral buds were observed in the preceding month.



**FIGURE 3.** Distribution map of *Epidendrum campos-portoi* Barberena (black hexagon), highlighting the Parque Nacional do Itatiaia and states limits.

**Conservation:**—Only three individuals were found in an area that is difficult to access in PARNA Itatiaia. The specimens were found near each other (< 5 m) on two phorophytes. The population is probably small (possibly fewer than 50 individuals), but an exhaustive search would be necessary to adequately estimate the population size and assess the conservation status of the species. However, large and extensive the population may be, illegal collection of plants and the danger of fire are the main concerns for the conservation of the species.

**Affinities:**—*Epidendrum campos-portoi* better fits with the *Epidendrum amblostomoides* Hoehne (1938: 18) group, which is characterized by the caespitose habit, cylindrical to thinly fusiform stems, narrow leaves distributed along the apical half of the stems, lack of a spathaceous bract, often a double-raceme inflorescence, greenish, yellow, or white flowers, and usually trilobed lip (Carnevali & Romero 1992, Hágsater *et al.* 2004, 2006). *Epidendrum campos-portoi* is morphologically similar to *E. subpurum*. Both species are relatively small ( $\leq 30$  cm long), have linear leaves,

falcate lateral sepals, linear petals, deeply trilobed lip, orbicular lateral lobes, central lobe with emarginate apex, and three laminar calli on the base of the disk, but *E. campos-portoi* is easily distinguished by the following characters: thinner (0.1–0.15 cm wide), cylindrical stems, not thickened, racemose inflorescence, and green flowers (Figs. 1 and 2) (*vs.* thicker, 0.4–0.8 cm wide, thinly fusiform stems, thickened without forming obvious pseudobulbs; a double-raceme inflorescence; white or yellow-whitish flowers). *Epidendrum supurum* is known from Trinidad and Tobago, Venezuela, Ecuador, and Brazil (Govaerts *et al.* 2016). In Brazil, Barros *et al.* (2015) have cited the occurrence of *E. subpurum* in Rio de Janeiro and Goiás state, but we cannot validate the occurrence of the species in Rio de Janeiro because herbarium collections coming from this state were not found. Therefore, the species is so far restricted to Goiás, occurring only in Cerrado phytogeographic domain.

*Epidendrum campos-portoi* is also morphologically similar to *Epidendrum amblostomoides*, but differs in lateral lobes with erose margins and central lobe slightly longer than lateral lobes (*vs.* lateral lobes with entire or indistinctly eroded margins; central lobe noticeably shorter than lateral lobes), in addition to the same characteristics used to differ *E. subpurum* from *E. campos-portoi*. *Epidendrum amblostomoides* is endemic to Brazil, occurring in the Amazon and Cerrado, at elevations below 1,000 m (Barros *et al.* 2015).

Studies on Orchidaceae in Itatiaia massif were started by Ule (1895). Since then, important results expanded the knowledge of the orchidoflora in the area, especially the description of 16 new species, including *E. campos-portoi*. In PARNA Itatiaia, *Epidendrum campos-portoi* could be confused when sterile with *Epidendrum mantiqueiranum* Porto & Brade (1840: 38) and *Epidendrum chlorinum* Barbosa Rodrigues (1881: 139), sympatric species in the area above 1,840 m elevation, but differs mainly in the deeply trilobed lip with three laminar calli on the disk.

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