

***Coryanthes microsmophora* (Orchidaceae, Stanhopeinae), a new species from Mato Grosso, Brazil**

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Abstract

A new *Coryanthes* species from a savanna area of Mato Grosso (Brazil) is described and illustrated. Additionally we provide data on its geographical distribution, its habitat and its preliminary conservation status. It belongs to the subgenus *Coryanthes*, characterized by a smooth mesochile and a helmet-shaped hypochile. It is compared to *C. speciosa*, a sympatric species from the same subgenus, as well as to all the species belonging to this subgenus and growing in Brazilian Amazon. Besides a few particular differences with one or the other of them, the main distinctive character of the new taxon lies in its rudimentary osmophore, compared to the usual conspicuous horn-like osmophore found in the members of the subgenus. An identification key to all these species is proposed.

Résumé

Une nouvelle espèce de *Coryanthes* provenant d'une zone de savane du Mato Grosso (Brésil) est décrite et illustrée. Nous donnons en outre des informations sur sa distribution géographique, son habitat et son statut de conservation préliminaire. Ce taxon appartient au sous-genre *Coryanthes* caractérisé par un mésochile lisse et un hypochile en forme de casque. Elle est comparée à *C. speciosa*, une espèce

sympatrique du même sous-genre ainsi qu'aux espèces appartenant à ce sous-genre et présentes en Amazonie brésilienne. Outre quelques différences particulières avec l'une ou l'autre de ces espèces, le principal caractère distinctif du nouveau taxon réside dans son osmophore rudimentaire, contrastant avec l'habituel osmophore en forme de corne observé chez les membres du sous-genre. Une clé d'identification de toutes les espèces discutées est enfin proposée.

Keywords: Amazon, epiphyte, osmophore, subgenus *Coryanthes*, sympatry, taxonomy.

Mots-clés : Amazonie, épiphyte, osmophore, sous-genre *Coryanthes*, sympatrie, taxinomie.

Introduction

In a recent work on infrageneric organization of the genus (Chiron & Marçal, 2021), the authors noted that *Coryanthes* W.J. Hooker (1831: t. 3102) included 65 species distributed all along the tropical and subtropical America, from southern Mexico in the North to Bolivia and Bahia (Brazil) in the South. On the territory of the Branorte municipality (Mato Grosso, Brazil), a blooming plant of *Coryanthes* was found, with a flower not immediately referable to any known species.

Chiron & Marçal (2021) also indicated that only four species have been hitherto recorded for the Mato Grosso State: *Coryanthes speciosa* W.J. Hooker (1831: sub t. 3102), a member of the subgenus *Coryanthes*, *C. elegantium* J.J. Linden & Reichenbach f. (1868: 1114) and *C. schmidtii* G. Gerlach (2017: 32), both sorted in the subgenus *Anosmophorum* Chiron & Marçal, and *C. wenzeliana* G. Gerlach & J.B.F. Silva (in Gerlach, 2010: 34), belonging to the subgenus *Lamellunguis* (Schlechter) Chiron & Marçal, i.e. presenting a mesochile ornamented with various lamellae and/or warts. Among these four species, only two (*C. schmidtii* and *C. speciosa*) are listed for Mato Grosso by Meneguzzo (2024), *C. elegantium* being restricted to Amazonas and *C. wenzeliana* being ignored. On another hand, Engels, Rocha & Pessoa (2017), in their study of the genus *Coryanthes* in Mato Grosso, cite

C. speciosa, and *C. wenzeliana*, as well as two other species of the subgenus *Lamellunguis*.

The *Coryanthes* from Branorte produces flowers presenting the features of the subgenus *Coryanthes*: helmet-shaped hypochile, smooth mesochile bearing at base an osmophore, certainly here somewhat rudimentary. This last trait could encourage in treating this plant as a member of the subgenus *Anosmophorum*, however the species in this group are characterized by a hypochile never helmet-shaped. Thus, *C. elegantium* shows a flat hypochile simply put at the base of the mesochile whereas, in *C. schmidtii*, the very large base of the mesochile wraps up a rudimentary hypochile. This plant shows (see below) some significant differences with *Coryanthes speciosa*: we are thus dealing with a second representative of the subgenus *Coryanthes* reported from Mato Grosso. It is here proposed as a new species.

The six members of this subgenus present in the northern half of Brazil have all been observed more to the North, in the Amazon region, except *C. speciosa* that shows a wider geographical distribution. The article will start comparisons with this taxon, belonging to the same group and being observed not far from Branorte, i.e. possibly growing in sympatry with the new entity.

Material and method

The taxon studied in this article is represented by one and only one plant growing and blooming on an isolated tree, in a widely anthropized area, on 22/08/2022. It is worth noting that this tree has been cut since then because the region is strongly deforested for cultivation. This only plant was collected on this date and put into cultivation in the gardens of the author, in the vicinity of Buerarema (Bahia). It bloomed again in February 2024 and the herbarium material has then been collected and processed according to Mori et al. (1989) for later incorporation into the UESC collections.

In this article the descriptive terminology follows Dressler (1993) and Harris & Harris (2001), and the Latin description Stearn (1995).

The new taxon is compared to two widely distributed species belonging to the same subgenus: *Coryanthes speciosa* and *C. maculata* W.J. Hooker (1831: t. 3102). The comparison method is simply based on the observation of alpha-taxonomic characters. As for *Coryanthes speciosa*, these characters have been picked up in Hooker (1827), Cogniaux & Goossens (1841-1916), Ames & Correll (1953), Dunsterville & Garay (1979). For *C. maculata* Hooker (1831) and Romero & Carnevali (2000) were used. For the other taxa data come principally from protologues. The *Coryanthes* Image Database published by the Botanischer Garten München, available on http://www.r-b-o.eu/cgi-bin/img_db/img_display.pl?db=vwggCoryanthes&t=usr_gg0 was also referred to.

Taxonomic treatment

Coryanthes microsmophora Marçal & Chiron, *sp. nov.*

Type: BRAZIL. Mato Grosso, Branorte, 22/08/2022, bloomed in cultivation on 19/02/2024, *Sidney Marçal 4001* (holotype UESC 26438).

Haec species Coryanthes speciosa similis est sed foliis anguste ellipticis ca. 4-plo longioribus quam latioribus (vs. lineare-ellipticis 10-20-plo longioribus quam latioribus), pseudobulbis paulo brevioribus (usque ad 9 cm vs. 15 cm), floribus dense purpureomaculatis (vs. uniformiter flavidis), hypochilo glabro (vs. pubescente) parviore et apice emarginato apiculato (vs. integro), mesochilo glabro (vs. utrinque pubescente), osmophoro parvissimo (vs. conspicue cornuato) differt.

Etymology: The specific epithet *microsmophora* refers to the very small size (*micro-*) of the osmophore.

Description (fig. 1 & 2): Plant epiphytic caespitose, rhizome short, roots rather short, up to 15 cm long, ca. 0.2 cm diam. white. Pseudobulbs fusiform, 5–9 cm long, 1.1–2.2 cm diam., multi-grooved, green, covered at base by a few dried, papery bracts. Leaves narrowed at base in a 2.5 cm long pseudopetiole, lamina narrowly elliptical, 23–28 × 5.5–7 cm, green, plicate, with 3 main nerves, apex acute-apiculate. Inflorescence from the base of pseudobulb, pendulous, bearing an apical 2–3-flowered raceme; peduncle cylindrical, ca. 33 cm long, 0.3 cm diam., purple,

furnished with 3 sterile bracts; floral bract ovate, acute, ca. $2.5\text{--}2.8 \times 1.1$ cm, yellowish with a purplish stain, entire margin; pedicelled ovary cylindrical ca. 7×0.37 cm. Flower yellow with many purplish spots on all parts, outside and inside; dorsal sepal broadly ovate, acute, margins and apex strongly recurved, ca. 2.6×3.2 cm; lateral sepals broadly ovate falciform, acute, strongly projected backwards, ca. 7.6×3.5 cm, margins and apex strongly recurved; petals linear, ca. 4.2×0.4 cm, acute, strongly falciform; lip clawed, 3-partite; claw cylindrical, twisted, 1.2 cm long, 0.25 cm diam; hypochile helmet-shaped, 1.5 cm long, 2.0 cm wide, 1.8 cm high, apical margin emarginate apiculate, glabrous outside as well as inside; mesochile ca. 3 cm long, trapeziform, margins involute, rolled into a 0.5 cm wide at base, 1.6 cm wide at apex open tube, slightly arched, presenting at base a very small protuberance looking as a rudimentary osmophore; epichile bag-shaped, ca. 3 cm high, 2.2 cm diam., the basal margin broadening up to 4.3 cm diam., apex 3-lobed, midlobe ligulate truncate, 1.1 cm long, lateral lobes triangular, slightly shorter, semi-spherical callus at the base of the midlobe; column semi-cylindrical, apically geniculate, ca. 3.3 cm long and 0.5 cm wide, with 2 pleuridia at base, and 2 triangular wings near the apex, clinandrium with 2 lateral horns; anther cap transversely ovate, 0.6×0.4 cm; pollinia 2, ovoid, slit, ca. 0.17 cm long, linked to a large viscidium by a laminar tegula. Fruit not observed.

Distribution and habitat: Only one plant was encountered. It was growing on an isolated tree, in the vicinity of Branorte, a municipality located not far from the center of the state (fig. 3). The climate type is “Savanna climate with dry winter” (Aw in the Köppen classification), annual average minimum temperature: $19\text{--}22^\circ\text{C}$, maximum: $29\text{--}33^\circ\text{C}$, annual rainfall: 2250 mm. The region has been most cultivated and thus strongly deforested. The tree on which the plant was found has now been cut.

Conservation status: Because *Coryanthes microsmophora* is known only from the type specimen, it was not possible to obtain data relating to its Extent of Occurrence (EOO) and its Area of Occupancy (AOO). Consequently, the species must be assessed as Data Deficient (DD) according to the guidelines proposed by IUCN (2022), due to the lack of liable information relating to its abundance and its global

distribution. However, this species grows out of protected areas and probably suffers from anthropogenic interference.

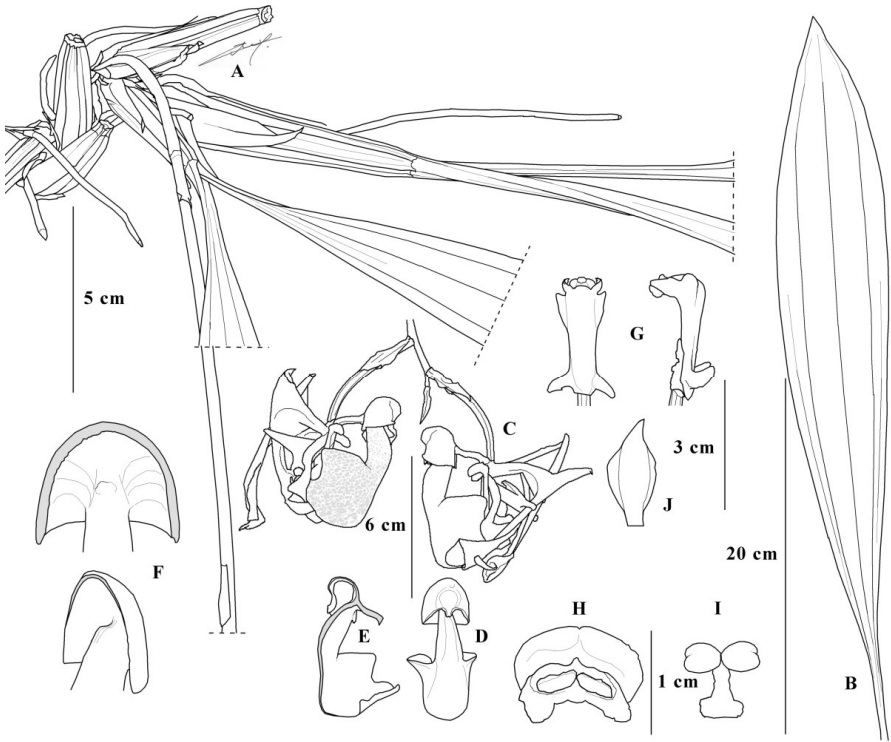


Figure 1: *Coryanthes microsmophora*. A – base of the plant; B – leaf; C – two flowers; D – lip, front view; E – lip, longitudinal section; F – osmophore at the base of the mésochile; G – column, back and side views; H – anther cap; I – pollinarium; J – floral bract. Illustration Guy R. Chiron: drawn from the holotype.

Notes: *C. microsmophora* belongs to the subgenus *Coryanthes* and grows in sympatry with *C. speciosa*, another member of this subgenus. However the differences between both taxa are clear, the most significant being as follows: in *C. microsmophora* the leaves are narrowly elliptical (ratio length/width ~ 4) vs. linear-elliptical (ratio length/width ~ 10–20) in the latter; the pseudobulbs are somewhat shorter (up to 9 cm vs. up to 15 cm); the flower is densely purple-spotted whereas the flower of *C. speciosa* is uniformly yellowish; the hypochile is glabrous vs. pubescent, smaller and presents an emarginate apiculate apex vs. entire apex; the

mesochile also is glabrous vs. pubescent inside and outside and presents a very small hardly visible osmophore vs. a conspicuous horn-like osmophore (see for example plate 130 in Dunsterville & Garay 1979).

Another widely distributed species is *C. maculata*. Its most southern distribution area is the north of Brazil where it has been reported from Amazonas and Roraima (Meneguzzo, 2024), Roraima and east of Para (Chiron & Marçal, 2021). From *C. microsmophora*, it differs by the flower colour, yellow to ochraceous yellow with a slightly purple margin on the epichile, and spotted only inside the epichile; by more robust pseudobulbs (12–15 × ca. 2.5 cm vs. 5–9 × 1.2 cm); and by the presence of a conspicuous osmophore, 0.6 cm high.



Figure 2: *Coryanthes microsmophora*. Flower of the holotype. Illustration Sidney Marçal.

Six other species belonging to the subgenus *Coryanthes* have been reported from the northern region of Brazil, most of them hardly known by the type population. They differ from our taxon as follows: *C. albertinae* H. Karsten (1848, 5: t. 1) (North of Amazonas and Pará states) has pseudobulbs twice as long, a very different flower colour pattern (epichile light brown to purple, not spotted, hypochile and mesochile white, or rarely slightly yellowish brown), a hypochile more curved, with an entire apex and a mesochile with a long horn-like osmophore (Lindley, 1852 [placing it in the synonymy of *C. maculata*]; Manara & Bergold, 2004; pers. obs.); *C. cavalcantei* M.F.F. Silva & A.T. Oliveira (1996: 21) (East of Pará) has yellow flower slightly brown-spotted, a pubescent, long acuminate hypochile and a pubescent mesochile showing a long horn-like osmophore; *C. minima* A.T. Oliveira & M.F.F. Silva (2001: 270) (East of Pará) produces uniformly yellow (outside) and clearly smaller flowers with a lip less than 5 cm high; *C. miuaensis* M.F.F. Silva & A.T. Oliveira (1998: 47) (Northwest of Amazonas) produces robust 17 cm long pseudobulbs, much larger flowers somewhat pubescent and a mesochile with a long horn-like osmophore; *C. pacaraimensis* Campacci & J.B.F. Silva (2007: 150) (Roraima) has white flowers purple-spotted, a very different hypochile, strongly curved and with a truncate apical margin, hypochile and mesochile somewhat pilose; *C. tefeensis* Marçal, Chiron & G.Q. Freire (2020: 226) (center of Amazonas) has yellow-orange flowers without any spot outside, a very flattened, pubescent hypochile with a truncate apical margin, mesochile with a conspicuous osmophore.

Key to the species of subgenus *Coryanthes* reported from Amazonian Brazil

1. Flowers small, lip less than 5 cm high *C. minima*
- 1a Flowers larger, lip 5.5 cm high or more 2
2. Mesochile with a rudimentary hump-like osmophore *C. microsophora*
- 2a Mesochile with a conspicuous horn-like osmophore..... 3
3. Lip more or less pubescent or pilose 4
4. Hypochile apex long acuminate *C. cavalcantei*
- 4a Hypochile truncate, denticulate, entire but not acuminate at apex 5
5. Hypochile apically truncate denticulate..... *C. miuaensis*
- 5a Hypochile apically entire..... 6

- 6. Lip white with purple spots, mainly on epichile, hypochile strongly curved forward *C. pacaraimensis*
- 6a Lip yellow-orange to yellowish, without any spot outside, hypochile not or very little curved forward 7
- 7. Leaves linear (ratio length/width ca. 10–20), lip yellowish..... *C. speciosa*
- 7a Leaves elliptical (ratio length/width ca. 3.5–4), lip yellow orange.. *C. tefeensis*
- 3a. Lip glabrous..... 8
- 8. Flower outside color uniform yellowish..... *C. maculata*
- 8a Flower outside color different: epichile purple to light brown, other parts white to yellowish *C. albertinae*



Figure 3: Geographical localization of *Coryanthes microsmophora*. Map Guy R. Chiron.

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