

TWO NEW SPECIES OF *ENCHOLIRIUM* (BROMELIACEAE) FROM BRAZIL

RAFAELA CAMPOSTRINI FORZZA

Departamento de Botânica, Instituto de Biociências, Universidade de São Paulo, C.P. 11461,
05422-970, São Paulo, SP, Brazil. E-mail: rforzza@hotmail.com

ELTON M. C. LEME*

Herbário Bradeanum, C.P.15005, CEP 20031-970, Rio de Janeiro, RJ, Brazil.
E-mail: leme@tj.rj.gov.br

ABSTRACT. A revision of *Encholirium* has revealed two new species from rock outcrops in Brazil's cerrado vegetation and in the transition from cerrado to caatinga vegetation. *Encholirium eddie-estevesii* has flowers with short pedicels, slightly asymmetrical sepals, and petals that are spotted purplish-wine and have inconspicuously crenulate margins. *Encholirium maximum* is very distinctive because of its large inflorescence, subsessile flowers, slightly asymmetrical and obovate sepals, and yellow petals.

Key words: Bromeliaceae, Pitcairnioideae, *Encholirium*, Brazil

INTRODUCTION

Encholirium belongs to the subfamily Pitcairnioideae, and was included in tribe Puyeeae by Varadarajan and Gilmartin (1988) or in the tribe Dyckieae, with *Dyckia*, *Hechtia* and *Deuterocohnia* s.l. (including *Abromeitiella*) by Robinson and Taylor (1999). *Encholirium* was considered to have 31 species by Smith and Read (1989) but the most recent revision of the genus by Forzza (2001) recognizes 23 species, all of them endemic to Brazil. The genus is always associated with rock outcrops or rocky soils in the campos rupestres, Atlantic rain forest, cerrado, or caatinga.

NEW SPECIES

Encholirium eddie-estevesii Leme & Forzza, sp. nov. TYPE: Brazil. Goiás: Mun. São Domingos, Parque Estadual de Terra Ronca, 19 May 1999, *Eddie Esteves E-346*. (Holotype: HB; Isotype: UFG). FIGURE 1: A–F

Encholirio spectabili Mart. ex Schult. & Schult. f. affinis sed bracteis floriferis late triangularibus, attenuatis caudatisque, sepalis ovato-triangularibus, acutis, flavis et inconspicue purpureo-vinose maculatis et petalis flavis sed centraliter purpureo-vinose maculatis differt.

Plant saxicolous, 0.9–2.2 m high, clustering or single. **Rosette** 0.6–1 m in diameter. **Leaves** erect-arcuate. **Sheaths** 3.5–6.7 × 6.5–9.3 cm, reniform, lepidote at apex, margins entire. **Blades** 20–56 × 2.5–4.2 cm, narrowly triangular, attenuate toward apex, densely white-lepidote, mar-

ginal spines 0.3–1 cm long. **Scape** 0.45–1.2 m long, 0.8–1.8 cm in diameter, terminal, erect, glabrous, greenish to bronze-colored. **Scape bracts** foliaceous, apex attenuate-caudate, base broadly-triangular, distinctly exceeding the internodes, densely arranged but exposing the scape, margins pectinate-spinose, stramineous toward apex, base white-lepidote. **Inflorescence** 22–38 cm long, erect, laxly flowered, usually simple, rarely bipinnate at base; rachis greenish to bronze-colored, glabrous. **Floral bracts**, the basal ones, resembling the upper scape bracts, 1.7–2.5 × 0.7 cm, exceeding the pedicels, lanceolate, margin serrulate, lepidote, the upper ones abruptly reduced, 1–4 × 2–3 mm, shorter than the pedicels, ovate-triangular, apex acute to acuminate, margins entire to slightly serrulate, lepidote to glabrous. **Flowers** short-pedicellate; pedicels 3–4 mm long. **Sepals** 6–8 × 4–5 mm, yellow with very inconspicuous irregular purplish-wine spots, ovate-triangular, apex acute, margins inconspicuously crenulate, imbricate, slightly asymmetrical, glabrous. **Petals** 1.5–2.3 × 0.5–0.7 cm, yellow toward margins and apex, bearing dense, minute purplish-wine spots along the central portion, elliptic, apex acute to obtuse, margins inconspicuously crenulate, imbricate at base, slightly asymmetrical, glabrous. **Stamens** 1.0–1.8 cm long, exerted. **Filaments** subfree. **Ovary** 0.6–1 cm long. **Style** 0.5–1.2 cm long, exerted. **Stigma** conduplicate-spiral. **Capsule** 1.2–1.6 cm long, chestnut-colored. **Seeds** 3–4 mm long, falcate.

Additional specimens examined. BRAZIL. Goiás: Mun. Niquelândia, 14°01'31"S, 48°16'47"W,

* Corresponding author.

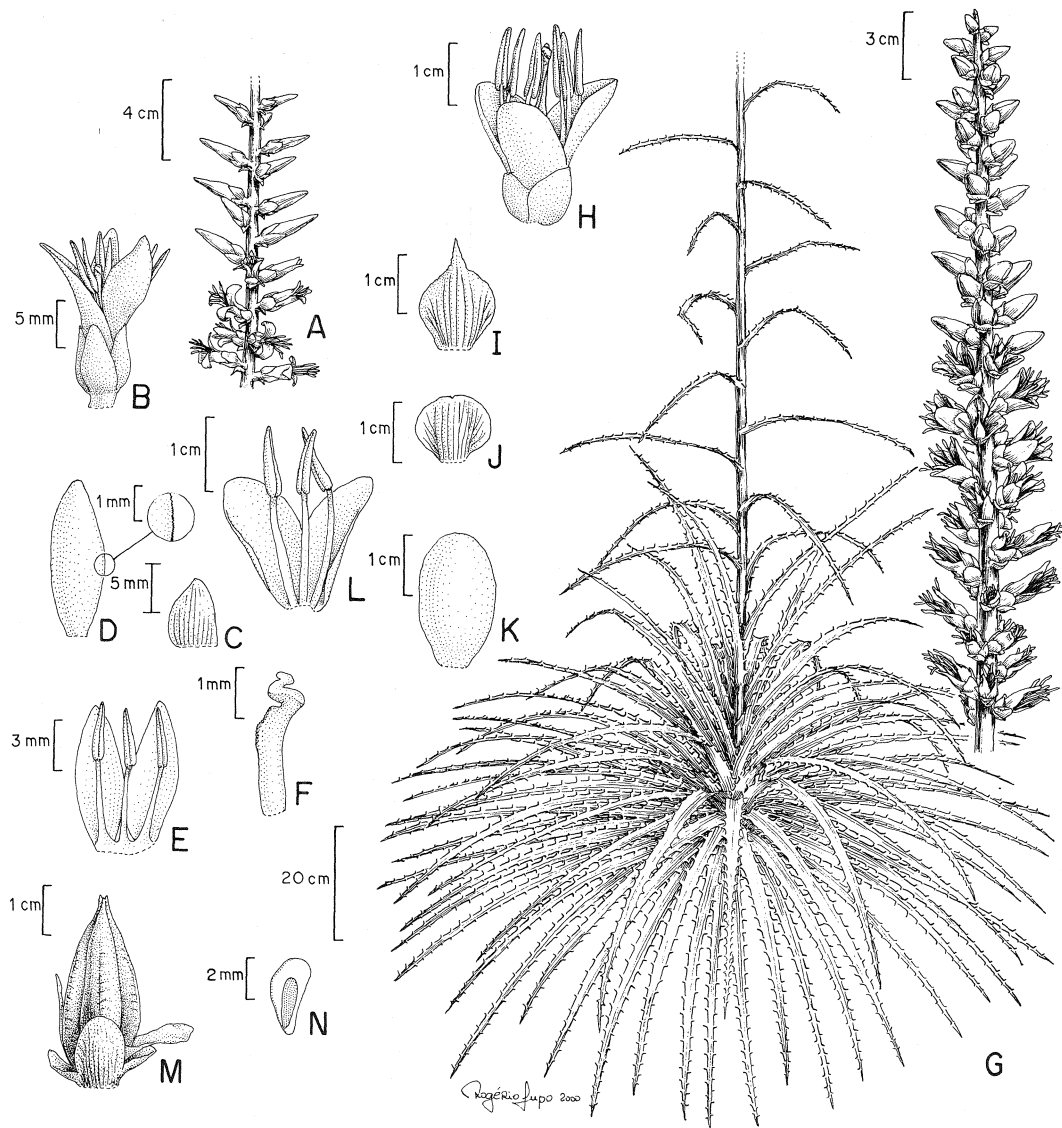


FIGURE 1. A–F. *Encholirium eddie-estevessii*. A. Portion of inflorescence. B. Flower. C. Sepal. D. Petal, showing detail of the margins. E. Petals and stamens. F. Stigma lobe (Esteves E-346, HB). G–N. *Encholirium maximum*. G. Habit. H. Flower. I. Floral bract. J. Sepal. K. Petal. L. Petals and stamens. M. Capsule. N. Seed (Forzza 1234, SPF).

15 Sep. 1998, Forzza *et al.* 1046 (CEN, NY, SPF, US).

Distribution and phenology. This species occurs on calcareous rock outcrops in cerrado vegetation of Goiás. Flowering occurs in May and the fruiting occurs in September.

Encholirium eddie-estevessii can be distinguished from the others species of the genus by the presence of distinctly short floral bracts, the basal ones much larger than the upper ones;

flowers with very short pedicels; and sepals and petals bearing purple-wine spots abaxially, with margins densely and inconspicuously crenulate.

Despite the unique set of morphological characteristics of this new species, it presents some relationship to *Encholirium spectabile*; however, *E. eddie-estevessii* can be easily distinguished from its closest relatives by its broadly triangular floral bracts (vs. lanceolate to ovate-lanceolate), sepals ovate-triangular, acute, yellow with very

TABLE 1. Comparison of subsessile-flowered *Encholirium* spp. (*E. maximum*, *E. brachypodum*, and *E. lymanianum*).

Characteristics	<i>E. maximum</i>	<i>E. brachypodum</i>	<i>E. lymanianum</i>
Inflorescence density	Laxly to almost densely flowered	Congested	Lax
Floral bract shape	Broadly obovate	Broadly obovate (rarely lanceolate)	Ovate-triangular or lanceolate
Vestiture of the rachis and flowers	Glabrous	Glabrous	Densely ferruginous-lanate
Sepal shape	Obovate and slightly asymmetrical	Ovate and symmetrical	Ovate and symmetrical
Sepal estivation	Imbricate	Not imbricate	Imbricate
Petal color	Yellow	Cream-greenish	Unknown

inconspicuous irregular purplish-wine spots (vs. narrowly ovate, obtuse, green or greenish with wine colored apex), and by the yellow petals with minutely purplish-wine spots along the central portion (vs. green or greenish).

Large populations of *Encholirium eddie-estevesii* were completely destroyed in the region of Serra da Mesa, Goiás, when the government built a dam to generate hydroelectric power. The ensuing lake flooded a vast area of the original habitat of *E. eddie-estevesii* and other poorly-known bromeliads. The few clones of this new species saved during the rescue activities were introduced to some live-plant collections.

This species is named in honor of its collector Eddie Esteves Pereira, who has contributed greatly to increasing knowledge on the Bromeliaceae from the central region of Brazil.

Encholirium maximum Forzza & Leme, sp. nov. TYPE: Brazil. Bahia: Mun. Oliveira dos Brejinhos, Serra da Água Quente, 16 Apr 1999, R.C. Forzza, A.M. Amorim & S.C. de Sant'Ana 1234 (Holotype: SPF; Isotypes: CEPEC, HB, K, MBM, NY, SP, US). FIGURE 1: G–N

Et *Encholirio brachypodo* L.B. Sm. & Read affinis sed inflorescentia subcongesta, rachidi haud occulta, sepalis per anthesin manifeste imbricatis, asymmetricis, obovatis et petalis flavis differt; et *E. lymaniano* Pereira & Martinelli affinis sed inflorescentia glabra, bracteis floriferis obovatis et sepalis obovatis differt.

Plant saxicolous, 1.2–3.8 m high, clustering or single. **Rosettes** 0.7–1 m in diameter. Leaves erect-arcuate. **Sheaths** 3.2–4 × 4.5–7.2 cm, reniform, chestnut-colored, margins entire. **Blades** 30–65 × 1.8–2.5 cm, narrowly triangular, apex attenuate, grayish, rarely green or reddish, densely lepidote, marginal spines 5–9 mm long. **Scape** 0.60–1.30 m long, 1.2–2.5 cm in diameter, terminal, erect, glabrous, greenish to bronze-colored. **Scape bracts** the lower ones foliaceous, exceeding the internodes but exposing the scape,

grayish to white-lepidote, reflexed, the upper ones shorter than the internodes, lanceolate, margins inconspicuously spinulose to entire, glabrous, erect, and clasping the scape. **Inflorescence** 0.6–1.5 m long, laxly to almost densely flowered, simple, rarely bipinnate at base; rachis pale green, glabrous. **Floral bracts** 1.3–2.2 × 1.3–1.7 cm, shorter than the flowers, chestnut-colored, broadly obovate, apex acuminate, margins inconspicuously serrulate, glabrous, clasping the flowers. **Flowers** subsessile. **Sepals** 0.9–1.3 × 0.9–1.3 cm, yellow, yellow-greenish or slightly chestnut-colored, obovate, apex rounded or retuse, margins entire, slightly asymmetrical, imbricate, glabrous. **Petals** 2.1–2.5 × 1.1–1.5 cm, yellow, ovate, apex rounded, margins entire, symmetrical, imbricate at base, glabrous. **Stamens** exserted, 3–3.2 cm long, filaments free. **Ovary** 2–2.2 cm long, green. **Style** 0.7–1.1 cm long, exserted. **Stigma** conduplicate-spiral. **Capsule** 2.7–3.3 cm long, chestnut-colored. **Seeds** 3–4 mm long, falcate.

Distribution and phenology. The species is known from the type collection only, at Oliveira dos Brejinhos, Bahia, Brazil. Flowering and fruiting were observed in April.

Encholirium maximum and its close relatives, *E. brachypodum* and *E. lymanianum*, are the only species in the genus with subsessile flowers. *Encholirium brachypodum* differs from the new species by the congested inflorescence with the rachis completely covered by the flowers, cream-greenish petals, and symmetrical and ovate sepals that are not imbricate. *Encholirium maximum* has a laxly flowered inflorescence, with the rachis exposed, imbricate sepals that are slightly asymmetric and obovate, and yellow petals. This new species can be distinguished from *E. lymanianum* by its glabrous inflorescence (i.e., floral bracts, sepals, and petals not densely ferruginous-lanate as in *E. lymanianum*), widely obovate to ovate floral bracts, and

obovate sepals (TABLE 1). The most distinctive characteristic of *E. maximum* is the huge size of the inflorescence compared to the other species in the genus, which inspired the species epithet.

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