

THE GENUS *ENCYCLIA* (ORCHIDACEAE, EPIDENDROIDEAE) IN MARANHÃO STATE, BRAZIL: NEW MORPHOLOGICAL DATA AND EXTENT OF DISTRIBUTION

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ABSTRACT. In this study, we report the diversity, geographical distribution, and ecology of the *Encyclia* species from the state of Maranhão, Brazil. For each species treated, we present morphological descriptions, geographic distribution maps, taxonomic and ecological comments, an identification key for the species occurring in the state and photographic plates. Three species were recorded: *E. gonzalezii*, *E. granitica*, and *E. linearifolioides*, with *E. gonzalezii* being endemic to Brazil. *Encyclia granitica* has been locally rediscovered approximately 93 years after its only known collection in Maranhão. We also included new morphological data for this species, for which a description of the fruits had not been available until now. We found that the epicarp of the three species exhibited significant morphological differences, which may aid in their identification and delimitation. Given the complicated taxonomy of the genus, further studies focused on the epicarp may determine the extent to which it can assist in distinguishing additional species and in assessing its phylogenetic signal.

KEYWORDS / PALABRAS CLAVE: Amazon Forest, Cerrado, fruits, frutos, orchids, orquídeas, Selva Amazônica, taxonomía, taxonomy

Introduction. *Encyclia* Hook. comprises approximately 200 Neotropical species of Orchidaceae, distributed from the southern United States (Florida) to northeastern Argentina (Carnevali *et al.*, 2023). It is a monophyletic genus within Laeliinae (Carnevali *et al.* 2023) and its species are epiphytic, lithophytic or occasionally terrestrial on leaf litter, recognized by ovoid, conical or slightly conical pseudobulbs, linear, narrowly oblong, lanceolate or elliptic leaves, an apical inflorescence and flowers with a trilobed lip (Bastos *et al.*, 2016, 2018, 2026; Toscano de Brito & Cribb, 2005). The presence/absence of stelidia (column wings) and

the surface of the ovary and shape, size, lobes and callosities of the lip are important characters for delimiting species within this genus (Bastos *et al.*, 2026; Meneguzzo, 2012).

In Brazil, 48 species of *Encyclia* are recognized, of which 29 are endemic (Bastos *et al.*, 2026; Pessoa *et al.*, 2025). In the state of Maranhão, three species occur: *E. gonzalezii* L.C.Menezes, *E. granitica* (Lindl.) Schltr. and *E. linearifolioides* (Kraenzl.) Hoehne (Bastos *et al.*, 2026; Ferreira *et al.*, 2022; Pessoa *et al.*, 2022). The state of Maranhão is located in an eotonal area between the Amazon, Cerrado and Caatinga

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Received 18 February 2026; accepted for publication 9 April 2026. First published online: 27 April 2026.

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domains (Spinelli-Araújo *et al.*, 2016) and harbors a wide variety of natural environments that are suitable for the occurrence of *Encyclia* species (Bastos *et al.*, 2026). However, there are still areas of the state that lack botanical collections, especially in the Amazon and Cerrado domains along the southern border of the state. The inclusion of newly documented populations is crucial for improving our understanding of the conservation status of these species, particularly given that Maranhão is one of the Brazilian states that is most affected by the expansion of agriculture and cattle livestock (Nepstad *et al.*, 1995).

From a taxonomic perspective, some of these species have incomplete descriptions, as is the case of *E. granitica*, for which the fruit has not yet been described (Lindley, 1841). Although this species was described more than a century ago, detailed information of the fruit remains unknown even in the most recent taxonomic revision of Brazilian *Encyclia* species (Bastos *et al.*, 2018). The most common information about fruits relies on their shape and size (Bastos *et al.*, 2018, 2026).

Therefore, in view of the limited sampling of *Encyclia* specimens in Maranhão, this study aimed to: (1) provide a taxonomic treatment of *Encyclia* species occurring in the state; (2) expand field sampling to document new populations and refine their known geographic distributions; (3) record ecological aspects and potential threats affecting the conservation of *Encyclia* species; and (4) describe fruit characters of *Encyclia* species as additional diagnostic features for species identification.

Materials and methods. The state of Maranhão (Fig. 1), located in the Northeast region of Brazil, lies between latitudes 1° and 10° S and longitudes 41° and 48° W and occupies an area of 331,983.293 km² (IBGE, 2026). The climate of Maranhão is of the type “Aw”, Tropical with dry winter season, with annual temperatures ranging from 18 to 40 °C and annual precipitation between 1200 and 1800 mm (Köppen, 1948).

The state comprises three phytogeographic domains as well as transition areas among them, with the Cerrado domain occupying 64% of the territory, followed by the Amazon at 35% and some Caatinga fragments, in addition to coastal phytophysionomies

in the north (IFNMA, 2024; IMESC, 2022; PPCDQ-MA, 2024; Silva *et al.*, 2016; Spinelli-Araújo *et al.*, 2016). In Maranhão, the Amazon and Cerrado domains have experienced increasing fragmentation due to deforestation and fires. Habitat loss is most pronounced in the Amazon domain, followed by the Cerrado, which has been heavily affected by agricultural expansion in the so-called arc of deforestation (Nepstad *et al.*, 1995). Even in protected areas, such as the Gurupi Biological Reserve, Mirador State Park and Chapada das Mesas National Park, fires and illegal deforestation threaten native species (IFNMA, 2024; IMESC, 2022; PPCDQ-MA, 2024; Spinelli-Araújo *et al.*, 2016).

Field collections were conducted between January 2020 and October 2025. The collected specimens were photographed and herborized according to Fidalgo & Bononi (1989), and their vouchers were deposited in the MAR and SLUI herbaria (acronyms according to Thiers, 2026). The specimens were identified with the aid of photographs of morphological details observed in the field, based on the original works (Hoehne, 1938; Menezes, 1991; Schlechter, 1919), type specimens available at JSTOR Plants (ITHAKA, 2026) and specialized literature on *Encyclia* (Bastos *et al.*, 2018, 2026; Ferreira *et al.*, 2022; Meneguzzo *et al.*, 2012; Oliveira *et al.*, 2021; Pabst & Dungs 1975, 1977; Sambin & Chiron, 2014; Silva *et al.*, 1999). The geographic distribution of *Encyclia* species was based on Bastos *et al.*, (2018, 2026), Ferreira *et al.*, (2022), Flora e Funga do Brasil (2026), and POWO (2026).

Based on the material collected in the field, we provide more detailed information on the fruits of *Encyclia* species from Maranhão. The inclusion of these additional characters does not constitute an emendation of the original descriptions according to Article 47.1 of the International Code of Nomenclature for algae, fungi, and plants (Turland *et al.*, 2025).

We also analyzed specimens from Maranhão deposited in the collections of the CEN, COR, ESA, HEPH, HJ, HTO, HUEFS, HUEG, IAN, IBGE, INPA, K, MBM, MG, MO, NY, R, RBR, RB, SLUI, SP, SPF, TEPB, UB and US herbaria, using the virtual collections of Re flora (2026) and SpeciesLink (2026). When images were not available in these repositories, we used the institutions' own digital platforms.

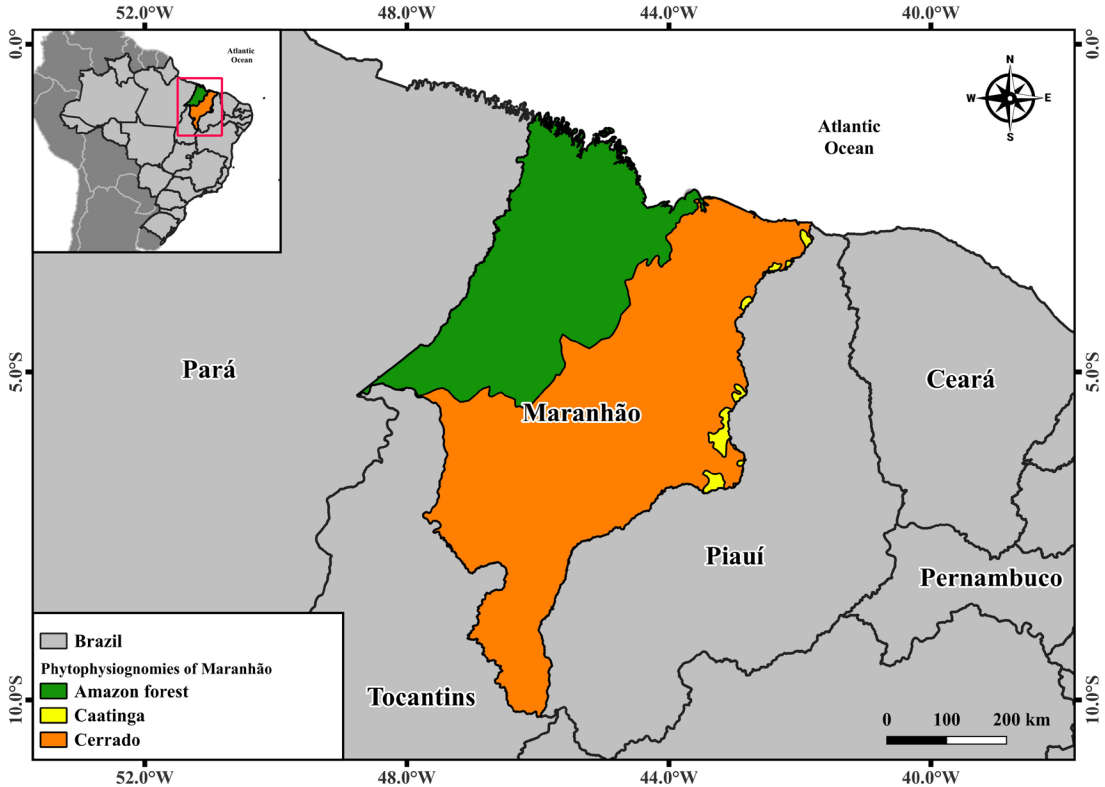


FIGURE 1. Location of the state of Maranhão, highlighting the Amazon, Cerrado and Caatinga domains. Elaborated by Miguel Sena.

Geographic distribution maps were produced using QGIS v.3.34.1, with the SIRGAS 2000 datum (QGIS Development Team, 2023).

Results. The occurrences of *E. gonzalezii*, *E. granitica*, and *E. linearifolioides* in the state of Maranhão were confirmed. A total of 20 specimens were collected during the field expeditions conducted in this study, comprising two of *E. gonzalezii*, ten of *E. granitica*, and eight of *E. linearifolioides*. Six specimens were located in herbarium collections: two of *E. gonzalezii* (see Ferreira *et al.*, 2022), one of *E. granitica*, and three of *E. linearifolioides*.

Encyclia gonzalezii was found exclusively as an epiphyte, whereas *E. granitica* has occasionally occurred as a terrestrial species in leaf litter, and *E. linearifolioides* was observed as epiphyte and occasionally rupicolous. The only previously recorded sample of *E. granitica* for Maranhão was collected in 1932 (Fróes 1998 at NY), and the ten new collections mark its rediscovery in the state after approximately 93 years.

The new fertile samples allowed a more detailed characterization of the fruits of the species, with the fruits of *E. granitica* being described for the first time, as they were not included in the original description by Lindley (1841) nor in the most recent revision of Brazilian *Encyclia* (Bastos *et al.*, 2018). In these three *Encyclia* species, the dehiscent fruits were described in greater detail (Fig. 2F, 4F, and 5F). They released anemochorous seeds through three longitudinal keels, which opened approximately 10 months after pollination and the onset of fruit development. The surfaces of the fruits of these three species showed significant differences in size, color, shape and surface texture, which can serve as an aid in their identification and description, as detailed in the morphological descriptions in Table 1. Future studies involving detailed observations of the fruits of other *Encyclia* species may help determine the extent to which these traits can be used to distinguish different species.

TABLE 1. Comparison of characteristics of the fruit of the three *Encyclia* species from Maranhão: *E. gonzalezii*, *E. granitica*, and *E. linearifolioides*.

Species characteristics	<i>E. gonzalezii</i>	<i>E. granitica</i>	<i>E. linearifolioides</i>
Fruit size (cm)	2.6–2.9 × 0.8	3.0–4.5 × 1.5–2.0	2.5–3.5 × 0.7–1
Fruit shape	Globose-fusiform	Globose-fusiform	Long-fusiform
Fruit coloration	Dark green	Green	Light green
Density of vesicles on the fruit surface	Densely punctuated	Densely punctuated	Sparsely punctuated
Shape and size of vesicles on the fruit surface	Linear-hemielipsoidal, 1 mm	Hemispherical to hemielipsoidal, 1–2 mm	Predominantly hemispherical, 0.5 mm
Color of vesicles on the fruit surface	Whitish	Whitish	Translucent

TAXONOMIC TREATMENT

Encyclia Hook., Bot. Mag. 55: t. 2831. 1828.

TYPE: *Encyclia viridiflora* Hook. Bot. Mag. 55: t. 2831. 1828. *Epidendrum viridiflorum* (Hook.) Lindl., Edwards's Bot. Reg. 28 (Misc.): 30. 1842

Epiphytic, terrestrial or lithophytic *herbs*, sympodial. *Rhizome* inconspicuous or conspicuous. *Pseudobulbs* conical, globose, ovoid, ellipsoid or pyriform, usually covered by membranous bracts (paleaceous sheaths). *Leaves* apical on the pseudobulb, 1–4, sessile, with entire margins, obtuse to acute apices and a truncate base; flat or canaliculate, lanceolate, oblong, linear or ovate, fleshy or coriaceous. *Inflorescence*, usually terminal, bearing 1–400 flowers, usually longer than the leaves, arranged in a simple panicle or raceme, lacking spathaceous bracts. *Flowers* bisexual, usually resupinate, with free sepals and free petals, pedicellate, generally fragrant and lacking trichomes or other indumentum. *Sepals* dorsal and lateral symmetrical or asymmetrical, lanceolate, oblanceolate, elliptic, ovate or spatulate, erect, oblong or reflexed, fleshy or membranaceous, cymbiform or falcate, with an attenuate base, entire or undulate margins and an acute, obtuse, mucronate or uncinat apex. *Petals* spatulate, lanceolate or cymbiform, elliptic, erect, reflexed or occasionally pendent, fleshy or membranaceous, with entire, slightly serrate or undulate margins, an acute, obtuse or mucronate apex and an

attenuate base. *Lip* trilobed, fused to half of the column or free from the column, usually with an isthmus, base lacking a claw, lateral lobes free or adnate relative to the median lobe; ovate, rectangular, triangular, dimidiate, oblong or falcate, forming an angle of 45° to 90° relative to the median lobe, overlapping it or not, with entire or undulate margins and an obtuse to acute apex; median lobe orbicular to cordate, obovate, rhombic, elliptic, obdeltate, spatulate, conduplicate, reniform, flat or sinuous, with entire, undulate or fimbriate margins, an acute to emarginate or uncinat apex, with an isthmus and a longitudinal callus with a suture in the central part of the lip, cymbiform or dolabriform, with an acute to emarginate apex, truncate, bifid or trifid and flabellate. *Column* clavate, semi-clavate or dolabriform, with or without two arms near the stigma; arms ovate, rounded, quadrate or triangular, with an acute to obtuse apex; clinandrium with a tridentate or unidentate apex, lateral teeth triangular, rounded or corniform, with an acute, truncate or premorse apex; median tooth triangular, with an acute apex, bearing the two arms on the column, *stigma* ovate, rounded, obovate or triangular, concave, *viscid*, with or without basal hooks. *Rostellum* apically curved. *Pollinia* 4, waxy, in pairs, of equal size, laterally flattened or ovate to elliptic, parallel, yellow, with a linear and granular caudicle. *Fruit* capsular, fusiform to globose-fusiform, smooth or with verrucose or spiculate vesicles.

KEY FOR THE *ENCYCLIA* SPECIES OF MARANHÃO

1. Adult leaves > 50 cm long and > 2 cm wide; flowers with light beige petals and sepals, with vinaceous striations and spots; callus on the lip acute at the apex..... *E. granitica*
- 1a. Adult leaves < 50 cm long and < 2 cm wide; flowers with beige to brownish-beige petals and sepals, without vinaceous striations and spots; callus on the lip trifold or flabellate at the apex..... 2
2. Lip greenish at the base and pinkish at the apex, lobes with acute apices and trifold apex callus; column with a bidentate apex; fruit dark green, with hemispherical vesicles densely distributed over most of the surface..... *E. gonzalezii*
- 2a. Lip beige at the base and white at the apex, lobes with rounded apices and flabellate apex callus; column with a tridentate apex; fruit light green, with hemispherical vesicles sparsely distributed over the surface..... *E. linearifolioides*

Encyclia gonzalezii L.C.Menezes, Bol. CAOB 3(2): 19. 1991. Fig. 2, 3A.

TYPE: BRAZIL. Distrito Federal: border with Goiás State, Rio Descoberto, July 1990, *Cazelato sub Menezes s.n.* (holotype: UB!).

Epiphytic. *Rhizome* inconspicuous. *Pseudobulbs* 2.9–4.9 × 1.1–2.1 cm, conical, elongate, reddish. *Leaves* (1–3) 11.5–41.9 × 0.6–1.7 cm, lanceolate, flattened, coriaceous, with an acute apex. *Inflorescence* 11.4–51.9 × 0.10–0.14 cm, terminal, racemose, cylindrical, glabrous, erect to slightly arched, bearing 8–23 flowers; peduncle 8.4–12.0 cm long; rachis 3.0–39.9 cm long; floral pedicel sparsely verrucose. *Flowers* with greenish-brown sepals and petals and a white lip with brownish-reddish striations; *pedicel* and *ovary* 1.7–3.0 cm long, verrucose. *Dorsal sepal* 1.0–1.1 × 0.3–0.5 cm, lanceolate, with an obtuse apex. *Lateral sepals* 1.0–1.1 × 0.2–0.4 cm, elliptic, falcate, with an acute apex. *Petals* 1.1–1.3 × 0.2–0.4 cm, lanceolate, with an acute apex. *Lip* trilobate, 1.1–1.3 × 0.7–1.0 cm, unguulate (0.14 × 0.20 cm); lateral lobes 0.6–0.7 × 0.2–0.3 cm, rectangular, with rounded lateral margins and straight apices; median lobe rounded, with rounded margins, *callus* cymbiform, apex trifold, 0.4–0.5 × 0.5–0.6 cm, linearly branched with small brownish-reddish spots and veins. *Column* 0.6–0.7 × 0.2 cm, clavate, bidentate at the apex, with a pair of downward-facing arms, rectangular at the base and rounded at the apex (*ca.* 0.1 cm long), *stigma ca.* 0.1 × 0.1 cm, triangular. *Anther cap ca.* 0.1 × 0.1 cm long, elmiform, keeled at the apex, purplish, quadrangular in frontal view, with an emarginate apical portion. *Pollinia* 4, yellow, waxy, ovate, laterally flattened. *Fruit* 2.6–2.9 × 0.8 cm, globose-fusiform, dark green, with six longitudinal sulcate keels (three associated with dehiscence), surface densely marked with linear-hemielipsoidal

vesicles (*ca.* 1 mm long), whitish, generally arranged transversely to the fruit.

MATERIAL EXAMINED: BRAZIL. **Distrito Federal:** Brasília, Germplasm bank of the Brasília Botanical Garden. Cultivated in a clay pot, 17 March 2002, *R. Rodrigues Silva* 625 (HEPH). Distrito Federal, Floresta do Capão Comprido, 13 November 1998, *Sampaio et al.* 257 (CEN). **Goiás:** Campos Belos, Pouso Alto, in a stream by a precast concrete bridge. Cerrado biome, dry forest physiognomy, beside a stream, 11 October 2010, *T.E.C. Meneguzzo et al.* 570 (UB). Divinópolis de Goiás, 14 October 2009, *C. Bastos* 298 (HUEFS). Guaraitá, Distrito de Guarani de Goiás, at a waterfall. Cerrado biome, gallery forest physiognomy, 9 October 2010, *T.E.C. Meneguzzo et al.* 568 (UB). São Domingos, Galheiros River. Cerrado biome, dry forest physiognomy, beside a stream, 10 October 2010, *T.E.C. Meneguzzo et al.* 569 (UB). São Domingos, Fazenda São Domingos, deciduous forest physiognomy, 10 March 2004, *A.A. Santos et al.* 2297 (CEN). São Domingos, 15 April 1999, (flowered in cultivation in October 2001), *A.A. Santos et al.* 410 (CEN). São Domingos (flowered in cultivation from mid-August to mid-September 2003), *A.A. Santos et al.* 410A (CEN, HUEFS). **Maranhão:** Carolina, Rio Farinha, Cachoeira das Mesas, 5 October 2025, *A.W.C. Ferreira* 1645 (SLUI). Estreito, near the Carolina border, Cachoeira da Prata, 17 March 2017; (blooming in cultivation on 15 November 2019), *I. Zanandrea et al. s.n.* (SLUI 5945); *Ibid.*, 17 March 2017; (blooming in cultivation on 10 November 2020), *I. Zanandrea s.n.* (SLUI 5946). Estreito, Parque Nacional da Chapada das Mesas, Cachoeira da Prata, 23 November 2021, *M.J.C. Silva & A.V. Scatigna* 428 (SLUI).

DISTRIBUTION AND ECOLOGY: *Encyclia gonzalezii* is endemic to Brazil (POWO, 2026), occurring exclusively within the Cerrado domain, with confirmed records from the northern (Tocantins), northeastern (Maranhão) and central-western (Distrito Federal and Goiás) regions. It is typically found in ripar-

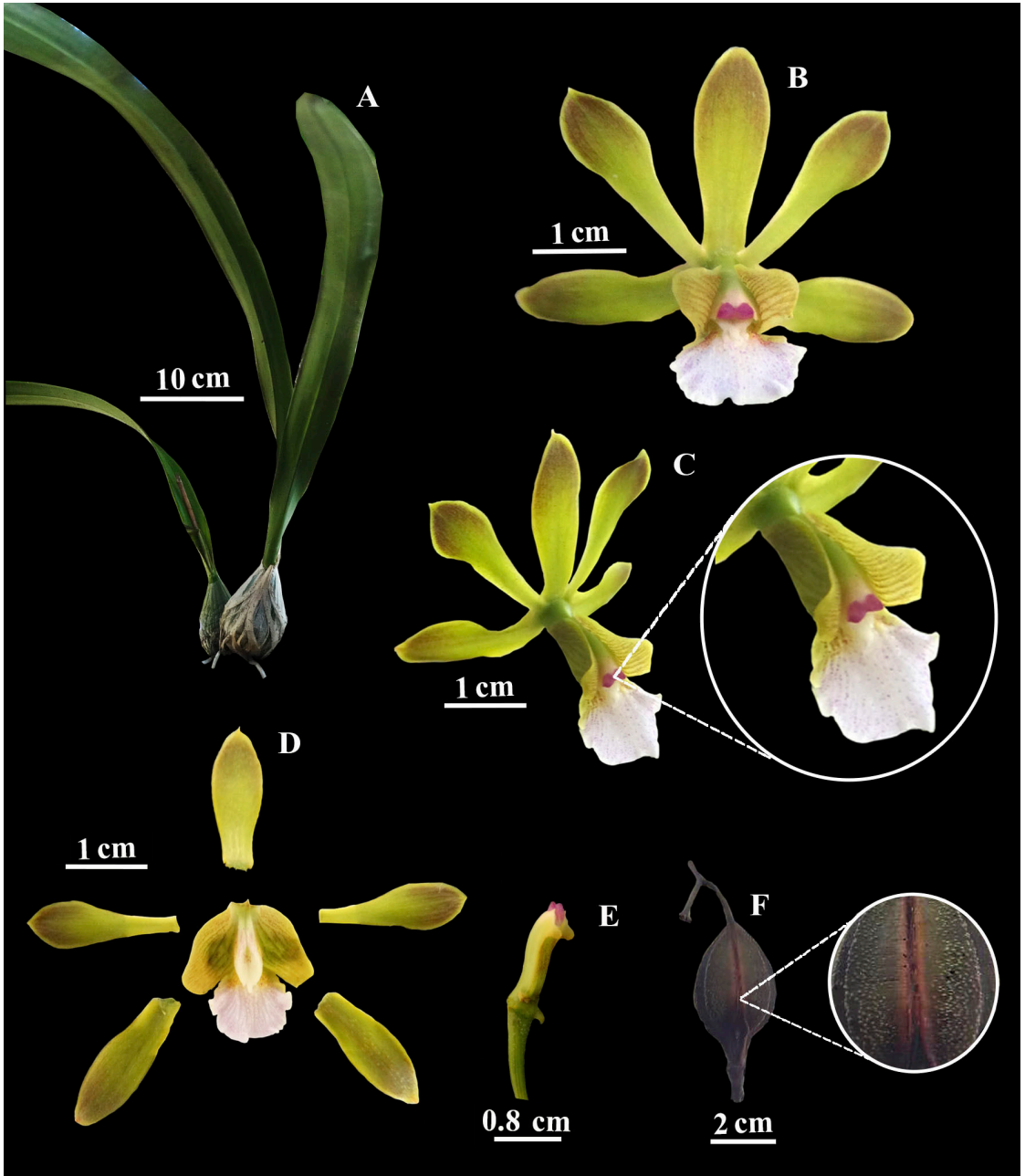


FIGURE 2. *Encyclia gonzalezii*. **A.** Habit, pseudobulbs and leaves. **B.** Flower, frontal view. **C.** Flower, oblique view, highlighting the lip. **D.** Perianth. **E.** Column, lateral view. **F.** Fruit, highlighting the verrucose surface. Photographs by Alessandro Ferreira and adapted from Ferreira *et al.* (2022). Based on I. Zanandrea *et al. s.n.* (SLUI 5945).

ian forests, dry forests with limestone outcrops, near rivers and streams or in small grottos, riparian and gallery forests, and occasionally as a rupicolous species on quartzite rocks (Bastos *et al.*, 2016,

2018, 2026; Ferreira *et al.*, 2022; Meneguzzo, 2012). In Maranhão, *E. gonzalezii* can be found in gallery forests, in rapids and waterfall areas within the Chapada das Mesas National Park region. In



FIGURE 3. *Encyclia* species in the field. A. *Encyclia gonzalezii* B. *E. granitica* C. *E. linearifolioides*. Photographs by Alessandro Ferreira.

this study area, *E. gonzalezii* was not observed with a rupicolous habit, being found in the canopy of *Terminalia* sp. (Combretaceae) trees (Fig. 3A).

PHENOLOGY: *Encyclia gonzalezii* flowers between September and November, during the dry season of the Cerrado in Maranhão (which occurs from May

to October) and the beginning of the rainy season (which occurs from November to April). The flowers of *E. gonzalezii* emit a subtle sweet fragrance, noticeable during the day only when approaching the flowers. From 6:00 pm, the fragrance is no longer detectable to the human nose. The flowers last between 18 and 25 days.

NOTES: *Encyclia gonzalezii* is similar to *E. argentinensis* (Speg.) Hoehne, differing by the presence of purple coloration in its vegetative parts, regardless of exposure to sunlight, as well as its floral morphology, in which the median lobe is rounded in *E. gonzalezii*; whereas, in *E. argentinensis*, it is elliptic to ovate or rounded (Bastos *et al.*, 2016, 2018, 2026; Meneguzzo *et al.*, 2012).

Encyclia granitica (Lindl.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 74. 1919. *Epidendrum graniticum* Lindl., J. Bot. (Hooker) 3: 83. 1841. *Epidendrum oncioides* var. *graniticum* (Lindl.) Lindl., Fol. Orchid. 3: 11. 1853. Fig. 3B, 4.

TYPE: GUYANA. *s. loc.*, 1840, *Schomburgk 195* (holotype: K 583899!; isotype: BM 47557!, BM 47556!, LE, OXF, U).

Epiphytic, occasionally terrestrial in leaf litter or rupicolous. *Rhizome* conspicuous. *Pseudobulbs* 3.0–11.0 × 1.0–4.3 cm, conical, elongate, green. *Leaves* (1–2), 6.5–70.0 × 1.0–3.0 cm, lanceolate to broadly lanceolate, flattened, with an acute apex. *Inflorescence* 32–41.69 × 0.10–0.45 cm, terminal, racemose, cylindrical, glabrous, erect or slightly arched, bearing 4–30 flowers; *peduncle* 24.5–82.0 cm long; *rachis* 8.1–8.7 cm long. *Flowers* with greenish-purple sepals and petals. *Lip* white-purple. *Pedicel and ovary* 0.9–3.1 cm long; floral pedicel sparsely verrucose. *Dorsal sepal* ca. 1.6 × 0.6 cm, lanceolate, with an acute apex. *Lateral sepals* ca. 1.6 × 0.5 cm, lanceolate, with an acute apex. *Petals* ca. 1.5 × 0.6 cm, spatulate, with an acute apex. *Lip* trilobate, ca. 1.5 × 2.0 cm, unguulate (0.20 × 0.15 cm); *lateral lobes* 0.6 × 0.3 cm, with undulate margins, obtuse apex; median lobe rounded, white with purple striations, conduplicate, with undulate margins, apex uncinately mucronate; *callus* cymbiform, acute apex, with the median tooth larger than the

lateral ones, ca. 0.6 × 0.4 cm, whitish, originating at the isthmus between the median lobes and aligned with the median lobe of the lip, with purple-toned lines. *Column* clavate, 0.8 × 0.3 cm, tridentate at the apex of the clinandrium, lateral teeth short, cordate, premorse apex, median tooth triangular, acute apex; pair of columnar arms downward-facing, rectangular at the base, slightly rounded at the apex and slightly inclined inward; *stigma* with basal hooks, ca. 0.2 × 0.2 cm. *Anther cap* elmiform, keeled at the apex, yellow. *Pollinia* 4, yellow, waxy, ovate, laterally flattened. *Fruit* 3.0–4.5 × 1.5–2.0 cm, globose-fusiform, moss green, with six longitudinal sulcate keels (three associated with dehiscence), surface densely marked with hemispherical to hemielipsoidal vesicles (1–2 mm long), whitish, arranged both transversely and longitudinally on the fruit, including along the region of all six keels.

MATERIAL EXAMINED: BRAZIL. **Amapá:** Calçoene, BR 156, near the governmental road camp “Carnot,” 10 December 1984, *S.A. Mori et al. 17351* (NY). Macapá: along the Porto Platon–Macapá road, 18 September 1961, *J.M. Pires et al. 51099* (IAN). Amapá, 14 October 1960, *J.M. Pires 48824* (IAN). Oiapoque, Rio Oiapoque, Cachoeira Anauá, 74 m, 11 August 1960, *H.S. Irwin et al. 47421* (IAN). Oiapoque, Rio Oiapoque, low slopes of campina forest, 15 October 1960, *J.M. Pires & L.Y. Th. Westra 48862* (NY). Oiapoque, Rio Oiapoque, large rock, 29 August 2005, *A. Lobão et al. 775* (IAN). Porto Grande, 3 December 1976, *s.c., s.n., 26549* (ESA). **Maranhão:** Boa Vista do Gurupi, Povoado Mariana, near Rio Gurupi, 24 August 2022, *A.W.C. Ferreira 916* (SLUI). *Ibid.*, 26 August 2022, *A.W.C. Ferreira 981* (SLUI); *Ibid.*, 26 August 2022, *A.W.C. Ferreira 982* (SLUI). Carutapera, Povoado Caranandiua, campinarana near Gurupi River, 25 August 2022, *A.W.C. Ferreira 929* (SLUI); *Ibid.*, 13 October 2023, *Silva et al. 190* (SLUI 9063); *Ibid.*, 13 October 2023, *M.S. Silva et al. 194* (SLUI 9067); *Ibid.*, 13 October 2023, *M.S. Silva et al. 212* (SLUI 9085); *Ibid.*, 21 September 2025, *A.W.C. Ferreira 1623* (SLUI); *Ibid.*, 21 September 2025, *A.W.C. Ferreira 1638* (SLUI); Campinarana da Passagem, 14 October 2023, *M.S. Silva et al. 277* (SLUI 9150). Maracaçumé, Mata da Cachoeira, Maracaçumé River region, 20 November 1932, *R.L. Fróes 1998* (NY); *Ibid.*, 20 November 1932, *R.L. Fróes 1998* (AMES). **Minas Gerais:** Medina, BR116 highway, 10–15 km south, 20 November 1985, *G. Hatschbach & J.M. Silva 50012* (RB). Rio Doce, 11 June 1949, *M.G. Magalhães 5139* (IAN). **Pará:** Acará, Guarajá River, 25 September 1964, *Oliveira 3154* (IAN). Belém, 25 May 1957, *J.M. Pires 6587* (IAN). Belém, 10

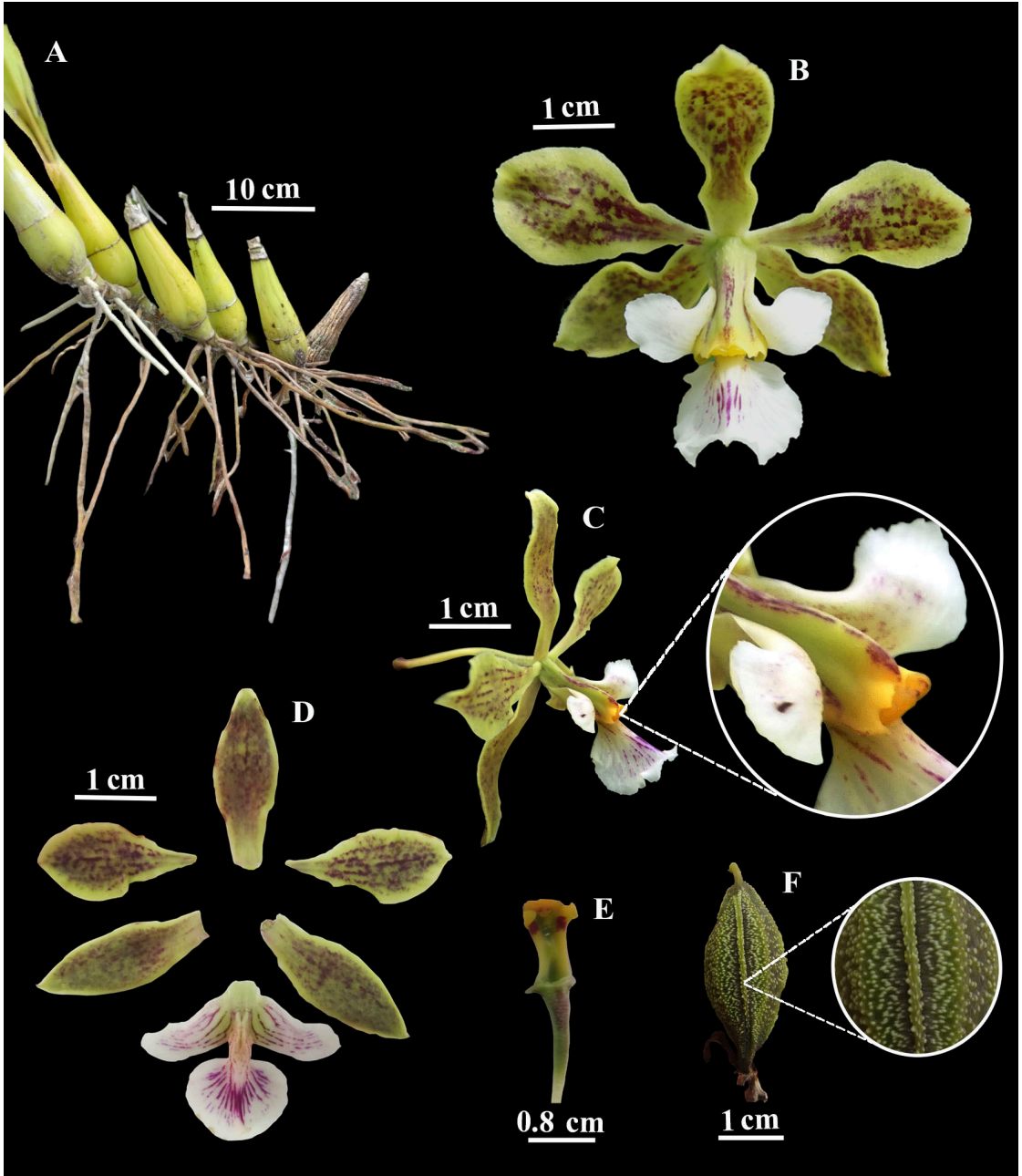


FIGURE 4. *Encyclia granitica*. A. Habit. B. Flower, frontal view. C. Flower, oblique view, highlighting the lateral lobes of the lip. D. Perianth. E. Column, frontal view. F. Fruit, highlighting the verrucose surface. Photographs by Alessandro Ferreira based on *A.W.C. Ferreira 1638* (SLUI 11628).

July 1961, *J.M. Pires 7833* (IAN). Belém, cultivated at the IAN Botanical Garden, 27 May 1955, *P.V.D. Ledoux 273* (IAN). Belém, cultivated at the IAN Botanical Garden, 31 July 1954, *P.V.D. Ledoux 93* (IAN). Belém, cultivated at

the IAN Garden, originating from Campina do Caembe in Vigia, 26 May 1955, (flowered in cultivation in May 1953), *P.V.D. Ledoux 297* (IAN). Belém, south of Belém, 14 August 1986, *Croat 62155* (MG, MO). Bragança, rail-

way, 16 June 1952, *R.L. Fróes 28460* (IAN). Castanhal, 5 May 1994, *Silva 31* (MG). Igarapé Açu, 24 December 1993, *Magalhães s.n.* (MG 147815). Igarapé Açu, cultivated at IAN, pot no. 334, 5 June 1958, *J.M. Pires 6741* (IAN). Irituia, 2 July 1995, *Silva & Silva 425* (MG). Maracanã, Maiandéua Island, 26 October 2000, *Costa et al. 108* (MG). Marapanim, Vila Marudá, 16 July 1991, *Bastos et al. 1045* (MG). Mojú, margins of the Mojú River road, open low campina, sandy soil, 18 August 1983, *J. Revilla et al. 8292* (MO). Ourém, Fazenda Batuira, 1 May 1994, *Silva 304* (MG). Salinópolis, Marieta Beach, 25 October 2005, *Rocha et al. 321* (MG). Sete Varas airstrip by Curua River, campina or gallery forest along dry stream, 4 August 1981, *J.J. Strudwick et al. 4071* (MO). Tucuruí, Air Force reserve, 19 August 1980, *Braga 3604* (INPA). Vigia, straw campina, 20 March 1991, *Silva & Silva 100* (MG). Vitória do Xingu, 16 September 2013, *C.A.S. Silva, s.n.* (RB). **Roraima:** Cantá, Serra Grande, 12 November 2014, *R.C. Forzza et al. 8320* (RB). Mount Roraima, July 1897, *Quelch & McConnell 279* (K). Mucajá, ca. 50 km south of Boa Vista, 17 July 2002, *L.B. Bianchetti 1721* (CEN).

DISTRIBUTION AND ECOLOGY: *Encyclia granitica* is endemic to South America, with confirmed occurrences in Brazil, French Guiana, Guyana, Suriname and Venezuela (POWO, 2026). In Brazil, it occurs exclusively within the Amazonian phytogeographic domain, with confirmed records in the northern (Amapá, Amazonas, Pará and Roraima) and northeastern (Maranhão) regions, typically inhabiting campinarana, gallery forest, restinga and vegetation over rocky outcrops (Bastos *et al.*, 2026). In Maranhão, it was found less frequently as an epiphyte in gallery forests and more commonly as a terrestrial plant in the leaf litter or at the base of phorophytes in sunny sandy campinarana areas in the Gurupi River region, along the border with the state of Pará. Prior to this study, there was only a single record of *E. granitica* for Maranhão, collected in the Maracaçumé River region, likely in the municipality of Governador Nunes Freire, in November 1932 (*Fróes 1998*, NY). Therefore, in this study, *E. granitica* was locally rediscovered approximately 93 years after its first record.

In this campinarana region, individuals growing in shaded environments have light green, elongated and arching leaves (20–70 × 1.2–2.8 cm), whereas those observed in more exposed or full-sun areas have yellowish-green, erect leaves that are shorter (14–30 × 1.0–1.5 cm). The flowers emit a strong, sweet fra-

grance. The frequent annual fires carried out by cattle ranchers in this sandy campinarana region represent the greatest threat to *E. granitica* and other local plant and animal species. It was common to observe charred *E. granitica* individuals.

In these sunny areas with sandy soils of the campinaranas (Fig. 3B), individuals grow at the base of phorophytes or partially shaded in the leaf litter. This low-to-the-ground positioning at the base of the phorophytes is likely related to the dry season, which occurs from July to December in the study area. Growing at the base of phorophytes protects the plants from sun exposure during the hottest part of the day. Their proximity to the ground and the leaf litter may mitigate the effects of drought, as it creates a cooler micro-environment, especially during the dry season. In the study area, we observed that *E. granitica* occasionally grows in the canopy or mid-trunk of phorophytes, but most often at the base of the phorophytes (near the leaf litter), primarily on yellow ipê, *Tabebuia aurea* (Silva Manso) Benth. & Hook.f. ex S.Moore (Fabaceae); murici, *Byrsonima crispa* A.Juss. (Malpighiaceae); *Byrsonima* sp. (Malpighiaceae); *Clusia fockeana* Miq., *Clusia sellowiana* Schldl. (Clusiaceae); and *Astrocaryum* sp. (Arecaceae).

PHENOLOGY: *Encyclia granitica* flowers between August and November during the dry season of the Amazon region of Maranhão (which occurs from July to December).

NOTES: To date, *E. granitica* is the only species of this genus to have been observed in the Amazon region of Maranhão. Two types of flowers were observed in the study area in regard to lip morphology at the beginning of anthesis: individuals with labella flattened from the outset, and individuals with labella initially shaped like a ridge, with the lateral lobes turned downward. After four or five days, the lip becomes flattened. The flowers of *E. granitica* emit a strong, sweet fragrance, especially during the day. After 6:00 pm, the scent decreases in intensity. The flowers last between 20 and 30 days. Details on the fruits of *Encyclia granitica* were not available either in the original description (Lindley, 1841) or in the most recent revision of *Encyclia* in Brazil (Bastos *et al.*, 2018) and have been included here.

Encyclia linearifolioides (Kraenzl.) Hoehne, Arq. Bot. Estado São Paulo 1: 19. 1938. *Epidendrum linearifolioides* Kraenzl., Kongl. Svenska Vetensk. Acad. Handl., n.f., 46(10): 55. 1911. Fig. 3C, 5.

TYPE: PARAGUAY. *s. loc.*, 1894, fl., Lindmann, A. 3895 (holotype: HBG!).

Epiphytic or occasionally rupicolous, 10.7–31.0 cm long. *Rhizome* inconspicuous. *Pseudobulbs* conical 1.4–2.9 × 1.0–1.4 cm, usually purplish when exposed to the sun. *Leaves* (1–2), 14–30 × 0.4–0.5 cm, narrow-lanceolate, apex acute, flat, coriaceous, green, with a longitudinal central vein. *Inflorescence* terminal, simple or panicle, 3–30 flowers, erect to slightly arching, glabrescent, 6–20 cm long; *peduncle* 2.5–7.5 cm long and *rachis* 3.5–12.5 cm long; *floral pedicel* sparsely verrucose. *Flowers* with sepals and petals greenish, occasionally yellow, lip yellowish, with an intense, sweet fragrance. *Dorsal sepal* lanceolate, wider in the upper portion and narrower at the base, greenish, reflexed, 1.7–1.8 × 0.4–0.5 cm. *Lateral sepals* lanceolate, greenish, reflexed, membranaceous, apex acute, margin entire, 1.6–1.9 × 0.3–0.5 cm. *Petals* lanceolate, apex acute, margin entire, greenish, reflexed, membranaceous, 1.4–1.7 × 0.4 cm. *Lip* trilobate, *ca.* 1.4 cm long; lateral lobes free from the median lobe, ovate to dimidiate, 0.6–0.8 × 0.3–0.5 cm, yellowish, not overlapping the median lobe and positioned at an angle of about 45 degrees in relation to it, margin entire, apex obtuse; median lobe rounded to elliptic, 0.4–0.7 × 0.5–0.8 cm, yellowish, margin undulate, apex emarginate to obtuse; *callus* cymbiform, apex flabellate, *ca.* 0.8 × 0.4 cm, trifold, apices rounded. *Column* clavate, 0.8–1.0 × 0.2–0.3 cm, apex tridentate, teeth triangular, pair of lateral teeth slightly evident, directed downward, broadly triangular, apex slightly serrulate and rounded; *stigma* rounded. *Anther cap* elmiform, keeled at the apex, dark purple, 0.1 × 0.2–0.3 cm. *Pollinia* 4, waxy, yellow, ovate, laterally flattened. *Fruit* 2.5–3.5 × 0.7–1 cm, long-fusiform, light green, with six sulcate longitudinal keels (three of them associated with dehiscence), surface sparsely punctate with predominantly hemispherical vesicles (*ca.* 0.5 mm long), translucent.

MATERIAL EXAMINED: BRAZIL. **Distrito Federal:** Brasília, Chapada da Contagem, 1,025–1,150 m, 19 October 2005, Salles *et al.* 3815A (HEPH); APA da Cafuringa, 11 Oc-

tober 2006, A.C. Amaral & G. Pereira-Silva 36 (CEN); Germplasm bank of Brasília Botanical Garden, cultivated in a clay pot, 17 October 2002, R. Rodrigues Silva 628 (HEPH); cultivated in the JBB-ORQ nursery, number 1756, 31 October 2005, A.J.H. Salles 3829 (HEPH); Fercal, 889 m, 12 October 1992, Bianchetti & Batista *s.n.* 26615 (CEN). **Goiás:** Alto Horizonte, border between the farms of Mr. Joaquim Bueno and Mr. Jair Eustáquio, 27 November 2009, J.E.Q. Faria 437 (HUEG, UB). Alto Paraíso de Goiás, Chapada dos Veadeiros, 27 September 1967, DeHaas *et al.* 402 (HB). Campo Alegre de Goiás, GO-118 Highway, near the Paranã River, 18 October 1990, Hatschbach *et al.* 54733 (MBM). Campinaçu, road to Fazenda Praia Grande, B.M.T. Walter *et al.* 2812 (CEN); Serra da Mesa, 28 January 1997, B.M.T. Walter *et al.* 3683 (CEN, SP). Cavalcante, Santo Antônio River, 22 May 2002, G. Pereira-Silva & E. S. G. Guarino 6470 (CEN); Bridge over the Carmo River, 8 November 2000, B.M.T. Walter *et al.* 4589 (CEN, HUEFS). Colinas do Sul, riverbank, 11 December 1991, L.B. Bianchetti & G. Pereira-Silva 1188 (CEN); Serra Negra Lake, 27 February 1997, S.P. Cordovil-Silva *et al.* 557 (CEN). Goiânia, 23 November 1964, Heringer 9955 (UB). Serranópolis, RPPN Pousada das Araras, 26 September 2005, L.F. Souza 2606 (HJ). Iporá, Fazenda Lage, 11 October 2008, Meneguzzo *et al.* 21 (UB); Fazenda Lage, 11 October 2008, Meneguzzo *et al.* 23 (UB). Minaçu, Serra da Mesa power plant, 291 m, 1 December 1998, M.F. Simon 86 (UB). Niquelândia, Dolina, between Uruaçu and Niquelândia, 7 November 1992, B.M.T. Walter 2033 (CEN); Macêdo, CNT, *ca.* 2.5 km from the nickel mine (gully), 20 October 1996, M.L. Fonseca 1249 (IBGE); rocky hill, Fazenda Água, 14 August 1996, M.L. Fonseca *et al.* 1087 (IBGE). Nova Roma, Ourominas–Nova Roma road, 3 December 2003, Silva *et al.* 1211 (HUEFS, RB, SPF and UB). Planaltina, 4 November 2008, T.E.C. Meneguzzo & L.C. Santos 24 (UB); 4 November 2008, T.E.C. Meneguzzo & L.C. Santos 26 (UB); Rio Piranha, cultivated at IAN, 25 November 1961, J.M. Pires 7838 (IAN). Novo Gama, *s. loc.*, 19 October 1963, J.M. Pires 51157 (UB). Serra Dourada, 9 June 1960, E.Y. Dawson 15176 (MO). **Maranhão:** Carolina, right bank of the Tocantins River, 24 April 2008, Pereira-Silva *et al.* 13402 (CEN); Parque Nacional da Chapada das Mesas. Site 1 – Buenos Aires. Collection point 6, bank of the Farinha River, 20 October 2015, Sevilha *et al.* 5420 (CEN). Carolina. Parque Nacional da Chapada das Mesas, waterfall on the Farinha River, 22 November 2021, Silva & Scatigna 407 (SLUI). Estreito. Road to Cachoeira da Prata, 13 October 2025, Ferreira 1671 (SLUI). Imperatriz, Arara Azul municipal nursery, 25 July 2023, Ferreira *et al.* 1236 (SLUI). Mirador, Parque Estadual do Mirador, 23 August 1998, G.M. Conceição & J.A. Castro 326 (TEPB). Montes Altos, 11 November 1966, *s. leg.*, *s.n.* (ESA 22505).

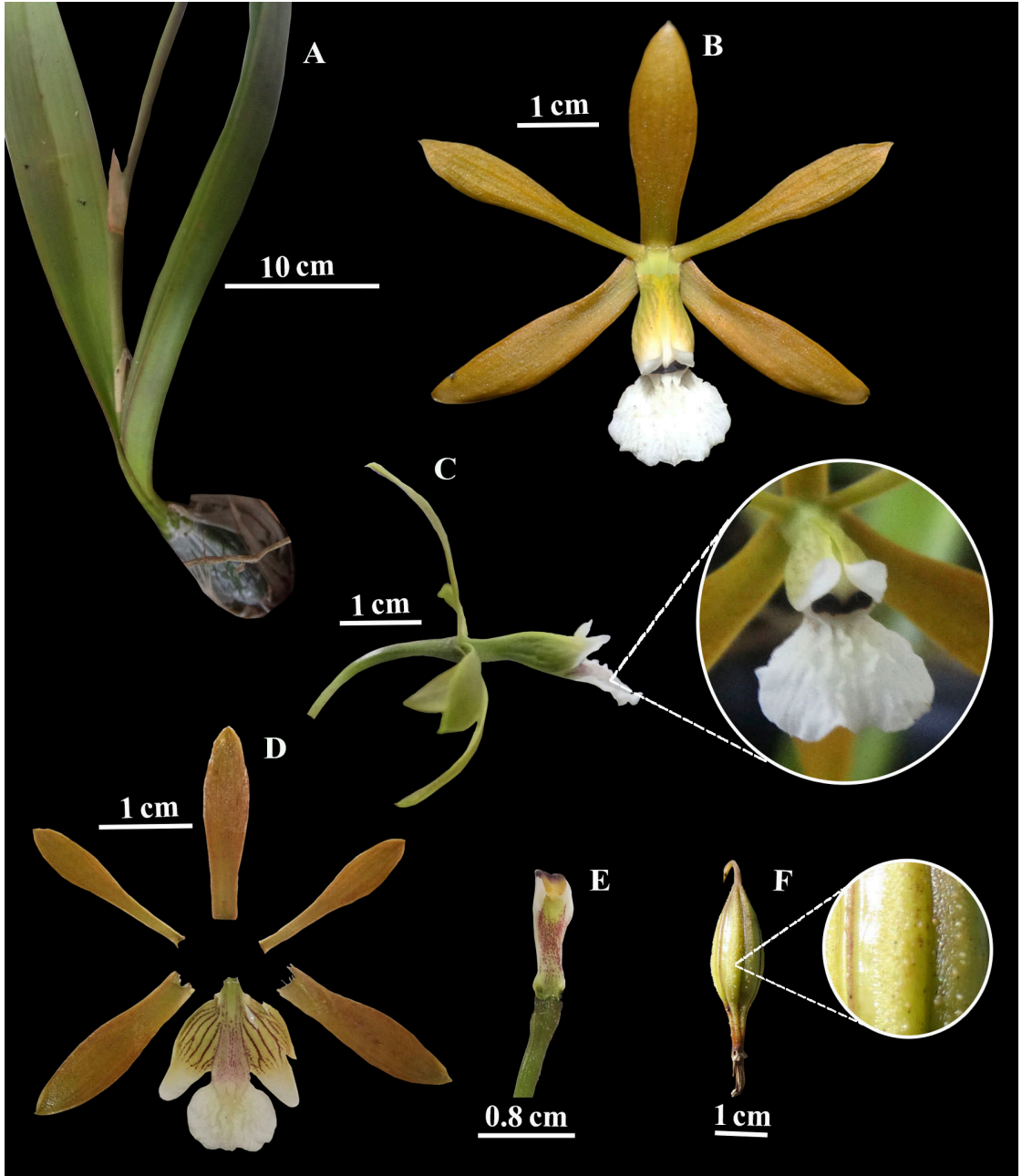


FIGURE 5. *Encyclia linearifolioides*. **A.** Habit, pseudobulb and leaves. **B.** Flower, frontal view. **C.** Flower, oblique view, highlighting the lip. **D.** Perianth. **E.** Column, frontal view. **F.** Fruit, highlighting the verrucose surface. Photographs by Alessandro Ferreira based on *A.W.C. Ferreira 1612* (SLUI 11626).

Ribamar Fiquene, Road to Fazenda 3R, 25 July 2023, *Ferreira et al. 1237* (SLUI). São Pedro dos Crentes, 6 September 2025, *Ferreira 1610*, *ibid. Ferreira 1611* (SLUI), *ibid. Ferreira 1612* (SLUI); *ibid.*, 13 October 2025, *Ferreira*

1670 (SLUI). **Mato Grosso:** Aripuanã, Dardanelos, 29 September 1975, *Lisboa et al. 498* (INPA). Barão de Melgaço, Aldeia Perigara, São Lourenço River, 28 November 1973, *s.c., s.n.* (ESA 31053). Cáceres, Fazenda Jacobina,

Jaurú River, September–December 1908, *F.C. Hoehne 979* (R). Chapada dos Guimarães, 5 October 1982, *Kautsky s.n. 75231* (HB). Ipiranga do Norte, Fazenda São Luiz, 3 November 1976, *B.C. dos Passos 1190* (RB). *Ibid.*, 29 September 1977, *J.M. Lenies 4* (RB). *Ibid.*, 6 December 1922, *s.c.* (RB). Nobres, 21 November 1995, *G. Hatschbach et al. 63716* (INPA, MBM and SPF). Paranatinga, 15 July 1990, *Macedo & Assunção 16* (INPA). Paranaíta, Campo Teles Pires, 10 August 1950, *H. Sick 550* (RB). Rio dos Mortos, 1947, *H. Sick 54* (RB). Santo Antônio do Leverger, Mata do Rio Cuiabá, 26 September 1996, *R. Godinho 222* (CEN); Vila Córrego Grande, 24 September 1976, *s.c.*, *s.n.* (ESA 31031). **Matto Grosso do Sul:** Bonito, road Bonito–Campo dos Índios, 8 November 2002, *G. Hatschbach et al. 73908* (MBM, SPF); Bonito–surroundings of Gruta do Lago Azul, 28 November 1999, *G.A. Damasceno Jr. & M.M. Garcia 1781* (COR); road along the edge of Serra da Bodoquena National Park, 4 December 2010, *G. Martinelli et al. 16856* (RB). Chapadão do Sul, Sucuriú River, 24 October 1967, *s.c.*, *s.n.* (ESA 22384). Corumbá, Morro Santa Cruz, 30 July 1999, *D.P. Rodriguez R-09* (COR, SP); Morro do Urucum, 10 November 1995, *I.M. Bortolotto & D.P. Rodriguez 121* (COR). Sidrolândia, Água Rica, 27 January 1979, *M.C. Vianna & H.F. Martins 1401* (R). **Minas Gerais:** Brasilândia de Minas, João Pinheiro road, 11 November 1966, *s.c.*, *s.n.* (ESA 24204). Campina Verde, Fazenda São José do Lajeado, 27 October 2003, *J.F. Santos s.n.* (CEN). *Ibid.*, 25 September 2001, *J.F. Santos 20* (US). *Ibid.*, 20 July 2002, *A. Macedo & R.D. Macedo 0064* (US). Paracatu, riparian forest of the river between Ribeiros and Paracatu, 21 October 1989, *A.J.H. Salles et al. 1380* (HEPH). Piraópeba, 12 November 1960, *Heringer 7741* (UB). Serra da Mesa – Hydroelectric dam region. Cultivated at the GFJP herbarium, November 1997, *L.S. Leoni 3794* (RB). Unai, Unai–Samboril road, 7 October 1966, *s.c.*, *s.n.* (ESA 23072). **Pará:** São Geraldo do Araguaia, left bank of the Araguaia River, forest of the Foundation, 22 April 2004, *G. Pereira-Silva et al. 8968* (CEN). **Paraná:** Alto Paraíso, Vila Alta, Guarandi Forests, 7 November 2002, *Kozera 1688* (MBM). Porto Rico, Mutum Island, 14 September 1969, *Hatschbach 22176* (MBM). **Tocantins:** Aguiarnópolis, forest of Mr. Francisco do Leite, 22 October 2005, *G. Pereira-Silva et al. 10277* (CEN). Babaçulândia, road to the river mouth, 25 November 2009, *G. Pereira-Silva et al. 14794* (CEN, HUEFS). Conceição do Tocantins, Teleste stream, 12 January 2003, *Curcino 33* (HTO). Dianópolis, near the cave, 29 September 2003, *T.B. Cavalcanti et al. 3349* (CEN, HUEFS). Filadélfia, access road to Lagoa do Jacaré, 26 April 2008, *G. Pereira-Silva et al. 13368* (CEN). Itacajá, Vila Pedra Branca, 15 October 2000, *Santos et al. 800* (CEN). Lagoa da Confusão, Ilha do Bananal, 26 March 1999, *R.C. Mendonça et al. 4033* (IBGE). Lajeado, 29 October 1998, *G.F. Árbocz*

6258 (HTO, IBGE). Miranorte, Miranorte–Abreulândia road, 5 November 2005, *Lombardi et al. 6202* (HRCB). Nazaré, 15 July 1991, *Silva & Silva 134* (MG). Nazaré, 5 March 1991, *I.V. Lima 20* (HEPH). Palmas, Serra Lajeado, Fazenda Alta Floresta, 25 October 1993, *Santos 551* (HTO); cultivated at ORQ 746–Viveiro–JBB, 10 October 2002, *C.E. Rodrigues Júnior 1506* (HEPH). Palmeirante, old Palmeirante–Tocantins road, 18 November 2010, *J.B. Pereira & J.P. Amaral 301* (CEN, HUEFS). Palmeirópolis, lake of the São Salvador hydroelectric dam, 25 March 2009, *G. Pereira-Silva et al. 14163* (CEN, HUEFS). Paranã, near the dam, 6 July 2006, *G. Pereira-Silva et al. 10427* (CEN, HUEFS).

DISTRIBUTION AND ECOLOGY: *Encyclia linearifolioides* is endemic to South America, with confirmed occurrences in Bolivia, Brazil and Paraguay (Meneguzzo, 2012; POWO, 2026). In Brazil, it is found in the Amazon, Cerrado and Pantanal phytogeographic domains, with confirmed records in the northern (Rondônia, Tocantins), northeastern (Maranhão), central–western (Federal District, Goiás, Mato Grosso do Sul, Mato Grosso), southeastern (Minas Gerais) and southern (Paraná) regions, being typical of cerrado vegetation (*sensu lato*), gallery forest, floodplain forest, seasonal semideciduous forest, dry forest and restinga (Bastos *et al.*, 2026; Meneguzzo, 2012; Pessoa *et al.*, 2025).

In Maranhão, it was observed as an epiphyte in gallery forests and adjacent cerrado vegetation. In the study area, individuals of *Encyclia linearifolioides* were associated with the canopy of phorophytes of mirindiba, *Terminalia glabrescens* Mart. (Combretaceae); occasionally on macaúba, *Acrocomia aculeata* (Jacq.) Lodd. ex Mart. (Arecaceae); yellow ipê, *Tabebuia aurea* (Bignoniaceae); jatobá, *Hymenaea courbaril* L. (Fabaceae) and sansão-do-campo, *Mimosa caesalpiniiifolia* Benth. (Fabaceae).

Specimens of *Encyclia linearifolioides* exposed to higher solar radiation have erect, yellowish-green and smaller leaves (8–13 × 0.7–1.0 cm), whereas individuals from shaded environments have light green to yellowish, arched and longer leaves (10–30 × 1.0–1.4 cm). Occasionally, rupicolous individuals of *E. linearifolioides* were found near waterfalls, which also have erect, shorter and yellowish-green leaves.

PHENOLOGY: *Encyclia linearifolioides* flowers between September and November, during the dry season of the Cerrado in Maranhão (which occurs from May to Oc-

tober) and the beginning of the rainy season (which occurs between November and April). The flowers of *E. linearifolioides* exude a citrus fragrance, perceived during the day when approaching the inflorescences. From 6:00 pm onward, the fragrance decreases in intensity. The flowers last between 20 and 30 days.

NOTES: *Encyclia linearifolioides* is often confused with *E. conchaechila* (Barb.Rodr.) Porto & Brade, as they share similarities such as column short. They differ in the overlap of the lateral lobes over the median lobe, which is strictly rounded in *E. conchaechila*; whereas, in *E. linearifolioides*, the lateral lobes are free from the median lobe, which is rounded to elliptic. In addition, *E. conchaechila* has yellowish sepals, petals and lip, whereas *E. linearifolioides* has greenish sepals and petals and a yellowish lip.

Conclusions. Only *Encyclia granitica* occurred in areas of the Amazon domain (forests near watercourses or in campinaranas), within a geographic belt in the western region of Maranhão, delimited by the valleys of the Gurupi River (and its main tributaries) and the Maracaçumé River (and its main tributaries). This geographic distribution in areas of the Amazon domain is consistent with Bastos *et al.*, (2026). The other two species (*Encyclia gonzalezii* and *Encyclia linearifolioides*) occurred in the Cerrado and gallery forests within the geographic belt between Tocantins and Maranhão, along the Tocantins River valley and its tributary, the Farinha River, which crosses Chapada das Mesas National Park.

Taxonomic studies of *Encyclia* do not generally include details of the epicarp of the fruit, and are limited to descriptions of its shape and coloration. In this study, we found that characters of the fruit's surface can serve as complementary features for species identification and for future descriptions of Brazilian species.

When compared with other studies on *Encyclia* in Amazon and Cerrado domains of Brazil, the three species recorded in Maranhão are fewer than the 13 species reported by Bastos *et al.*, (2016) for Bahia, in the northeastern region of Brazil, with no species in common with those of the present study. Similarly, Meneguzzo *et al.* (2012) conducted a study in the central-western region (Distrito Federal and Goiás) and in the northern region (Tocantins), where they identified

six species, two of which are shared with the present study (*E. gonzalezii* and *E. linearifolioides*). The state of Pará, in the northern region of Brazil and neighboring Maranhão, harbors nine species of *Encyclia* and, so far, *Encyclia granitica* is the only species shared with the three *Encyclia* species recorded for Maranhão (Bastos *et al.*, 2026). Further studies in the remaining forest fragments of the Amazon in Maranhão may reveal new records of *Encyclia*. Likewise, the Cerrado of Maranhão is connected to Cerrado areas in other Brazilian states, which harbor *Encyclia* species that are distinct from those recorded in Maranhão.

The degradation of the Cerrado and the Amazon of Maranhão, mainly due to deforestation and fires, hampers the sampling of new areas in search of additional specimens of *Encyclia* (IFNMA, 2024; PPCDQ-MA, 2024; Sales & Oliveira Neto, 2020). These data highlight the sampling deficiency of *Encyclia* species in Maranhão and the need for the continuation of these studies. Considering that Maranhão is located in an ecotonal region between the Amazon, Cerrado and Caatinga domains, more in-depth studies within forest remnants, especially within conservation units, may contribute to the recording of additional *Encyclia* species not yet collected in Maranhão.

ACKNOWLEDGEMENTS. To all the herbarium collections consulted in this study, for providing images of the requested specimens.

FUNDING. Fundação de Amparo à Pesquisa e Desenvolvimento Científico e Tecnológico do Maranhão (FAPEMA) (Universal Call, 01312/2019) and the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for funding this research through the Universal Calls 402943/2021-0 and 404619/2023-1 and through the undergraduate research fellowship granted to the first author. M.S.O. thanks the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), through the research grant scheme DTI - B (Process: 384388/2025-6).

AUTHOR CONTRIBUTIONS. JFR: Writing – original draft preparation (equal); MJS, MSS, ETC, ALG: Writing – reviewing and editing (equal). MSO, LCM, AWCF: Writing original draft; Writing – original draft preparation (equal); Investigation (equal). AWCF: Supervision; Funding acquisition.

CONFLICT OF INTEREST. The author declares no commercial, financial, academic, or personal conflicts of interest related to this study.

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