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# *Encyclia chloroleuca* (Orchidaceae: Laeliinae) reported for Panama

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**Summary.** *Encyclia chloroleuca* (Hook.) Neumann is reported for the first time in Panama. *E. chloroleuca* has been previously misidentified as *E. amanda* (Ames) Dressler but morphological characters associated with the flower and inflorescence, and blooming season can be used to separate these two species across its broad distributional range. Our observations serve as evidence for closing the distributional gap between South and Central America.

**Key Words.** Orchids, Panama.

## Introduction

The neotropical orchid genus *Encyclia* Hook. is characterised mostly by epiphytes with a complex species-level taxonomy (Higgins *et al.* 2003). In particular, species belonging to the complex of species related to *E. chloroleuca* (Hook.) Neumann with small greenish flowers show high morphological similarities across their distributional range and can be difficult to identify (Pupulín & Bogarín 2010). *E. chloroleuca* is widely distributed in Guyanas, the northern portion of the Amazon, the Cordillera de la Costa in Venezuela, Brazil, Colombia, Ecuador, Peru, and Suriname. It is also present in Mexico, Belize, and Nicaragua (G. Carnevali, pers. comm.). Franco Pupulín includes *E. chloroleuca* in the orchid flora of Costa Rica and cites one voucher (Pupulín 2002). Based on these reports, we expected to find *E. chloroleuca* in Panama. The present report serves as evidence of the continuous distribution between Central and South America.

The flowers of the Panamanian *Encyclia chloroleuca* resemble those of *E. amanda* (Ames) Dressler with which it has been previously confused. Using Dressler's key to *Encyclia* (Dressler 1993) one consistently arrives at *E. amanda*, but the lateral lip lobules of *E. chloroleuca* are larger than those of *E. amanda*, and acute and curved at the tip. In addition, the column wings of *E. chloroleuca* are not straight, and lateral inflorescences are shorter than those of *E. amanda* and bear many flowers (Table 1). *E. chloroleuca* can also be distinguished from *E. amanda* because it has lobules clasping the column and a prominent mid rib extending from the callus to the apex of the labellum with a purple raised central streak and occasional lateral purple raised veins (Withner 2000). *E. chloroleuca* can be distinguished from the close relative *E. ceratistes* (Lindl.) Schltr. in that the petals of *E. chloroleuca* are smaller, the inflorescence has shorter lateral branches, and column wings are well developed and smaller compared to the rudimentary narrow tooth-like column wings of *E. ceratistes* (McLeish *et al.* 1995). We provide colour photographs based on a Panamanian specimen (Fig. 1).

**Encyclia chloroleuca** (*Hook.*) *Neumann* (1845 – 1846: 138). Type: Guyana. Imported from Demerara by John Allcard, Esq., *John Allcard* s.n. (holotype 4/3/95 came from Trinidad on same sheet as K000079539, K000079541, K000079542).
*Epidendrum chloroleucum* Hook. (Hooker 1837).

Epiphyte, c. 30 cm long, commonly caespitose. *Leaves* coriaceous, linear, lanceolate, 17 – 25 × 2 – 3 cm. *Inflorescences* panicle, 25 – 50 cm, loosely flowered, short branched. *Flowers* with petals and sepals greenish yellow, lip with midlobe with three middle purple to red lines. Flower column greenish, 6 – 6.5 mm long, column wings 1 mm, sepals 14 × 5 mm, petals 12 × 4 mm. *Ovary* surface with small rugose protuberances. Fig. 1.

**SPECIMEN EXAMINED. PANAMA.** Province of Panama: Cerro Tigre, near the vicinity of Pacora R., 500 m alt., 16 June 2007, *Gaspar Silvera* 212 (PMA!).
**HABITAT.** Lowland riparian forest where it grows as an epiphyte on host trees; 300 – 700 m alt.
**CONSERVATION STATUS.** *Encyclia chloroleuca* has a wide distribution but populations are limited to restricted areas, where only a few plants are found at a time. This species is found in protected and non-protected areas, and it is threatened mostly by deforestation and changing environmental parameters. International

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**Table 1.** Morphological characteristics and distributions that can be used to distinguish the closely related Panamanian species *Encyclia chloroleuca*, *E. amanda*, *E. ceratistes* and *E. elegantula*.

| | *Encyclia chloroleuca* | *Encyclia amanda* | *Encyclia ceratistes* | *Encyclia elegantula* |
|---|---|---|---|---|
| Flower colour | Petals and sepals greenish yellow, lip greyish. Flowers are smaller than those of *Encyclia ceratistes* | Petals and sepals pale green or yellowish brown with pale pink lines on the lip | Petals and sepals cream to pale greenish yellow with lateral lobes slightly brownish | Petals and sepals bright colour, yellowish-brown with a distinct magenta spot and white border on the lip |
| Lip characteristics | Midlobe about 6 mm wide, with three middle purple to red lines | Lip smooth to lightly crenulate or papillose, but not warty on the sides of the lip | Light violet lines in midlobe | Isthmus is curved downward at both sides. Surface is irregular and slightly warty |
| Lateral lip lobes characteristics | Oblong-lanceolate, reflexed apex, acute, about 3 × 6 mm wide, larger than those of *Encyclia amanda*. | Oblong, apex not acute nor curved, about 2.5 – 3.7 mm wide | Oblong-lanceolate, abruptly reflexed, but not expanded at apex | Oblong-obtuse, about 3.5 × 2 mm |
| Column and column wing | 6 – 6.5 mm column length, with two square 1 mm-column wings curved just at the apex towards the column | 7 – 7.5 mm column length, straight, with distinct longer than 1 mm column wings, just slightly curved | Longer than 1 mm column wings | Oblong, rounded and curved column wings |
| Inflorescence | 25 – 50 cm panicle with short ramifications of up to 6 cm long | c. 80 cm long inflorescence, not densely flowered | c. 80 cm long inflorescence | c. 40 cm long, densely flowered |
| Average length (cm) from pseudobulb to leaf tip | 30 ± 2 | 53 ± 27 | 43 ± 9 | 39 ± 4 |
| Flowering season | Nov. – Jan. | April – June | July – Oct. | Aug. – Sept. |
| Species distribution (in Panama) | Cocle, Colon, Herrera, Panama Provinces. 300 – 500 m alt. | Cocle, Colon, Panama Provinces. 300 – 500 m alt. | Cocle, Chiriqui, Veraguas Provinces. 300 – 500 m alt. | Colon, Panama Provinces. 365 – 500 m alt. |

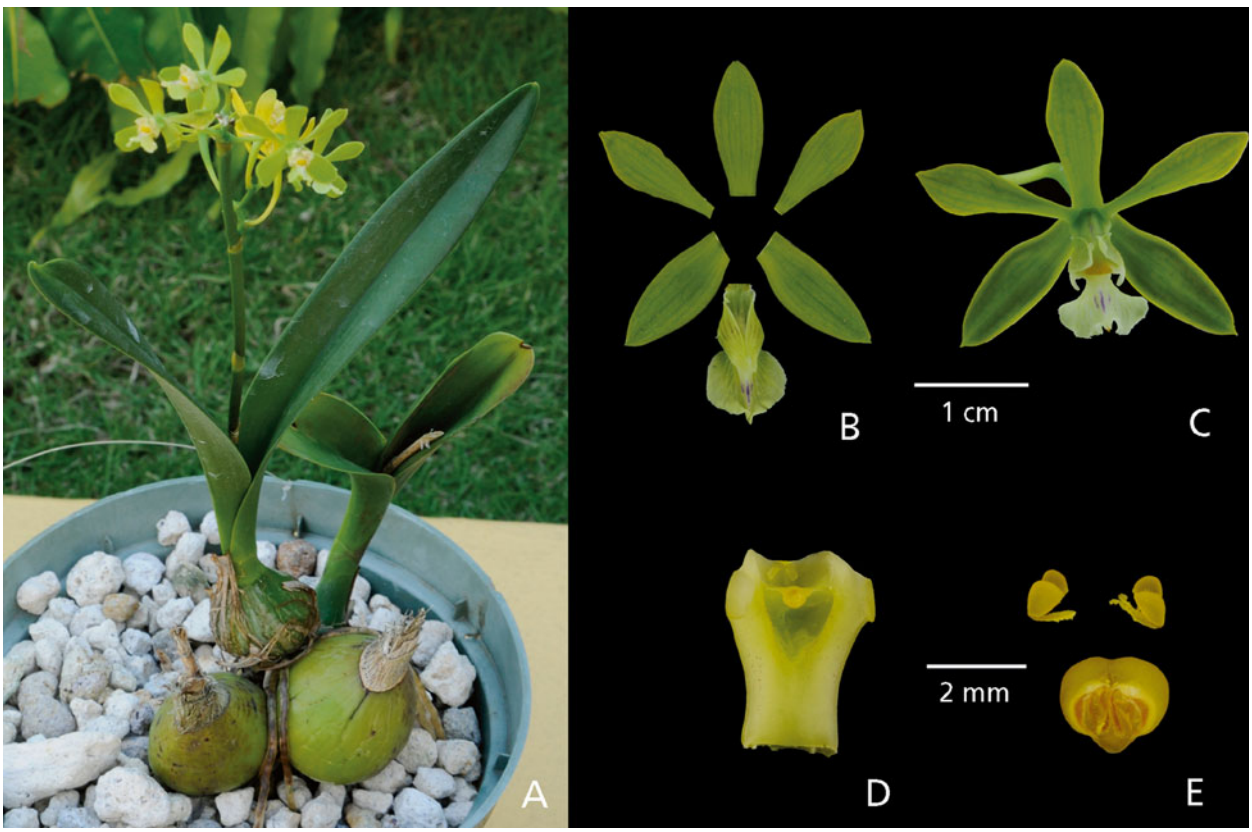


**Fig. 1.** *Encyclia chloroleuca* **A** habit; **B, C** dissected flower and flower, frontal view; **D** column, frontal view; **E** anther cap and pollinaria.

trading of this species is regulated and it is currently listed under CITES Appendix II. Therefore the species qualify as Endangered (EN) following the IUCN (2001) red list categories and criteria.

**PHENOLOGY.** *Encyclia chloroleuca* in Panama flowers from Nov. – Feb. Flowers can last up to one month.

**NOTES.** The specimen flowered in cultivation at Orquideas Tropicales greenhouses (Silvera 2010) in Dec. 2007. *E. chloroloeuca* has been observed in different localities throughout Panama, including Cerro Azul, Province of Panama, 700 m alt., along the vicinity of Altos de Pacora, Cerro Avion above Pedregal, Province of Panama, 300 m alt., Bajo Bonito, Province of Panama, 400 m alt., Capira, Province of Panama, 400 – 650 m alt., Santa Rita, Sierra Llorona , Province of Colon, 300 m alt., and Las Minas, Province of Herrera, 400 m alt.

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