



Two new natural hybrids in *Catasetum* (Orchidaceae) from Centre-West Brazil

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Abstract

Two new natural hybrids are proposed here. Firstly *Catasetum* ×*crassispinum* resulting from the crossing between *C. confusum* and *C. gladiatorium* found in the State of Goiás; and then, *Catasetum* ×*eliasii*, resulting from crossing between *C. rooseveltianum* and *C. pulchrum* and native of the State of Mato Grosso. Both are described, illustrated and discussed.

Résumé

Deux nouveaux hybrides naturels de *Catasetum* sont proposés dans cet article. Le premier, *Catasetum* ×*crassispinum*, est le résultat du croisement de *C. confusum* et de *C. gladiatorium* et a été trouvé dans l'état de Goiás. Le deuxième, *Catasetum* ×*eliasii*, est issu du croisement de *C. rooseveltianum* et de *C. pulchrum* et est originaire de l'état de Mato Grosso. Tous deux sont décrits et illustrés, et leur nature hybride est discutée.

Resumo

Dois novos híbridos naturais de *Catasetum* nativos do Centro-Oeste Brasileiro. Primeiramente *Catasetum* ×*crassispinum* resultado do cruzamento entre *C. confusum* e *C. gladiatorium* encontrado no estado de Goiás; e posteriormente, *Catasetum* ×*eliasii*, planta resultante do cruzamento natural entre *C. rooseveltianum* e *C. pulchrum*, nativo do estado de Mato Grosso.

Keywords: Brazilian Centre-West, Catasetinae, new taxa, taxonomy.

Mots clés : Catasetinae, Centre-ouest du Brésil, nouveaux taxons, taxinomie.

Palavras-chave: Catasetinae, Centro-Oeste Brasileiro, novos táxons, taxonomia.

Introduction

The genus *Catasetum* was published in 1822 by C.S. Kunth (1822: 330), based on information from L.C.M. Richard. According to Pridgeon *et al.* (2009), it belongs to Orchidaceae, Epidendroideae, Cymbidieae, Catasetinae, *Catasetum macrocarpum* L.C.M. Richard ex Kunth (1822: 330) being the type species. It is widely distributed in the American continent, from southern Brazil in the South, through Central America, to Mexico (Romero & Carnevali, 1990). This ability to adapt to such large stretches of land means that the genus is not demanding in terms of cultural dealings. In fact, in stressing conditions, it tends to produce pistillate flowers, which enhances its reproduction. Brazil is a country full of *Catasetum* (Ferreira, 2016), which is due to factors such as humidity, heat and large territories. All together these factors allow a great natural hybridation rate in the genus, which can be observed from the number of new natural hybrids recently proposed. And this number will likely increase in the next years. Of course the more species rich a region is, the more important the hybrid registration will be. Two taxa are described in the present work. Both are native of the Brazilian region called Centre-West, a region comprising the States of Mato Grosso, Mato Grosso do Sul and Goiás, and the Federal District. About 35-40 *Catasetum* species are found there. The altitude of the land ranges from sea level, near the Pantanal lowland, up to 1200 m in the Chapada do Veadeiros (Girardi & Rosa, 2016); however it is generally comprised between 200 and 600 m. Annual rainfalls vary from 1050 to 2650 mm, with a dry period of 3-9 months; relative humidity is 60-80%; annual mean temperature varies from 18° to 26° (Girardi & Rosa, 2016); the vegetation is characterised by a transition area between the Amazonian morphoclimatic domain and the Cerrado (Ab'Saber, 2003).

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

Type: Brazil, Goiás, São Miguel do Araguaia, 13C°15'56''S, 50°07'04''W, alt. 329m, 05/2011, José Serafim Sobrinho, JSS.002.A (Holotype BHZB).

*Herba epiphyta pseudobulbis fusiformibus mediocris, inflorescentia mascula pedunculata, petalis sepalisque concavis oblongo-lanceolatis, columna carnosae, labello pusillo supero late crasseque spinoso, antennis parallelis. Hybrida inter *Catasetum confusum* G.A.Romero et *Catasetum gladiatorium* Lacerda.*

Etymology: in reference to the lip sides which present thick bristles similar to thorns.

Plant epiphyte, medium sized; pseudobulbs fusiform, green, up to 19 cm long and 4.5 cm in diameter, sulcate after rest, concealed by leaf sheaths when young, then, when leaf sheaths are gone, presenting brown rings; leaves ca. 9, trinerved, deep green, oblong-lanceolate, 45 cm long, up to 9.5 cm wide; inflorescences 3-4 per pseudobulb, from the pseudobulb base, up to 33 cm long, first erect up to half their length then pendulous, peduncle thin, ca. 0.35 cm diam., green at the base then brown from 2/3 of its length, adorned with 4-5 strongly tight ring-shaped bracts; flowers ca. 15 per inflorescence (Fig. 1); staminate flower: pedicel cylindrical, brown, tricarpellate, 3.7 cm long, 0.2 cm wide; petals and sepals elliptic-lanceolate, yellowish green with many evenly distributed brown spots; dorsal sepal



Fig. 1. Type inflorescence of *Catasetum x crassispinum*

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2.5 × 1.1 cm; lateral sepals 2.6 × 0.8 cm, reflexed; petals 2.5 × 0.85 cm; lip placed above, helmet-shaped, 1.2 cm long, 0.8 cm wide, 0.5 cm deep, trilobed, lateral lobes triangular with margins adorned with fleshy bristles similar to thorns, striking on the type specimen, midlobe triangular, fleshy, shell-shaped, with serrated margins, apically reflexed, with a short callus in its apical part, lip disc adorned with two keels, one on each side, emerging from the lip bottom towards the lateral lobes, lip brown outside with cream bristles, cream inside with brown spots and lines; column fleshy, subtriangular, 1.7 × 0.5 cm, yellowish green with brown spots; antennae parallel, 0.9

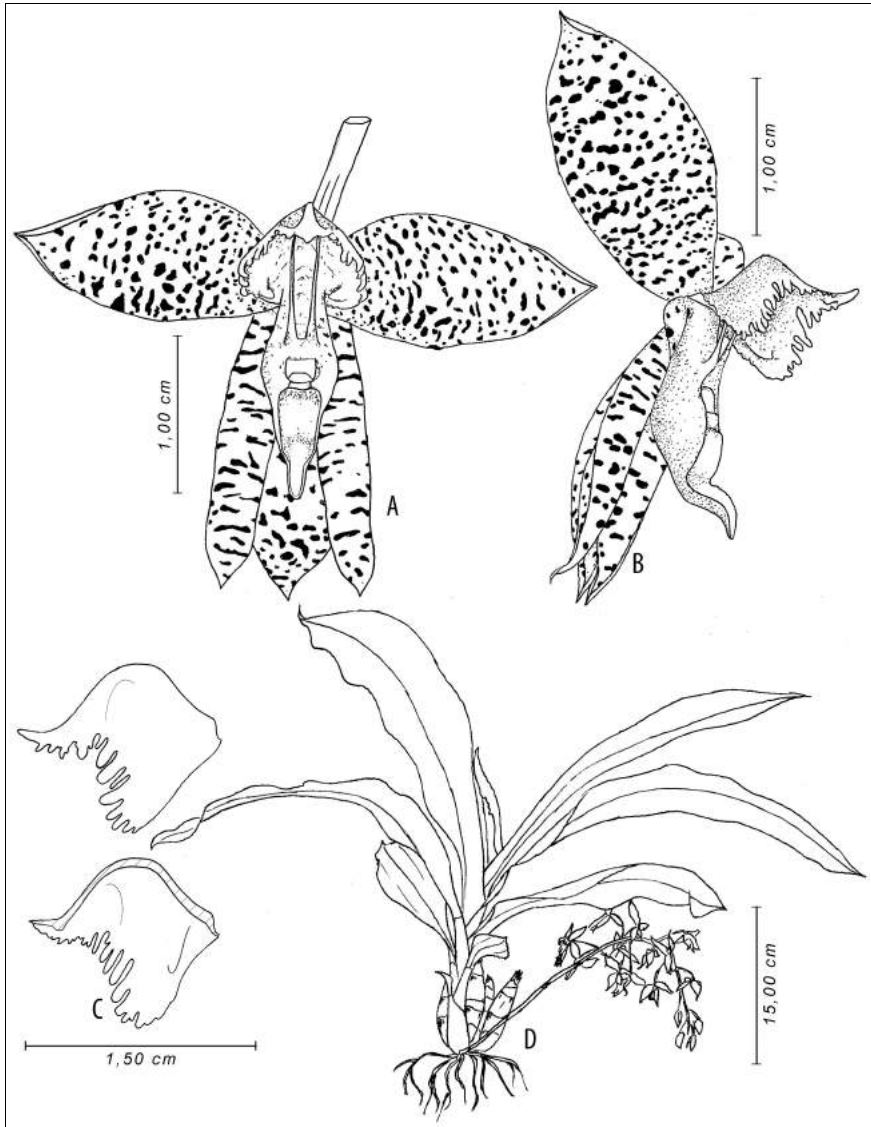


Fig. 2. *Catasetum xcrassispinum*

A. male flower, front view; B. male flower, lateral view; C. lip, lateral view and longitudinal section; D. vegetative aspect [drawing Ulisses L.C. Ferreira]

cm long, projected towards the lip bottom; anther cuspidate, milky yellow, 0.85 cm long, 0.3 cm diam.; pollinia 2, small, ovoid, deep yellow, stipe 0.6 × 0.1 cm. Fig. 2.

Distribution: Brazil, Goiás (Fig. 3).

Flowering: January to April.

Notes: this natural hybrid shows similarities with its parents, *Catasetum confusum* G.A.Romero (1993: 237-239) and *Catasetum gladiatorium* Lacerda (1998: 90), with intermediate characters (Tab. 1). The lip placed above and with rounded parts is reminiscent of *C. confusum* in which it is fully ovate, closed, helmet-shaped; the inflorescence basally erect and then pendulous is a particular feature of *C. confusum*, transferred to the hybrid. The colouring of the petals and sepals,

yellowish green with many brown spots, observed in the hybrid, comes from the parents which both present this color pattern. The small callus on the apical part of the lip comes from *C. gladiatorium* since this species belongs to the "*Catasetum cristatum*" alliance (Lacerda, 1998: 86-96); similarly the cream color observed in the hybrid comes from *C. gladiatorium* which has a cream lip. The internal keels on the lip in the hybrid are also found in *C. confusum* and, through the crossing with *C. gladiatorium*, the basal callus of which is tridentate and fleshy, they are



Fig. 3. Geographical distribution of *Catasetum* ×*crassispinum* (◆) and *Catasetum* ×*eliasii* (▲)

	<i>C. confusum</i>	<i>C. ×crassispinum</i>	<i>C. gladiatorium</i>
inflorescence	35.0 × 0.4	33.0 × 0.4	30.5 × 0.4
pedicel	4.3 × 0.3	3.7 × 0.2	2.7 × 0.2
petals	3.1 × 0.7	2.5 × 0.9	2.3 × 0.6
lateral sepals	3.5 × 1.5	2.6 × 1.2	2.6 × 0.8
dorsal sepal	3.3 × 0.9	2.5 × 1.1	2.5 × 0.9
lip	1.5 × 0.9	1.2 × 0.8	2.2 × 0.6
column	2.3 × 0.7	1.7 × 0.5	2.4 × 0.7
antennae	1.3 × 0.1	0.9 × 0.1	0.8 × 0.1

Table 1. Measurements of floral parts of the three taxa
length × width (in cm)

even thicker; the fleshy bristles observed on the margins of the lip lateral lobes are the most striking features in *C. ×crassispinum*, an heritage from *C. gladiatorium*, a species known for the thick fimbriae present on the entire margin of its lip. Fig. 4 & 5.



Fig. 4. Close-up of the lip of *Catasetum ×crassispinum* showing the keels (green square) and the basal callus (red circle) [Ph. Ulisses L.C. Ferreira]



Fig. 5. Male flowers of *Catasetum ×crassispinum* (left), *Catasetum confusum* (center) and *Catasetum gladiatorium* (right)

[Ph. Ulisses L.C. Ferreira]

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

Type: Brazil, Mato Grosso, Distrito de Progresso – Tangará da Serra, 14°39'38''S, 57°21'38''W, alt. 506m, V06/2018, Raiaque de Oliveira, RDO.001.D (Holotype BHZB).

Herba epiphyta pseudobulbis fusiformibus robustis, inflorescentia mascula pedunculata, petalis sepalisque concavis oblongo-lanceolatis, delicatis, columna carnosa subtriangulari, labello supero semigloboso, antennis parallelis. Hybrida inter Catasetum rooseveltianum Hoehne et Catasetum pulchrum N.E.Brown.

Etymology: in honour to Elias Gabriel Caldeira Oliveira, son of Raiaque de Oliveira, who discovered the type specimen.

Plant epiphyte, stout; pseudobulbs fusiform, up to 25 cm long and 5.5 cm diam., sulcate after rest, fitted with leaf sheaths adpressed to it; leaves usually 10 per pseudobulb, oblong-lanceolate, 30 cm long and 7.2 cm wide in the widest part; inflorescences 2-4 per pseudobulb, pendulous, from the pseudobulb base, 0.6 cm diam. and 34-48 cm long, peduncle opaque green, adorned with 4-5 strongly tight ring-shaped bracts; flowers up to 17, scattered on the apical half of the inflorescence; staminate flower (Fig. 6): pedicels very thin, tricarpelate, 2.4 × 0.3 cm, light green; sepals and petals oblong-lanceolate, milky white, pure outside and with yellowish spots inside; dorsal sepal 2.1 × 0.8 cm; lateral sepals 2.0 × 0.8 cm; petals 2.1 × 0.7 cm; lip placed above, fleshy, 0.17 cm thick, semiglobulous, slightly trilobed in the apical part, 2.0 cm long, 1.6 cm wide and 1.6 cm deep, yellowish green, outside with a few wine-red spots near the margins, inside with many wine-red patches near the margins and wine-red lines on the lip bottom; column 1.6 × 0.7 cm, greenish yellow with small wine-red spots at base; antennae 1.2 cm long, parallel, rested on the lip interior towards the bottom; anther 0.5 × 0.3 cm, wine-red; pollinia 2, small, ovoid, golden yellow; stipe 0.6 × 0.2 cm. Fig. 7 & 8.

Distribution: Brazil, Goiás (Fig. 3).

Flowering: December to March.

Notes: *Catasetum ×eliasii* has pendulous inflorescences similar to those of its parents, *Catasetum rooseveltianum* Hoehne (1916: 35) and *Catasetum pulchrum* N.E.Brown (1887: 51) which have also pendulous inflorescences. Its flowers are spaced and their lip is placed above, as in the former. The erect pseudobulbs and the wine red coloured lip are reminiscent of the latter. The general shape of the lip, semiglobulous with smooth margins, is



Fig. 6. *Catasetum xeliasii*

Inflorescence of the type specimen (left – ph. Raiaque de Oliveira) and close-up of male flower (right – ph. Ulisses L.C. Ferreira)

probably intermediate between the closed, saccate, helmet-shaped lip of *C. pulchrum* and the shell-shaped lip of *C. rooseveltianum*. The petals and sepals oblong-lanceolate, whitish, thin and delicate, with reflexed tips are much similar to those of *C. rooseveltianum*. The slightly trilobed apical part of the lip is reminiscent of *C. pulchrum*. See also Tab. 2 and Fig. 9.



Fig. 7. *Catasetum xeliasii*

Male flowers, color variation [ph. Valdison Aparecido Gil]

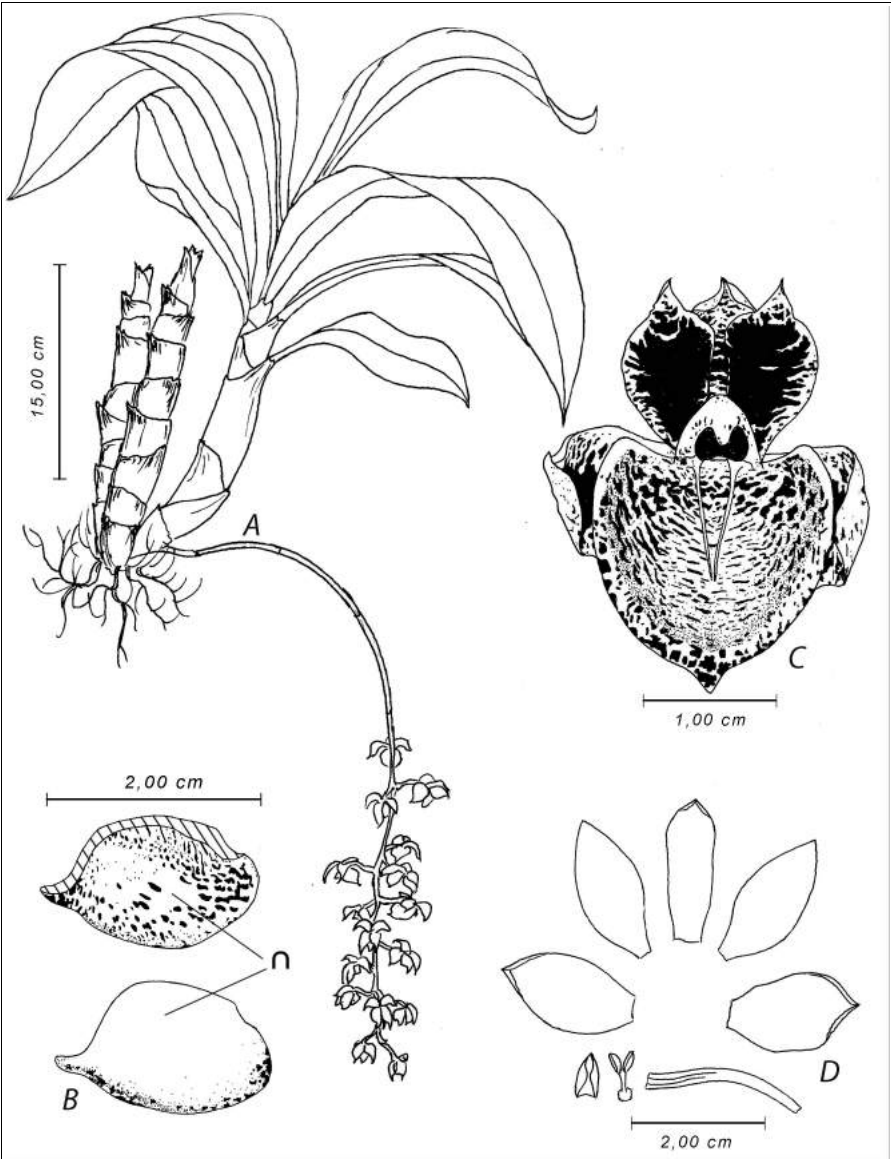


Fig. 8. *Catasetum xeliasii*

A. vegetative aspect; B. lip, lateral view and longitudinal section ; C. male flower, front view;
 D. floral segments [drawing Ulisses L.C. Ferreira]

	<i>C. pulchrum</i>	<i>C. ×eliasii</i>	<i>C. rooseveltianum</i>
inflorescence	22.0 × 0.4	36.5 × 0.6	25.0 × 0.4
pedicel	1.2 × 0.2	2.4 × 0.3	1.5 × 0.2
petals	2.2 × 1.0	2.1 × 0.9	1.8 × 1.0
lateral sepals	2.0 × 1.1	2.0 × 1.0	1.8 × 1.3
dorsal sepal	2.3 × 1.0	2.1 × 0.8	3.5 × 1.0
lip	2.1 × 2.2	2.0 × 1.6	2.5 × 1.6
column	1.8 × 0.6	1.6 × 0.5	0.9 × 0.5
antennae	0.6 × 0.1	1.5 × 0.1	2.0 × 0.1

Table 2. Measurements of floral parts of the three taxa
length × width (in cm)



Fig. 9. Male flowers of *Catasetum ×eliasii* (left), *Catasetum rooseveltianum* (center) and *Catasetum pulchrum* (right)

[Ph: Ulisses L.C. Ferreira]

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