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**A New Species of *Encyclia* Hooker From Cuba.**

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**ABSTRACT:** A population of *Encyclia* Hooker with affinity to *Encyclia phoenicea* (Lindl.) Neumann was discovered in western Cuba. The species was compared with the type *E. phoenicea* and determined to be an undescribed species. The new species is described.

The study of the Cuban encyclias presents many challenges. However, of all the challenges, the study of the published synonyms and varieties of *Encyclia phoenicea* (Lindl.) Neumann to determine if they are valid names that apply to populations, is probably the most difficult.

While searching for the type specimens of the synonyms and varieties of *E. phoenicea* a specimen in Paris collected by Quesnel stood out from the rest. The specimen consists of two spikes with several flowers and according to the collector the plant came from Havana. The specimen was identified as *E. phoeniceum* var. *fragrans*, a name not validly published. What stood out was that the flower shape appears to be quite different from the rest of the specimens of *E. phoenicea* observed in herbaria.

A population of *Encyclia* with affinity to *Encyclia phoenicea* (Lindl.) Neumann was discovered by the senior author in western Cuba. The plants in this population exactly matched the plant on the Quesnel specimen in Paris. A determination had to be made if this species is a distinct species or just a form of *E. phoenicea*. The Quesnel specimen that was to be designated as a type for this species had to be compared to the type of *E. phoenicea*. The first step was to determine what *E. phoenicea* is since Lindley did not designate a holotype and a specimen that corresponds to the holotype could not be found.

Sauleda and Esperon (2012) established the type of *E. phoenicea* by designating as a neotype the original illustration by Sara Ann Drake at Kew used for the plate reproduced in *Sertum Orchidaceum*, no. 46, Dec. 1841. The illustration clearly shows the characteristics that define *E. phoenicea*. One of the most important characteristics is that the keels on the labellum come to an abrupt end under the column. This is clearly visible on the illustration. The type of the new species could then be compared to the type of *E. phoenicea*.

It has been shown (Sauleda & Adams, 1984, 1990) that in the Bahama Islands if two species of *Encyclia* are sympatric usually a natural hybrid between them will occur. The resulting natural hybrid in many cases will back cross to one of the parents resulting in a highly variable species. This appears to have happened with *E. phoenicea* in several locations in Cuba. In the Cayman Islands, *E. phoenicea* is not as variable. There is only one other species of *Encyclia* (*Encyclia kingsii* (C. D. Adams) Nir) in the

Cayman Islands and a hybrid has not been found. These two species are very different in size, probably accounting for the lack of a hybrid. Self-pollination of plants of *E. phoenicea* from the Cayman Islands results in very similar progeny. However, self-pollination of Cuban plants of *E. phoenicea* results in extremely variable progeny. Observing the results of several hundred plants from three self-pollinations gives a better understanding of the variation in *E. phoenicea*.

After comparisons of living material of this species with living material of *E. phoenicea* from both Cuba and the Cayman Islands and comparison of the type of *E. phoenicea* with the Paris specimen of this species, we conclude that this species is an undescribed species. In addition, living material of this species was compared to the plants resulting from self-pollination of Cuban plants of *E. phoenicea*. This species does not fall within the variation observed from the self-pollination plants. We are therefore describing it as a new species.

*Encyclia havanensis* Bello, Esperon and Sauleda, sp. nov.

HOLOTYPE: CUBA: Havana, July 1845, M. Quesnel s.n., (P – collection Herbier du MNHN, bar code no. P00410725).

#### DESCRIPTION

Plant epiphytic, rhizomatous, to 59 cm tall; roots many, thick, canescent; primary stem or rhizome short, stout, creeping, enclosed by imbricating scarious sheaths; secondary stems modified into pseudobulbs, erect, clustered, ovate, to 3.8 cm long, 2.8 cm thick, basally enclosed by 2-3 scarious sheaths, 1 to 2 leaved at apex; leaves coriaceous, linear to linear-lanceolate, acute, to 28 cm long, 2.0 cm wide; inflorescence terminal, to 55 cm tall, branched, peduncles slender, erect, distantly several-sheathed, to 28 flowers; floral bracts lanceolate, acute, concave, to 7 mm long, 6 mm wide; ovary pedicellate, slender, to 3.0 cm long; sepals green with brown suffusion becoming stronger towards the apex, linear-lanceolate, acute, to 3 cm long, 5 mm wide; petals green with brown suffusion becoming stronger towards apex, lanceolate to obovate, abruptly acute, to 3.5 cm long, 4 mm wide; labellum free from column, deeply 3-lobed, to 3.8 cm long, 3.6 cm wide, light purple to white with radiating purple lines, lateral lobes oblong, acute, embracing column, mid lobe rounded, slightly emarginate, with purple radiating lines from callosity, callosity under column is two lateral keels extending beyond apex of column; column white to light purple, basally light green, elongate, to 2.1 cm long, 5 mm wide, with membranaceous incurved rounded auricles, anther light purple.

#### DIAGNOSIS

*E. phoenicea* and *E. havanensis* differ in the length of the lamellae on the midlobe of the labellum. On *E. havanensis* the lamellae project beyond the apex of the column. On *E. phoenicea* the lamellae stop abruptly at the apex of the column. The shape of the disc of the labellum is also distinctly different. On *E. havanensis* it is orbicular and streaked with purple. On *E. phoenicea* the disc is usually truncate to cordate, suborbicular or flabellate. In *E. phoenicea* the center of the disc usually has two thickened and fleshy areas and the lateral margins tend to slightly recurve downward. The center of the disc on *E. havanensis* is not fleshy.



Holotype of *Encyclia havanensis* Bello, Esperon and Saulea



Detail of live material of *Encyclia havanensis* - orbicular disc. Lamellae extends beyond apex apex of the column.



Detail of the type of *Encyclia havanensis* - orbicular disc. Lamellae extends beyond of the column.



Illustration of *Encyclia havanensis* Bello, Esperon and Sauleda





Results of self pollinating an *Encyclia phoenicea* (Lindl.) Neumann from the Cayman Islands.



Results of self pollinating an *Encyclia phoenicea* (Lindl.) Neumann from Cuba.

*Encyclia havanensis* has a very restricted distribution in Western Cuba where it was recently rediscovered by the senior author. Only the Quesnel collection was previously known.

When examining and comparing live material of both species, the differences between *E. phoenicea* and *E. havanensis* become clear. The length of the lamellae on the midlobe of the labellum is different in both species. The lamellae project beyond the apex of the column on *E. havanensis*. The lamellae stop abruptly at the apex of the column on *E. phoenicea*. The shape of the disc of the labellum is also distinctly different. On *E. havanensis* it is orbicular and streaked with purple. On *E. phoenicea* the disc is usually truncate to cordate, suborbicular or flabellate and, as described by Lindley, “clear bright violet with deep crimson veins and stains in the middle”. In addition, in many *E. phoenicea* the center of the disc has two thickened and fleshy areas and the lateral margins tend to recurve. These characters may be due to introgression with *Encyclia plicata* (Lindl.) Schltr. In *E. havanensis* the disc is large and not fleshy. However, after a few days the edges tend to curve slightly downward.



*Encyclia havanensis* Bello, Esperon and Saulea. Lamellae extends beyond the column.



*Encyclia phoenicea* (Lindl.) Neumann. Lamellae ends at apex of column.



*Encyclia havanensis* Bello, Esperon and Saulea. Orbicular disc.



*Encyclia phoenicea* (Lindl.) Neumann. Truncate disc.





*Encyclia phoenicea* (Lindl.) Neumann. Labellum with two fleshy areas on disc. Lamellae end abruptly at edge of column.



*Encyclia phoenicea* (Lindl.) Neumann. Variation in lip shape.

Vegetatively the two species are also clearly distinct. The surface of the leaf on *E. havanensis* is smooth and glossy, while on *E. phoenicea* it has a streaked appearance and is dull.





*Encyclia phoenicea* (Lindl.) Neumann. Dull streaked leaf surface.



*Encyclia havanensis* Bello, Esperon and Sauleda. Shiny smooth leaf surface.

The locations where the senior author found *E. havanensis* are isolated tree islands surrounded by mangroves (*Rhizophora mangle* L.) about 4 miles from the serpentinitic area of Cajalbanas. The San Marcos River is on the southwest boundary.

This species as with the other species of encyclias recently described from Pinar del Rio (*Encyclia bocourtii* Múj.Benítez & Pupulin, *Encyclia rosariensis* Múj.Benítez, R.Pérez & Pupulin, and *Encyclia cajalbanensis* Múj.Benítez , Bocourt & Pupulin) appears to be a local endemic. These species may be relic populations. This would explain why *E. havanensis* has a low representation in herbaria.



Locality of *Encyclia havanensis* Bello, Esperon and Sauleda.

*Encyclia havanensis* grows mainly on the trunk of *Copernicia glabrescens* H. Wendl. ex Becc. It is sympatric with *Encyclia grisebachiana* (Cogn.) Acuna, which grows in the crown of the palms while *E. havanensis* grows on the trunk. *Tolumnia guibertiana* (A. Rich.) Braem also occurs on the tree islands.



*Copernicia glabrescens* H. Wendl. ex Becc. with *Encyclia grisesbachiana* (Cogn.) Acuna growing in the crown.





*Encyclia havanensis* Bello, Esperon and Saulea.



*Encyclia havanensis* Bello, Esperon and Sauleda.



*Encyclia havanensis* Bello, Esperon and Sauleda.

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