



## Two new natural hybrids in *Catasetum* (Orchidaceae) from Brazil

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### Abstract

In this article we propose two new natural hybrids of *Catasetum*, from Brazil: *Catasetum* × *nogueirae*, resulting from the crossing between *C. complanatum* and *C. ariquemense*, from Rondônia, and *Catasetum* × *santo-antoniense*, resulting from the crossing between *C. rooseveltianum* and *C. vinaceum*, from Mato Grosso. Both taxa are described and illustrated.

### Résumé

Cet article propose deux nouveaux hybrides naturels de *Catasetum* originaires du Brésil : *Catasetum* × *nogueirae*, issu du croisement entre *C. complanatum* et *C. ariquemense* et originaire du Rondônia, et *Catasetum* × *santo-antoniense*, résultat du croisement entre *C. rooseveltianum* et *C. vinaceum* et originaire du Mato Grosso. Tous deux sont décrits et illustrés.

### Resumo

Dois novos híbridos naturais de *Catasetum* nativos para o Brasil são aqui descritos. *Catasetum* × *nogueirae* um cruzamento oriundo entre *C. complanatum* e *C. ariquemense* nativo do estado de Rondônia; e *Catasetum* × *santo-antoniense* resultado de cruzamento natural entre *C. rooseveltianum* e *C. vinaceum* nativo para o estado de Mato Grosso.

**Keywords:** Brazil, Catasetinae, natural hybrids, new taxa

**Mots-clés :** Brésil, Catasetinae, hybrides naturels, nouveaux taxons

**Palavras-chave:** Brasil, Catasetinae, híbrido natural, novos taxons

The genus *Catasetum* has been published by C.S. Kunth (1822: 330), based on the data given by L.C.M. Richard. The type species is *C. macrocarpum* L.C.M. Richard ex Kunth (1822: 330) and the genus belongs to the subtribe Catasetinae (Epidendroideae, Cymbidieae) according to Pridgeon *et al.* (2009). It is widely present on the American continent, from southern Brazil to Mexico through Central America (Romero & Carnevali, 1990). From ca. 170 names listed from the genus, Brazil is the country with the larger number of species and natural hybrids: ca. 70% of the total number. Within Brazil, the regions North and Centre-West concentrate ca. 75% of the Brazilian taxa.

The North of Brazil is composed of seven states: Acre, Amazonas, Rondônia, Pará, Roraima, Amapá and Tocantins. The annual mean temperature varies from 22 and 28 °C, the annual average relative humidity rate is 80% or more with a dry period during 3-6 months, the total annual precipitation reach 2.250-3.450 mm and the predominant vegetation is of the « Amazonian forest » type (Girardi & Rosa, 2016). The region Centre-West is made of three states: Mato Grosso, Mato Grosso do Sul and Goiás. In this region there is a transition band of morphoclimatic domains between the Amazonian domain and the Cerrado (Ab'Saber, 2003), with the following climate data: total annual precipitation 1.050-2.650 mm, dry period 3-9 months, annual relative humidity rate 60-80%, temperature 18-26 °C (Girardi & Rosa, 2016).

Under a favourable climate the evolutionary process of the *Catasetum* made the genus obtain a high reproductive capacity during the eras. Plants 1-1.5 years old already can bloom in the wild. Besides this speed we can note the concomitance of flowering of several species in the same habitat. So the Euglossini bees can do their job within a species as well as in generating natural hybrids. Both hybrids presented here – one from the state of Rondônia, the other one from the state of Mato Grosso – result from it.

***Catasetum* × *nogueirae* U.L.C.Ferreira, *hybr. nat. nov.***

*Herba epiphyta pseudobulbis fusiformibus, mediocris, inflorescentia mascula arcuata, petalis sepalisque oblongo-lanceolatis, columna carnosa, labello infero,*

*pusillo, saquiforme, late serrato, antennis parallelis. Inter Catasetum complanatum et Catasetum ariquemense hybrida.*

Type: Brazil, Rondônia, Alta Floresta D'Oeste, 12°07'41"S, 62°13'43"W, alt. 350 m, X.2017, col. *Valdison Aparecido Gil VAG.003.C* (Holotype BHZB 11131).

Etymology: in honour of Sr. Itamar Nogueira, a friend and a *Catasetum* grower.

Plant epiphyte medium-sized within the genus; pseudobulbs fusiform, 11-15 cm high, up to 4.5 cm diam., deep green, multi-annulate, longitudinally furrowed, furnished with foliate sheaths, fibrous and green as well, which deteriorate after drying; rhizome tiny; roots thin, 0.15-0.2 cm diam., milky white along their length and yellowish green at the tips; leaves numerous, 7-10 per pseudobulb, green, oblong-lanceolate, tri-veined, up to 10.0 cm wide and 40.0 cm long; male inflorescence a basal raceme, arched, presenting 4-6 rings, opaque green at base and brown green at the end, thin, 0.4 cm diam. and 35.0 cm long, flowers in varying amounts, up to 30, clustered in the final half of the inflorescence. Male flowers resupinate; pedicel reddish brown, 2.4 cm long, 0.2 cm diam., cylindrical; sepals green brown-spotted, elliptic-lanceolate, 2.6 × 0.8 cm; petals of similar colour and shape, smaller, 2.2 × 0.6 cm; lip deep brown outside, green and yellow-cream inside, small, saccate, 1.1 cm long, 1.0 cm deep, 0.8 cm wide, basal callus irregularly tridentate, the middle tooth bigger, with some crests on both side of the callus, apex of the lip presenting a protuberance looking as a callus, margins strongly fimbriate; column green and brown, fleshy, sub-triangular, 1.7 cm long, 0.4 cm wide in its widest part; antennas thin, projected towards the callus however not reaching it, parallel (which places the taxon within the section *Isoceras*), 0.6 cm long, 0.05 cm diam.; anther yellowish green, cuspidate, 0.8 cm long, 0.4 cm wide; stipe whitish, 0.4 cm long, 0.18 cm wide; pollinia 2, waxy, small, ovoid, flattened, yellowish. Fig. 1 & 2.

Distribution and habitat: Brazil, Rondônia (Fig. 3); the plant was found growing on a Bacuri palm (*Scheelea phalerata*).

Flowering: December to March (summer).

Notes: the first plant presenting the above features, and owned by Itamar Nogueira, has been observed in 2012 in the town of Rio Claro located in the interior of the São Paulo State (Brasil). It was found that the plant had



**Fig. 1.** Type inflorescence of *Catasetum* × *nogueirae*

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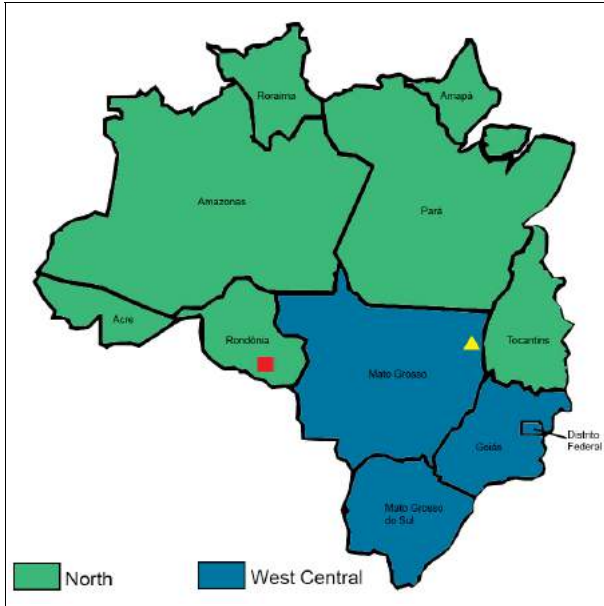


**Fig. 2. *Catasetum* × *nogueirae***

A: Vegetative aspect, B: Male flower - lateral view, C: Male flower - front view, D: female flower. Drawing Ulisses Leandro Carvalho Ferreira

similarities with *Catasetum complanatum* F.E.L. Miranda & K.G. Lacerda (1992: 53), however with cilia in the lateral lobes of the lip and with a basal callus reminding the species included in the *C. barbatum* complex. A few years later, in the Rondônia State, Valdison Aparecido Gil showed us a plant with the same characteristics with additional information on the presence of *C. ariquemense* F.E.L. Miranda & K.G. Lacerda (1992: 50) nearby.

The Table 1 presents the comparison of the new hybrid with the two parents and the Figure 4 shows the flowers of the three taxa.



**Fig. 3. Distribution of *Catasetum × nogueirae* (■) and *Catasetum × santo-antoniense* (▲)**

**Tab. 1. Comparison of male flowers and inflorescences between the new hybrid and its parents**

		<i>Catasetum × nogueirae</i>	<i>Catasetum complanatum</i>	<i>Catasetum ariquemense</i>
Inflorescence		arched	pending	arched
Lip	lateral lobes	serrated	smooth and waxen	deeply fimbriate
	basal callus	serrated, irregular shape	absent	prominent, lanceolate, irregular shape
	general shape	lip inferior, saccate in the center, slightly open on the sides	lip inferior, saccate, closed, helmet-shaped	lip inferior, saccate in the center, widely open on the sides



**Fig.4. Comparison of the flowers of *Catasetum* × *nogueirae* (left), *Catasetum complanatum* (center) and *Catasetum ariquemense* (right)**

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The pollinating agent of both species cited as the parents of the new natural hybrid is *Euglossa* sp. In fact, this bee genus belonging to the Euglossini family is responsible for the dissemination of the great majority of orchids (Rebêlo, 2001), and it applies to *Catasetum*.

***Catasetum* × *santo-antoniense* U.L.C. Ferreira & R.M.C. Filho, *hybr. nat. nov.***

*Herba epiphyta pseudobulbis fusiformibus, mediocris, inflorescentia mascula pedunculata, petalis sepalisque concavis oblongo-lanceolatis, columna carnosa, labello supero, late serrato, antennis parallelis. Inter Catasetum rooseveltianum et Catasetum vinaceum hybrida.*

Type: Brazil, Mato Grosso, Novo Santo Antônio, 12°16'30.12''S, 51°4'50.19''W, alt. 200m., V.2010, col. José Serafim Sobrinho JSS.001.A (Holotype BHZB 11.864).

Etymology: in reference to the town Novo Santo Antônio (MT), near which the type plant was collected.

Plant epiphytic, medium-sized for the genus; pseudobulbs 19.2 cm long, thin at base 1.0 cm diam., then ca 3.0 cm in the middle and again thin at the apex, sulcate after rest, with as many foliaceous sheaths as leaves; leaves 10, thin and long, 32.0 cm long, 3.2 cm wide at the widest portion; male inflorescences 2-4 per pseudobulb, pending, from the base of the pseudobulb, light green, thin, 28.6 cm long, 0.3 cm diam., with 3-4 nodes, producing generally 8 non-resupinate flowers; pedicel light green, thin and

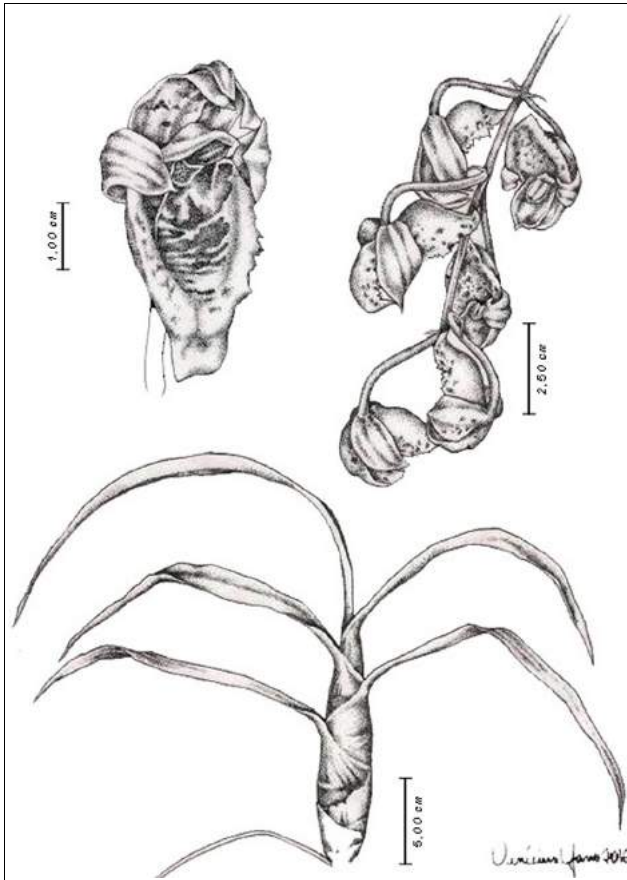
looking as tricarpetate, 2.8 cm long, 0.2 cm wide; sepals and petals milk-white with small reddish spots, delicate, elliptic-lanceolate; dorsal sepal  $2.7 \times 0.8$  cm; lateral sepals  $2.6 \times 0.6$  cm, incurved towards the lip, simulating a hug; petals 2.4 cm long, 0.9 cm wide; lip yellow with many reddish spots inside, cream outside, 2.6 cm long, 1.9 cm wide, 1.1 cm deep, fleshy, concave, shell-shaped, becoming thinner at the slightly reflexed apex, adorned with small structures looking as irregular serrations on the lateral lobes; column greenish yellow,  $1.7 \times 0.7$  cm; antennae 1.5 cm long, parallel, projecting to the lip interior; anther deep brown,  $0.3 \times 0.3$  cm, pollinia 2, deep yellow, small, ovoid, stipe  $0.4 \times 0.2$  cm. Fig. 5 & 6.



**Fig. 5.** Type inflorescence of *Catasetum* × *santo-antoniense*

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**Fig. 6.** *Catasetum* × *santo-antoniense*

Close up male flower, upside-down (up left). Stem male flowers (up right). Habit (down)  
Drawing Vinicius Yano Corrêa

Distribution: Brazil, Mato Grosso (Fig. 3). Flowering : January to April.

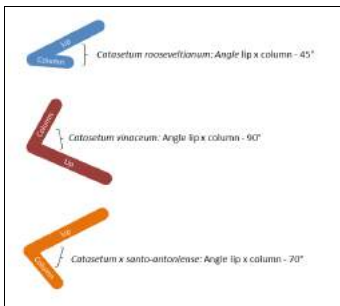
Notes: *Catasetum* × *santo-antoniense* presents intermediate characteristics in relation to its parents *Catasetum rooseveltianum* Hoehne (1916: 35) and *Catasetum vinaceum* (Hoehne 1914: 38) Hoehne (1942: 102). Its upright habit is related to the genetics of the latter while the former presents pending pseudobulbs. We can note the presence of undulations, or serrations, on the sides of the lip of the new hybrid, another characteristic inherited from *C. vinaceum*, while in *C. rooseveltianum* the lip margins are smooth (Fig. 7). The lip of the new taxon is more splayed, open, certainly due to the

influence of *Catasetum vinaceum* whereas the lip of *C. rooseveltianum* is more closed. Upside lip is a characteristic present in both *C. rooseveltianum* and in the new hybrid, whereas in *C. vinaceum* the lip is inferior. The floral cluster of the new hybrid is also more related to the presence of *C. rooseveltianum*. Both with more spaced flowers, whereas in *C. vinaceum* the flowers are more grouped. In the new hybrid the angle between column and lip has an intermediate value between those observed in the parents (Fig. 8). The column is more similar to the column of *C. rooseveltianum* although longer mainly due to the acuminate anther. Tab. 2.



**Fig. 7. Lip comparison in male flowers of *Catasetum* × *santo-antoniense* (left), *C. rooseveltianum* (middle) and *C. vinaceum* (right)**

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**Fig.8. Angles (lip versus column) comparison**

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**Tab. 2. Measurements of floral segments (length × width, in cm)**

	<i>Catasetum vinaceum</i>	<i>C. × santo-antoniense</i>	<i>C. rooseveltianum</i>
Petals	3.8 × 1.2	2.4 × 0.9	1.8 × 1.0
Lateral sepals	3.8 × 2.0	2.6 × 0.6	1.8 × 1.3
Dorsal sepal	3.7 × 1.1	2.7 × 0.8	3.5 × 1.0
Pedicele	2.4 × 0.2	2.8 × 0.2	1.5 × 0.2
Column	3.3 × 0.6	1.7 × 0.7	0.9 × 0.5
Lip	4.0 × 4.0	2.6 × 1.9	2.5 × 1.6
Antenna	1.6 × 0.1	1.5 × 0.1	2.0 × 0.1
Inflorescence	15.0 × 0.3	28.6 × 0.3	25.0 × 0.4

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