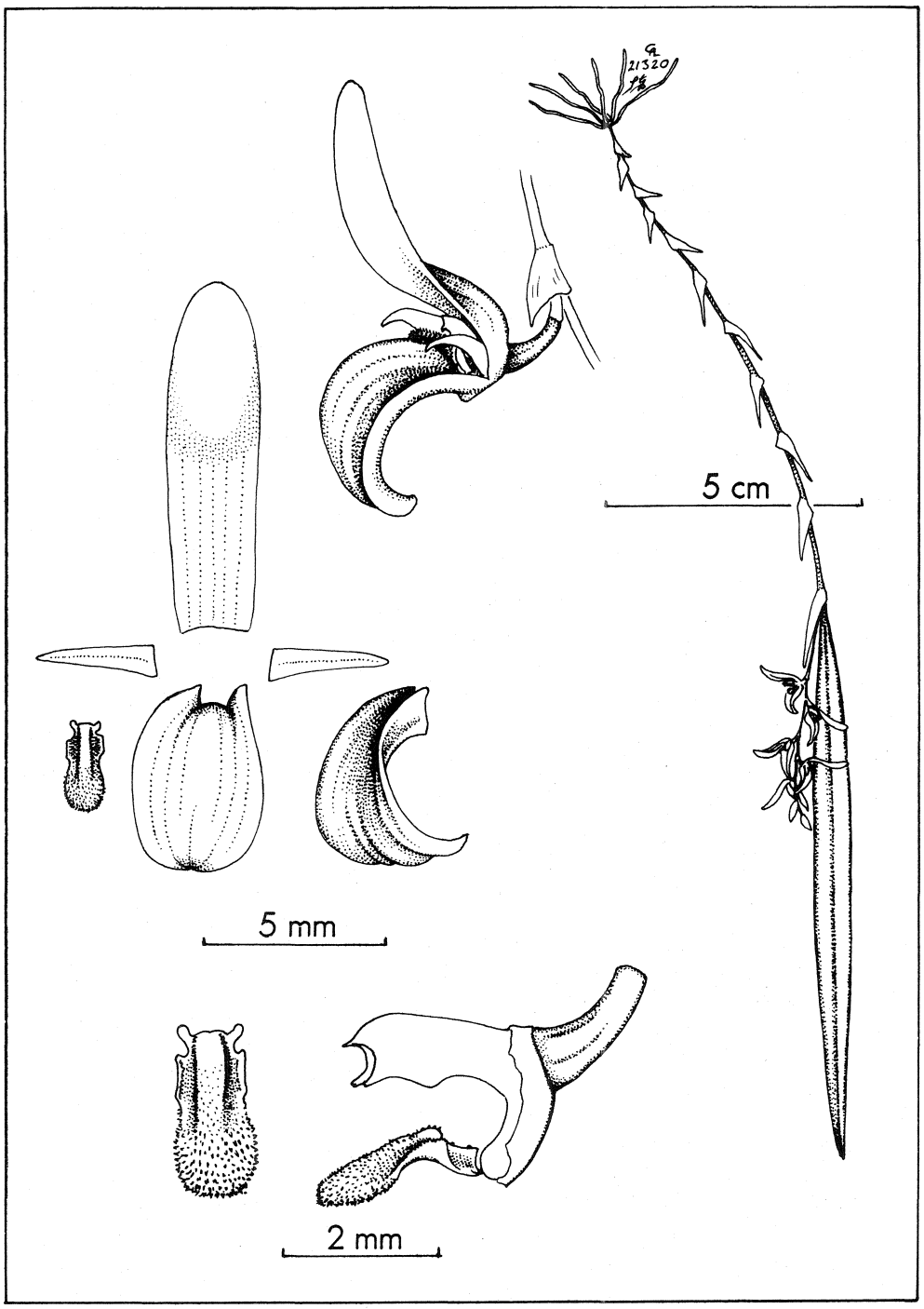


FIGURE 47. *Trichosalpinx echinata* Luer & Hirtz, C. Luer illustr. 21320.

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# A SECOND SPECIES OF *SEEGERIELLA* (ORCHIDACEAE: ONCIDIINAE)

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ABSTRACT. *Seegeriella crothersii,* a new species from Ecuador, is described and illustrated. The new species is compared with *S. pinifolia,* from which it mainly differs by the laterally flattened leaves, the paniculate inflorescence with short, 2-flowered secondary branches, the much smaller lip, provided with shorter lateral lobes, and the greenish yellow sepals and petals. A key to the species of *Seegeriella* is provided.

*Key words:* Oncidiinae, Orchidaceae, *Seegeriella, Seegeriella crothersii,* Ecuador

## INTRODUCTION

The subtribe Oncidiinae is one of the largest orchid groups in the Neotropics (with an estimate of 1700 species in 55 genera), where it occupies a vast array of epiphytic habitats, varying from the larger, shaded axes of the inner canopy to the driest and ephemeral sites of the terminal twigs. Species of the Oncidiinae also greatly differ in size, varying from tall plants like specimens of *Lophiaris* Raf. (syn. *Trichocentrum* Poepp. & Endl.) and *Cyrtochilum* Kunth, with single vegetations that can exceed 70 cm in length, to the diminutive habit of species of *Erycina* Lindl., *Macroclinium* Barb. Rodr. and *Hofmeisterella* Rchb.f., barely reaching 1 cm in size. Reduction in plant size is often correlated, in the Oncidiinae, to modifications in vegetative architecture and retention of juvenile traits leading to paedomorphism, as well as in life history strategies (Chase 1988) and reduction in chromosome numbers (Chase et al. 2005). Although widespread in the *Ornithocephalus* and the *Erycina/Tolumnia* clades, the reduction in plant size and the retention of the paedomorphic psygmoid stage are more frequent, among the Oncidioid orchids, in the *Rodriguezia* clade, which includes most of the genera adapted to occupy less favorable epiphytic sites like the outermost twigs of the forest canopy. In turn, psygmoidism may be complete, like in species of *Erycina* (syn. *Psygmorchis* Dodson & Dressler), *Ornithocephalus* Lindl., *Trizeuxis* Lindl. and some *Macroclinium* taxa, which never develop pseudobulbs and have unifacial leaves, or involving vary degrees of lateral compression of the leaves and reduction of the pseudobulb size.

The monotypic genus *Seegeriella* Sengh. was described in 1997 for a species originally collected in the wet submontane forests of Bolivia (Senghas 1997). The genus was assigned to the subtribe Notyliinae (=Oncidiinae) and mainly distinguished from the other genera of the group by the blade of the lip that arises from the lower portion of the column, the shape of the anther, and the subulate leaves. All these characters are scattered among the Oncidiinae and the members of the *Notylia* clade. The connation of the lip isthmus with the ventral portion of the column is found in *Macroclinium* Barb. Rodr. (i.e., *M. alleniorum* Dressler & Pupulin, *M. generalense* Pupulin, *M. glicensteinii* J.T.Atwood). The prominent anther is also characteristic of *Notylia* Lindl., *Macroclinium, Macradenia* R.Br., and *Schunkea* Senghas (Pupulin 1997), although in these genera the anther is mostly dorsal [with the exception of *M. aduncum* (Dressler) Dodson, see Pupulin 2001: 16–17], while it is distinctly incumbent in *Seegeriella* and *Warmingia* Rchb.f. Leaf structure is amply variable among the Oncidioid orchids, ranging from the conduplicate, dorso-ventrally flattened condition of

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most of the taxa, to the terete condition of species of *Capanemia* Barb. Rodr., *Ionopsis* Lindl., *Trichocentrum* Poepp. & Endl., to the laterally flattened leaves of *Erycina* Lindl., *Macroclinium,* and *Trizeuxis* Lindl. among others. Variation in leaf condition is also common among the genera closely allied to *Seegeriella*: species of *Notylia* and *Macradenia* have normally conduplicate leaves, while all the species of *Macroclinium* possess laterally flattened leaves, in some cases associated with the loss of pseudobulbs. Transformation of the leaves to reduce exposure to the sunrays and loss of water, through the adoption of the psygmoid habit or the succulence of the blade, is frequent among the juveniles of epiphytic orchid species adapted to live in the extreme habitat of the outermost portion of the forest canopy, and it is not surprising that both the terete (subulate) and the equitant (laterally flattened) conditions are represented in *Seegeriella.* The phylogenetic position of *Seegeriella* in the *Rodriguezia* clade as sister of *Warmingia* and consecutively to *Notylia* + *Macroclinium* + *Macradenia* was confirmed by Williams et al. (2001) based on evidence from four DNA regions.

## Taxonomic Treatment

During a survey of the small-sized Oncidiinae species grown in the large orchid collection of Ecuagenera at Gualaceo, Ecuador, we found a plant of the genus *Seegeriella* that do not correspond to any other described taxon, and we describe it here as:

***Seegeriella crothersii*** Pupulin & H. Medina, sp. nov. Type: Ecuador—Morona-Santiago: Patuca, ca. 600 m, collected by H. Medina & S. Crothers, flowered in cultivation in the collection of Ecuagenera at Gualaceo, 21 June 2008, *H. Medina 68* (Holotype: QCA—Spirit). Figures 1–2.

*A Seegeriella pinifolia Sengh. foliis lateraliter complanatis, inflorescentia paniculata terminationibus bifloribus, labello dimidio minore, lobulis lateralibus triangularibus abbreviatis, sepalis petalisque viridiflavis recedit.*

***Herb*** epiphytic, pseudobulbous, erect, cespitose-repent, to about 6 cm tall. ***Roots*** terete, flexuous, less than 1 mm in diameter, produced from the short rhizome. ***Pseudobulb*** narrowly elliptic-ovate, 7 mm long, 2 mm wide, 1- to 2-leaved at apex, partially covered by 3–4 conduplicate, rectangular, scarious leaf-sheaths, 4–9 mm long, 2 mm wide, provided with hyaline, scarious margins. ***Leaves*** articulate with the sheaths or apical on the pseudobulb, laterally flattened, linear-subfalcate, acuminate, 10–50 mm long, 1–2 mm wide. ***Inflorescence*** lateral, arising from the upper leaf-sheaths, beginning erect and then arching, a few-flowered, successive, paniculate raceme to 4.5 cm long, provided with primary branches to 2 cm long and secondary, (1-) to 2-flowered branches to 0.5 cm long; peduncle terete, 1.5 cm long, provided with 1–2 loose, ovate, acute-acuminate, membranaceous bracts to 3 mm long. ***Floral bracts*** triangular-ovate, acuminate, 1–2 mm long, ca. 1 mm wide. Pedicellate *ovary* terete, slightly clavate at apex, 3 mm long including the pedicel. ***Flowers*** spreading, small, hyaline- membranaceous, to 1 cm in diameter, with sepals and petals pale greenish-yellow, the lip white, the column white, the anther cream. ***Sepals*** subsimilar, oblanceolate, obtuse, the *dorsal sepal* erect, deeply concave at apex, 5.2 mm long, 0.8 mm wide; the *lateral sepals* slightly asymmetrical-subfalcate, 5.2 cm long, 1 mm wide. ***Petals*** subsimilar, oblanceolate-subfalcate, acute, gently incurved at apex, 4.8 mm long, 0.5 mm wide. ***Lip*** adnate to the base of the column for about 1 mm, the blade emerging from the underside of the column, 3-lobed, hastate, 2.5 mm long, 2.5 mm wide across the lateral lobes; lateral lobes narrowly triangular, acute, falcate-retrorse; midlobe triangular-ovate, acute; disc with a high, rounded, flattened keel running to the base of the midlobe. ***Column*** slender, terete-subclavate, to 4 mm long, apically provided with 2 distinct, subquadrate, rounded wings. ***Anther cap*** cucullate, ovate, minutely papillose, 2-celled. ***Pollinia*** 2, obtriangular-obovate, strongly flattened, on a narrowly oblanceoate-ligulate, hyaline stripe; viscidium elliptic, brown. ***Fruit*** not seen.

**Distribution and ecology.** The species has been only found in the Amazonian watershed of central Ecuador, where it occurs in tropical wet forests at around 600 meters of elevation. Plants of *S. crothersii* grow in the open shadow of the middle canopy, and they have been observed only in secondary vegetation, rooting among lichens and mosses.

**Phenology.** Flowering has been recorded at least in November–December and in June.

**Etymology.** Named after Samuel Crothers, of Allentown, Pennsylvania, USA, who participated in the collection of the type specimen. As a rainforest guide and researcher, Sam climbed for the first time the impervious Pan de Azucar mountain, in western Ecuador, exploring for orchids on the slopes and summit of this enchanted peak.

**Comments.** *Seegeriella crothersii* mainly differ from *S. pinifolia* by the laterally flattened, "equitant" leaves (vs. subulate), the paniculate

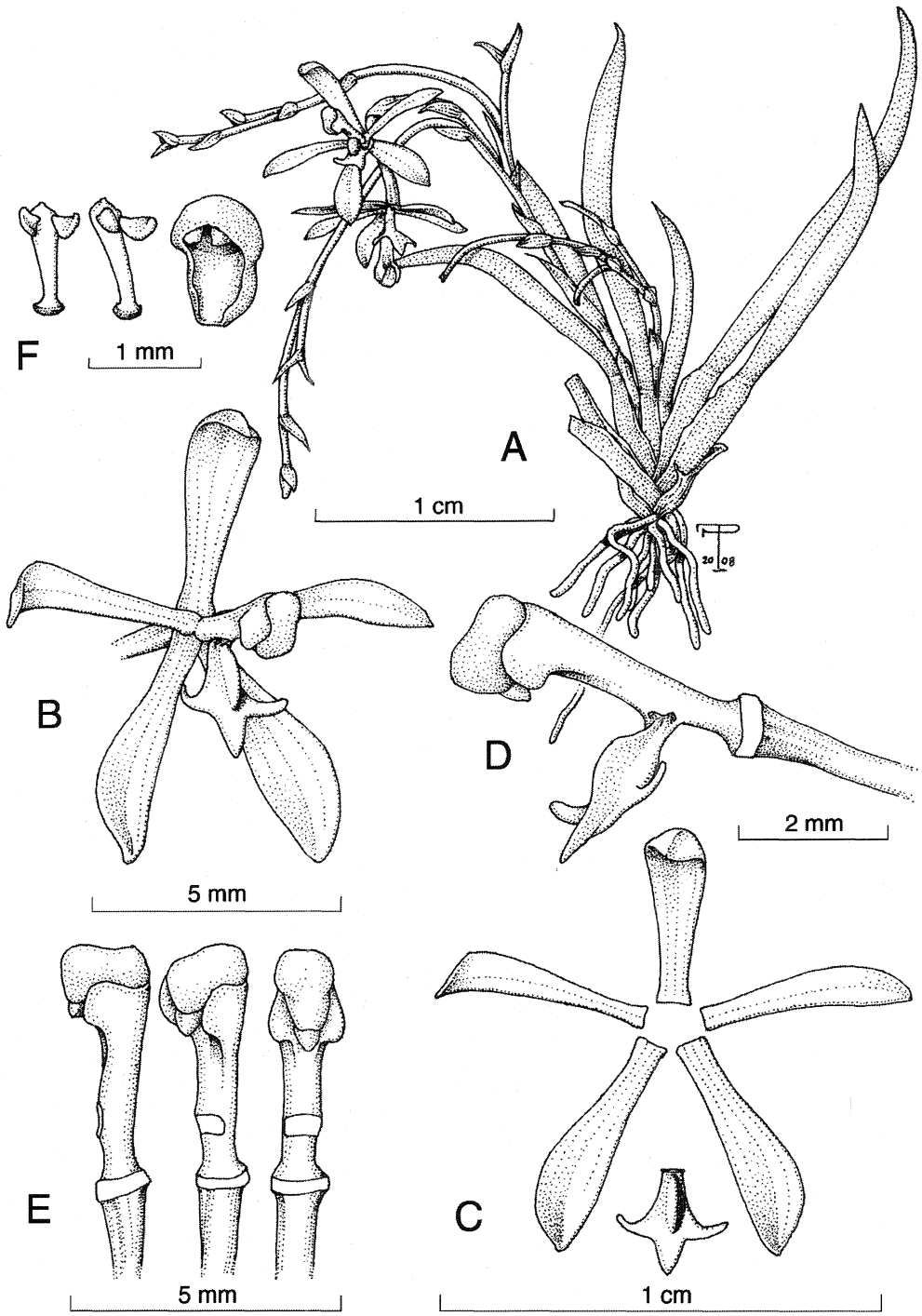


FIGURE 1. *Seegeriella crothersii.* **A.** Habit. **B.** Flower. **C.** Floral dissection. **D.** Column and lip, lateral view. **E.** Column, ventral and lateral views. **F.** Pollinarium (two views) and anther cap. (Drawn from the type by F. Pupulin).

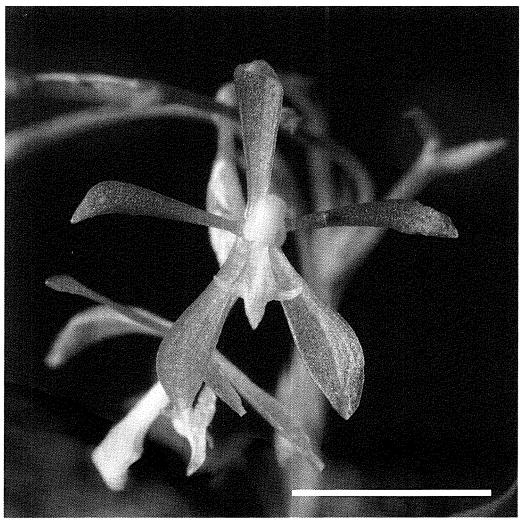

FIGURE 2. *Seegeriella crothersii.* Photo of the flowers from the plant that served as the holotype. Scale bar = 5 mm. Photo by F. Pupulin.

inflorescence, provided with short secondary, apically 2-flowered branches (vs. simple, subumbellate, few-flowered in *S. pinifolia*), the diminutive size of the lip, approximately half of the length of the sepals and petals, provided with comparatively short lateral lobes (vs. subequal to the sepals, the lateral lobes long), and the color of the perianth, provided with greenish yellow sepals and white lip (vs. concolorus white).

Dodson (2004) recorded *Seegeriella pinifolia* from Ecuador on the basis of a plant grown at Ecuagenera in Gualaceo and photographed by A. Hirtz. However, the photographs published in Dodson (2004: 949) seemingly show a species different from both *S. pinifolia* and *S. crothersii.* The depicted plant has simple, distichous, 1- to 2-flowered inflorescences, and the flowers have distinctly greenish-yellow sepals and petals, and yellow lip (vs. inflorescence subumbellate and white perianth in *S. pinifolia*). The voucher for the photograph is kept at SEL (W.E. Higgins pers. comm. 2009), and it is possible that its direct study would reveal the existence of another, still undescribed species of *Seegeriella.*

## KEY TO THE SPECIES OF *SEEGERIELLA*

1. Leaves subulate; inflorescence racemose, subcapitate; lip as long as the lateral sepals *S. pinifolia*
1′. Leaves laterally flattened; inflorescence paniculate, the lateral branches 2-flowered; lip half the length of the lateral sepals . . . . . *S. crothersii*

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## LITERATURE CITED

Chase, M.W. 1988. Obligate twig epiphytes: a distinct subset of Neotropical orchidaceous epiphytes. Selbyana 10: 24–30.

Chase, M.W., L. Hanson, V.A. Albert, W.M. Whitten, and N.H. Williams. 2005. Life history evolution and genome size in subtribe Oncidiinae (Orchidaceae). Ann. Bot. 95: 191–199.

Dodson, C.H. 2004. *Seegeriella* Senghas. Pp. 948–949 *in* C.H. Dodson, ed. Native Ecuadorian Orchids, Vol. 5: *Rodriguezia–Zygosepalum.* Dodson Publishing, Sarasota, USA.

Pupulin, F. 1997. Una sinossi del genere *Macroclinium* (Orchidaceae: Oncidiinae). A synopsis of the genus *Macroclinium* (Orchidaceae: Oncidiinae). Caesiana 9: 1–20.

Pupulin, F. 2001. Miscellaneous new taxa in Neotropical Orchidaceae. Selbyana 22: 14–26.

Senghas, K. 1997. Eine Stecknadel im Heuhaufen: Entdeckung der neuen Gattung *Seegeriella*—mit einer Übersicht zur Subtribus Notyliinae. J. Orchideenfreund 4: 188–197.

Williams, N.H., M.W. Chase, T. Fulcher, and W.M. Whitten. 2001. Molecular systematics of the Oncidiinae based on evidence from four DNA regions: expanded circumscriptions of *Cyrtochilum, Erycina, Otoglossum,* and *Trichocentrum* and a new genus (Orchidaceae). Lindleyana 16: 113–139.

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# STUDIES OF *ENCYCLIA* (ORCHIDACEAE) IN GUATEMALA

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ABSTRACT. Three new *Encyclia* (Orchidaceae) species from Guatemala are described and *Encyclia* species reported for Guatemala are listed.

*Key words:* Orchidaceae, Epidendroideæ, Epidendreæ, Laeliinae, *Encyclia,* taxonomy

## INTRODUCTION

During an examination of *Encyclia* specimens collected in Guatemala, Department of Alta Verapaz, Municipalities of San Cristobal, Santa Cruz Verapaz, and Cobán, Archila found three specimens that did not match any of the *Encyclia* species reported for Guatemala (TABLE 1). Further investigation revealed that these specimens represented three new species which are herein described. A drawing of *Encyclia incumbens* (Lindl.) Mabb. is included for comparison since it is sympatric with these new species (FIGURE 1D).

## TAXONOMIC TREATMENT

***Encyclia archilae*** W.E.Higgins sp. nov. TYPE: Guatemala—Alta Verapaz: Santa Cruz Verapaz, 1400 m, growing in a liquidambar-oak forest, collected by Fredy and Oscar Archila, May 1990. *F. Archila 215* (Holotype: BIGU) FIGURE 1A.

*Species haec Encyclia amanda (Ames) Dressler, columna differt, incisura apicalis, labello differt nervus medius brevis.*

***Plant*** epiphytic; ***Leaves*** 2 to 3, linear, apex emarginate, oblique, 25 cm long and 1.5 cm wide; ***Pseudobulbs*** ovoid 3.3 cm long and 1.8 cm in diameter; ***Inflorescence*** 51 cm long; ***Flowers*** yellow-green sepals and petals, labellum yellow-white; ***Sepals:*** Dorsal sepal linear-elliptical with acute apex, 1.1 cm long and 0.23 cm wide; Lateral sepals elliptical, acuminate, 1.12 cm in length and 0.26 cm wide; ***Petals*** linear spatulate, apex acute, 0.95 long and 0.26 cm wide; ***Labellum*** trilobed, with side-lobes linear with the apex acuminate reflex, covering column; of 0.36 cm long and 0.12 cm wide. The midlobe ovoid with the acute apex of 0.39 cm long and 0.35 cm wide, with three keels at center and two lateral keels at the base of the middle lobe. ***Column*** short capitate, bipartite at the tip, 0.5 cm long and 0.2 cm wide, with two small side lobes in the ventral part (wings). ***Capsule*** ovoid, 3.5 cm long and 0.8 cm in diameter.

TABLE 1. *Encyclia* species reported from Guatemala (Kew 2008).

| |
|---|
| *Encyclia adenocarpa* (Lex.) Schltr. |
| *Encyclia alata* (Bateman) Schltr. |
| *Encyclia ambigua* (Lindl.) Schltr. |
| *Encyclia asperula* Dressler & G.E.Pollard |
| *Encyclia bractescens* (Lindl.) Hoehne |
| *Encyclia ceratistes* (Lindl.) Schltr. |
| *Encyclia chloroleuca* (Hook.) Neumann |
| *Encyclia cordigera* (Kunth) Dressler |
| *Encyclia diota* (Lindl.) Schltr. |
| *Encyclia guatemalensis* (Klotzsch) Dressler & G.E.Pollard |
| *Encyclia hanburyi* (Lindl.) Schltr. |
| *Encyclia incumbens* (Lindl.) Mabb. |
| *Encyclia lineariloba* Withner. |
| *Encyclia nematocaulon* (A.Rich.) Acuña |
| *Encyclia oncidioides* (Lindl.) Schltr. |
| *Encyclia selligera* (Bateman ex Lindl.) Schltr. |
| *Encyclia tuerckheimii* Schltr. |

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