



Catasetum marinhoi (Orchidaceae, Catasetinae), a new species of Brazilian Amazon

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Abstract

In this work we present a new *Catasetum* species belonging to the *Catasetum barbatum* group and native to Brazilian Amazon, more precisely from Oriximiná in the Pará state. A complete morphological description of the taxon is provided, together with a photographic plate as well as notes on habitat, distribution and phenology. Finally, we compare the new species to two other *Catasetum*: *C. tomasellii* and *C. oriximinaense*.

Résumé

Cet article propose une nouvelle espèce de *Catasetum* du groupe « *Catasetum barbatum* » originaire d'Amazonie brésilienne et plus précisément de Oriximiná, dans l'état de Pará. Le taxon fait l'objet d'une description détaillée, accompagnée d'une planche de photographies et de notes relatives à l'habitat, la distribution et la phénologie. Il est finalement comparé à deux espèces du genre, *C. tomasellii* et *C. oriximinaense*.

Resumo

Este estudo propõe uma nova espécie de *Catasetum* do grupo de *C. barbatum* para a Amazônia brasileira, mais especificamente para o município de Oriximiná no Estado do Pará. É fornecida uma descrição detalhada da nova espécie, bem como uma prancha fotográfica, além de comentários referentes ao habitat, distribuição e fenologia. É feita também uma comparação com *C. tomasellii* e *C. oriximinaense*.

Mots clés: Bassin amazonien, biodiversité, orchidée, Pará, Rivière Trombetas, taxonomie.

Key words: Amazon basin, biodiversity, orchid, Pará, taxonomy, Trombetas River.

Palavras-chave: Bacia amazônica, biodiversidade, orquídea, Pará, Rio Trombetas, taxonomia.

Introduction

Catasetum Richard ex Kunth (1822: 330) is only distributed in the Neotropical area, from Mexico to southern Brazil and northern Argentina (Miranda & Lacerda, 1992; Romero & Jenny, 1993; Romero & Carnevali, 2009). It is the largest of the eight genera belonging to the subtribe *Catasetinae* (Chase *et al.*, 2015; Pérez-Escobar 2016; Pérez-Escobar *et al.*, 2016a, b). According to Romero & Carnevali (2009) the genus is comprised of about 170 species. However, the checklist given by WCSP (2022) contains 194 accepted species, whereas some other publications (e.g. Petini-Benelli & Chiron, 2020; Krahl *et al.*, 2021b) point to a genus with 196 accepted species.

The Amazonian Forest is regarded as the diversity center of the genus. It is possible there to observe various species growing in different vegetation types (Romero & Carnevali, 2009). Thus, Brazilian Amazon is of great importance, housing 72, 58% (90 spp.) of the genus species found on the Brazilian territory, *i.e.* 124 species (Silva & Silva, 1998; Petini-Benelli, 2020; Petini-Benelli & Chiron, 2020; Krahl *et al.*, 2021a, b). In the Pará state, second largest Brazilian state located in the northern Brazil, 33 *Catasetum* species can be observed (Petini-Benelli, 2020; Krahl *et al.*, 2021a, b).

In the present work we propose a new *Catasetum* taxon from the state of Pará. It is here described and illustrated with photographs and a few additional data are given

about phenology, distribution and habitat. Besides the new species is compared to *C. tomasellii* Campacci & Silva (2016: 470) and *C. oriximinaense* Campacci & Silva (2010: 274)

Material and methods

The type specimen was found during field explorations carried out by one of the authors (J.B.F. da Silva) in the *Rio Trombetas* basin. It has been first observed and collected in the *Igarapé Mussurá* (1°28'34.29"S; 56°18'26.38"W), located on the South border of the *Reserva Biológica do Rio Trombetas* (REBio do Rio Trombetas) and the left bank of the Trombetas River (Município of Oriximiná, northwestern Pará) (Fig. 1). Material was herborized according to the common process as described in Mori *et al.* (1989) and later integrated in the HAMAB and INPA herbaria (acronyms after Thiers, 2022). Literature from northern South America with illustrations and descriptions of *Catasetum* species (*e.g.* Schweinfurth, 1959; Dunsterville & Garay, 1959; 1961; 1965; 1966; 1972; 1976; Carnevali *et al.* 2003) was referred to. Terminology here used follows Dressler (1993) and Harris & Harris (2001). The taxon was compared to *C. tomasellii* and *C. oriximinaense*, species belonging to the same group and geographically near (Campacci & Silva, 2010; 2016).

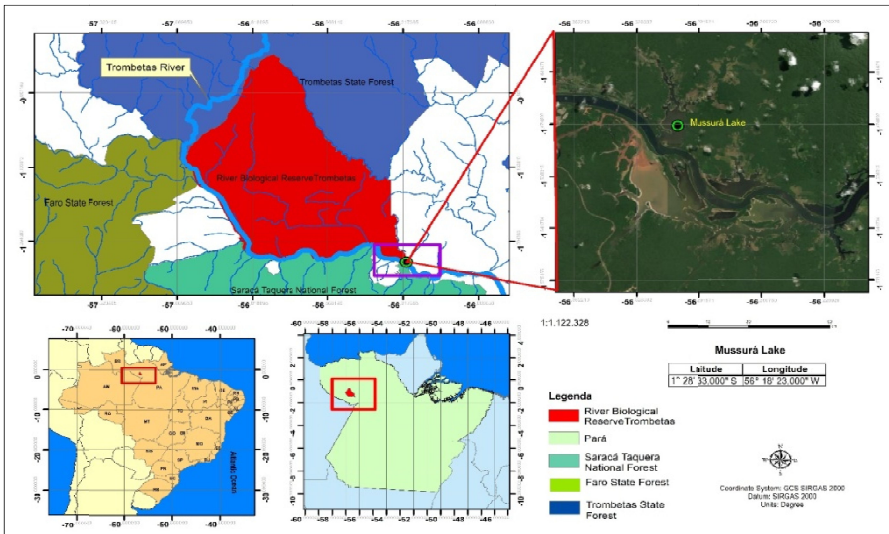


Fig. 1: Location of the collection site for the type of *Catasetum marinhoi* (Mussurá Lake).

Taxonomic treatment

Catasetum marinhoi Krahl, Cantuária & J.B.F. Silva, *sp. nov.*

Types: Brazil, Pará, Oriximiná, Mussurá Lake, 1°28'34.29"S; 56°18'26.38"W, 50 m a.s.l., 05/III/2018, *J.B.F. da Silva 5263* (holotype INPA!); idem, 11/II/2019, *J.B.F. da Silva 5454* (paratype HAMAB!); idem, *J.B.F. da Silva 5455* (paratype HAMAB!); idem, *J.B.F. da Silva 5456* (paratype HAMAB!); idem, Igarapé Mussurá, Fazenda Tauari, 22/III/2019, *J.B.F. da Silva 5457* (paratype HAMAB!); idem, *J.B.F. da Silva 5462* (paratype HAMAB!); idem, 28/II/2021, *J.B.F. da Silva 5501* (paratype HAMAB!).

Principales caracteres Cataseti marinhoi inflorescencia congesta, flores cum sepalis petalisque viridulis brunneo punctatis, labello viridulo ovato profunde conico margine potius breve fimbriato, callo tripartito ad labelli basim, callo dentiformi ad labelli apicem, columnae antennis parallelis, sunt.

Ab C. tomasellii, C. marinhoi ellipticis (vs. lanceolatis) petalis, ovato profunde concavo (vs. triangulare profunde conico) labello, labelli margine breve crasseque (vs. longe tenueque) fimbriata, labelli callis diversis, differt. Ab C. marinhoi, C. oriximinaense petalis ovatis, labelli margine dentata, callis diversis, differt.

Description (Figs. 2-3): Plant epiphytic, caespitose. Rhizome inconspicuous, short. Pseudobulb 9.9-13.6 × 1.5-2 cm, fusiform, 3-6-leaved, covered by foliar sheaths. Leaves 9.6-36.7 × 3.2-5.4 cm, elliptic to oblanceolate, membranaceous, plicate, green, with 5-7 prominent veins, an entire margin and an acute apex. Male inflorescence 11.7-25.8 cm long, lateral, racemose, densely 6-19-flowered, arched under the weight of the flowers; peduncle cylindrical, greenish; floral bract ca. 1 × 0.4 cm, lanceolate, greenish, with an entire margin and an acute apex. Male flowers with petals and sepals greenish and brown dotted and lip whitish turning yellowish over time, grouped in the distal third, pedicellate; pedicel ca. 2.2 cm long, cylindrical, erect or curved, greenish; sepals ca. 2.9 × 1 cm, elliptic, concave, with an entire margin and an acute apex, the dorsal one symmetrical, the lateral ones slightly asymmetrical; petals ca. 2.5 × 0.9 cm, elliptic, symmetrical, with an entire margin and an acute apex; lip ca. 1.8 × 1.1 cm (including fimbriae), entire, ovate and deeply conical, sac ca. 0.9 cm deep near the base, fimbriate margins, fimbriae simple or fused, rather short and thick (ca. 0.3-0.4 cm long), glabrous inside, with a callus at base and another one at apex; basal callus ca. 0.3 × 0.5 cm, tripartite, claw-shaped, acute; apical callus ca. 0.25 × 0.15 cm, tooth-shaped, bifid; column

ca. 2×0.5 cm, subtriangular, fleshy, rostrate, contracted at the base, greenish with brown dots; antennae ca. 0.7 cm long, symmetrical, parallel, projected towards the basal callus of the lip; anther ca. 1 cm long, rostrate, greenish to brownish; viscidium 0.15×0.15 cm, subquadrate, viscid, sticky, whitish; stipe 0.3×0.1 cm, laminate, rooled up, yellowish; pollinia 2, ca. 0.2×0.1 cm, ovate, tough, compressed, yellowish. Female and hermaphrodite inflorescences and fruit not seen.

Etymology: the specific epithet refers to Jocenildo de Jesus Marinho, manager of the horticultural and reforestation sector of the *Mineração Rio do Norte* (MRN) in Porto Trombetas (Pará). He substantially contributed to and encouraged the epiphyte rescue and reintroduction project of the MRN.

Distribution and habitat: the new species seems to be endemic to the Município of Oriximiná (northwestern Pará) and is probably widespread in the Rio Trombetas basin. It was first found on dead tree trunks on the lake Mussurá and later along the left bank of the Rio Trombetas on the banks of the tributaries called Igarapé Acari and Igarapé Mussurá. It occurs in *Floresta de Igapó* (constantly flooded environment) and in *Floresta de Terra Firme* (non floodable dense ombrophilous forest environment).

Phenology: the taxon blooms in the beginning of the year (usually from January to March), which corresponds to the rainy period in the region (see Luizão, 1995).

Conservation status: Data Deficient DD (IUCN, 2022). Given lack of data due to weak presence of this particular taxon in herbaria, we cannot discuss its conservation status. We may only presume that it is widespread around the Trombetas River basin and partly protected by possibly growing in a Conservation Unit (REBio do Rio Trombetas). However, it is probably much collected/predated by orchid-lovers for ornamental purposes and clandestine commercialization.

Recognition: *Catasetum marinhoi* (Fig. 3) is related to species with antennae symmetrical and parallel belonging to the subsection *Isoceras* (subgenus *Catasetum*, section *Isoceras*) (Mansfeld, 1932; Bicalho & Barros, 1988; Senghas, 1990, 1991). It falls under the *Catasetum cristatum* Lindley (1824: 83) group (Bicalho & Barros, 1988) and, more precisely, belongs to a set of plants related to



Fig. 2: *Catasetum marinhoi*. A – Habit. B – Inflorescence. C-E – Flowers. F – Floral bract. G - Floral segments. H-J – Lip. K-M – Column. N-O – Anther cap. P-Q - Pollinarium. Photos by A.H. Krahl.

the *Catasetum barbatum* (Lindley 1836: t. 1778) Lindley (1844: Misc. 28) complex. It is most closely related to *C. tomasellii* (Fig. 4), as well morphologically as geographically (Campacci & Silva, 2010; 2016; Petini-Benelli, 2020).

Both taxa differ mainly by their floral structure, especially the lip characters. In *Catasetum marinhoi* the petals are elliptic and the lip has an ovate and deeply concave outline, a margin with rather short and thick fimbriae, a basal callus tripartite and an apical callus tooth-shaped and bifid, whereas in *C. tomasellii* the petals are lanceolate and the lip has a triangular deeply conical outline, a margin with rather long and thin fimbriae, a basal set of symmetrical erected horns, the central one being longer and acute, and an apical callus triangular and rigid. Moreover, sepals and petals of *C. marinhoi* are greenish with brown dots whereas, in *C. tomasellii*, they show transverse reddish-brown streaks on a cream background (see Campacci & Silva, 2016; Petini-Benelli, 2020).

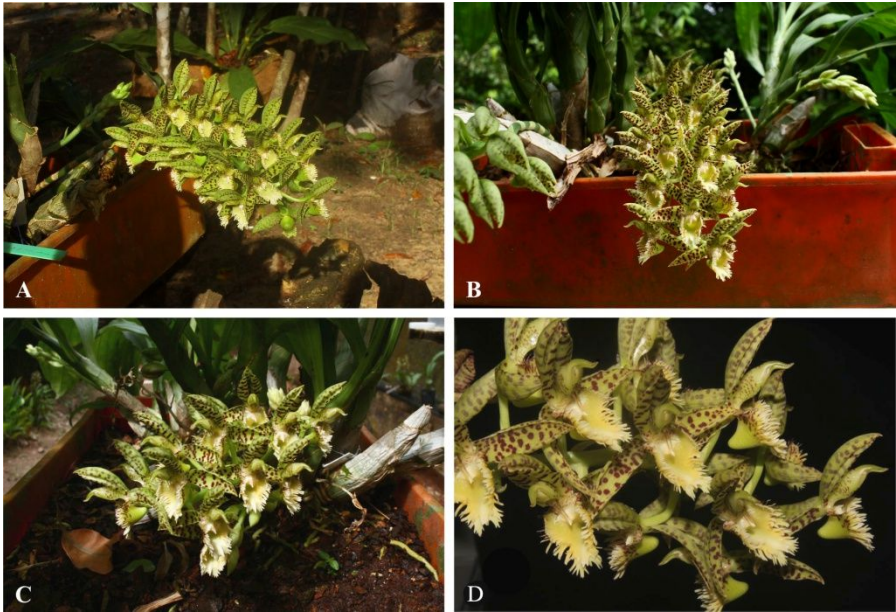


Fig. 3: Pictures of *Catasetum marinhoi*. Photos A-C, by J.B.F. da Silva and D, by A.H. Krahl.

We can also compare *C. marinhoi* to *C. oriximinaense* which has a close geographical distribution (Campacci & Silva, 2010; Petini-Benelli, 2020). They also differ basically by the characteristics of the floral structures. *C. marinhoi* has elliptic petals (vs. ovate), a lip margin fimbriate with short and thick fimbriae (vs. dentate), a lip base with a tripartite acute callus (vs. transversely erected and truncated) and a lip apex with a bifid tooth-shaped callus (vs. with a rigid tip flanked by two stiff, tall, horn-shaped protuberances) (see Campacci & Silva, 2010; Petini-Benelli, 2020).



Fig. 4: Comparison between *Catasetum marinhoi* (A-B) and *Catasetum tomasellii* (C-D). Photos A, C-D by J.B.F. da Silva and B, by A.H. Krahl.

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