

Malaxis cobanensis sp. nov. (Orchidaceae, Malaxidinae), a new tiny epiphytic orchid from Guatemala

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Summary: A new species of *Malaxis* (Orchidaceae, Malaxidinae) from Alta Verapaz, Guatemala is described and illustrated by photographs of a flower under scanning electron microscope. The new species is compared with its closest relative, *Malaxis majanthemifolia*.

Keywords: Guatemala, *Malaxis*, new species, taxonomy

In broad sense, the genus *Malaxis* Sol. ex Sw. comprises ca. 300 species distributed mainly in the tropics of the Old and New World (CRIBB 2006). However, in the most recent work concerning subtribe Malaxidinae Benth. & Hook.f. (MARGOŃSKA et al. 2012), the genus *Malaxis* is restricted only to the Neotropics and contains 89 species and most of the Asian species belong to the genus *Crepidium* Blume. Phylogenetic studies (CAMERON 2005; MARGOŃSKA et al. 2012) indicated that *Malaxis* s.l. is clearly polyphyletic. However, species occurring in the New World seem to belong to one evolutionary line.

Neotropical *Malaxis* can be divided into easily distinguishable groups. The most important diagnostic characters are pseudobulbs, globular, ovoid to ovoid-conical in shape, covered by the leaf base and usually by scales, one or two leaves, rarely three like in *M. spicata* Sw. or more in *M. warmingii* (Rchb.f.) Kuntze. Flowers of most representatives form a raceme, but some species are characterized by a subumbellate to umbellate inflorescence. Structure of flowers and gynostemium is more constant. Lip can be flattened or hooded, but it is always deeply concave in the central part with distinct to reduced, articulated lateral lobes. Gynostemium is very short and massive.

AMES & CORRELL (1953–1954) reported 14 species of *Malaxis* in Guatemala, but ARCHILA (2014) extended this list to 23 taxa in the latest work concerning Guatemalan orchids. However, during exploration of the area near Cobán, two populations of *Malaxis* species were found by the senior author. The first one comprised 10 plants and the second one 15. All plants were unusually small, only 2–3.9 cm high. The detailed examination of the plant and the comparison with other species of the genus led us to the conclusion that it represents a new species. It is described and illustrated below with notes on its ecological preference and a comparison with closely related species.

Description and taxonomy

Malaxis cobanensis Archila, Szlach. & Chiron, sp. nov. (Fig. 1)

Diagnosis. Haec herba epiphytica *Malaxis majanthemifolia* similis est sed plantis valde minoribus 3.9 cm altis (versus 15–40 cm altis), labelli lobis lateralibus hastatis (versus orbicularis), petalis

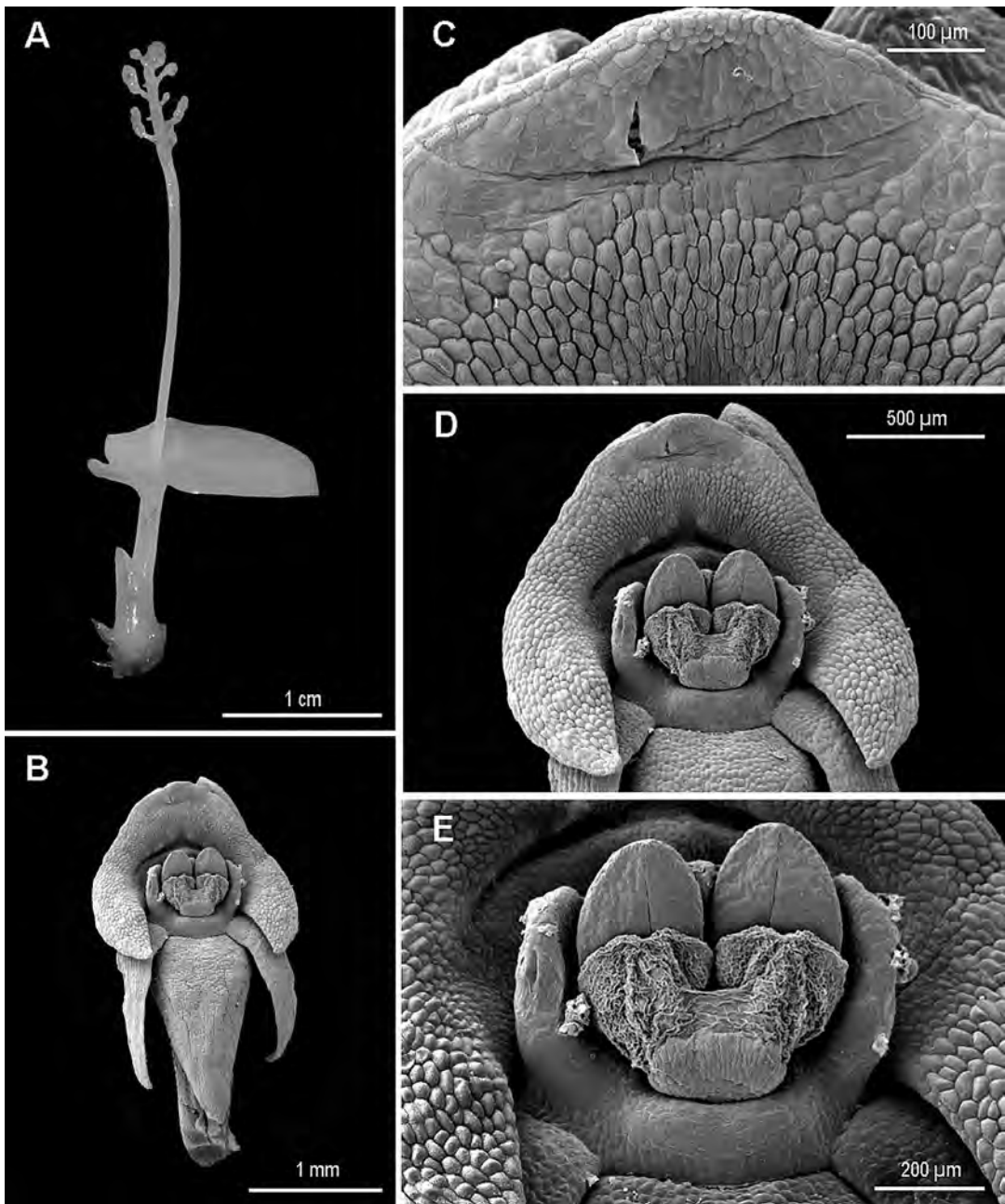


Figure 1. *Malaxis cobanensis*. A – habit, B – flower, C – lip apex, D – lip and gynostemium, E – gynostemium.

reflexis (versus patentibus), inflorescentia rachin tenui (versus carnosae striataque) cum 6–7 floribus (versus 40–80), ovario pedicellato brevi (versus longo), pseudobulborum vaginis verrucosis (versus haud verrucosis), differt.

Type. Guatemala. Alta Verapaz. Cobán. Finca Gualom. Alt. 1300 m. May 2014. *Archila F.*, *de Archila C.*, *Archila J.* & *Archila O.* R. s.n. [holotype: BIGU!, drawing and photos: UGDA!].

Etymology. In reference to the type locality, the area surrounding the city of Cobán.

Description. Plant epiphytic, small, up to 3.9 cm high. Pseudobulb 0.6 cm long, ovoid, enclothed basally with 2 bladeless, somewhat verrucose sheaths. Stem below leaf 1.3 cm high, tightly enclothed with 2 basal, tubular sheaths. Leaf single, orientated horizontally, 1.5 cm long, 1.2 cm wide, broadly ovate, with cordate base and subobtuse to subacute apex. Inflorescence 2 cm long, erect, few-(6–7)flowered. Flowers non-resupinate, pale green, ca 2.4 mm long, 1.4 mm wide. Dorsal sepal 1.3 mm long, 0.8 mm wide, oblong-triangular, subobtuse, 1-nerved. Lateral sepals 1.1 mm long, 1.4 mm wide, obliquely elliptic, with obliquely acute apex. Petals 0.9 mm long, 0.3 mm wide, lanceolate-linear, acuminate, somewhat falcate, reflexed. Lip 0.8 mm long, 1 mm wide, hippocrepiform in general outline, 3-lobed; lateral lobes obliquely oblong-falcate, subacute; the middle lobe obtuse; central part of the lip concave, shining. Gynostemium 0.5 mm long, erect. Rostellum bilobed. Anther erect, transversely elliptic, connective wide, thecae somewhat apically spread.

Distribution, habitat and ecology. *Malaxis cobanensis* is an epiphytic species growing among mosses on the basal parts of large tree trunks. Unlike most other *Malaxis* species, the plants do not form colonies and grow distant from another. It was found in remnants of a humid subtropical forest, which covers the area near Cobán and extends in a belt of 2–4 km width by Department Baja Verapaz to Santa Elena summit. Continuity of this patch of vegetation is interrupted by Sierra de las Minas and El Chol in Baja Verapaz. It occupies a total area of 2584 km², which is 2.37% of the country.

Topography of region is generally undulating, in some cases rugged and the elevation ranges from 1100 m a.s.l. in the Finca Las Victorias up to 1800 m a.s.l. in the Xoncé, Nebaj, Quiché. Natural vegetation is represented by *Liquidambar styraciflua* L., *Persea donnell-smithii* Mez, *Persea schiedeana* Nees, *Pinus pseudostrobus* Lindl., *Rapanea ferruginea* (Ruiz & Pav.) Mez, *Croton draco* Schltdl., *Eurya seemanniana* Pittier, *Clethra* spp. and *Myrica* spp.

The area of the new species is characterized by the highest rainfall in Guatemala, which ranges from 2045 mm to 2514 mm, with an average of 2284 mm annual rainfall. Potential evapotranspiration can be estimated on average of 0.50 and biotemperature ranges from 16°C to 23°C.

Similar species. *Malaxis cobanensis* appears to be related to *M. majanthemifolia* Schltdl. & Cham. (Fig. 2), but in general it is a much smaller plant. The total height of the new species is less than 4 cm, whereas the latter species can easily reach 15–40 cm in height. Lip lateral lobes of *M. cobanensis* can be described as hastate or oblong-falcate (vs. subobovate to subelliptic in

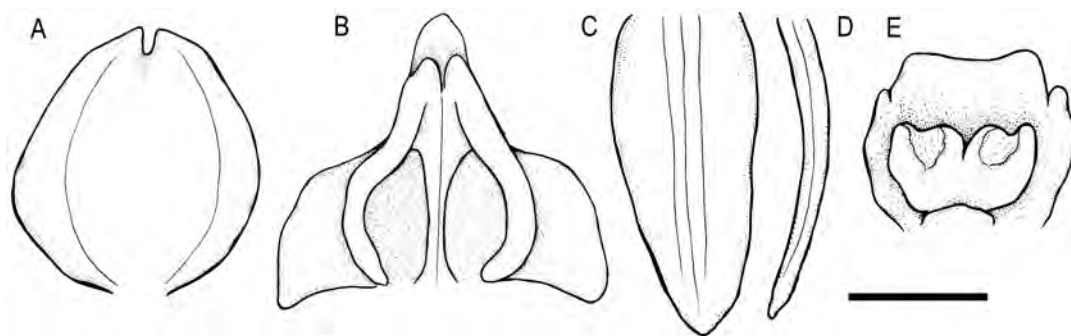


Figure 2. *Malaxis majanthemifolia*. A – lateral sepal, B – lip, C – dorsal sepal, D – petal, E – gynostemium. Scale bars = 1 mm (A–D) and 0.5 mm (E).

M. majanthemifolia) and reach ca. $\frac{1}{3}$ of lip length (vs. $\frac{1}{4}$ of lip length), petals are reflexed (vs. patent), inflorescence is few-flowered (vs. 40–80-flowered) and pedicellate ovary is equal in length to the dorsal sepal (vs. prominently longer). Additionally, pseudobulbs of *M. cobanensis* are enclotted with verrucose sheaths, and in *M. majanthemifolia* they are not verrucose.

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