

FIGURE 4e. Orchids from the biological corridor Tacaná-Boquerón, in southeast Mexico from the Tribe Maxillariinae (Subfamily Epidendroideae) and Tribe Angraecinae (Subfamily Vandae): Photographs of images taken by a scanning electron microscope of the exine layer of the interior and exterior walls of the surface tetrads of pollinia. Images augmented  $\times 5000$  and taken under conditions of high vacuum at 10–15 kV. 1) *Lycaste* sp., 2) *Lycaste cruenta*, 3) *Maxillaria atrata*, 4) *Maxillaria houtteana*, 5) *Maxillaria meleagris*, 6) *Maxillaria soconuscana*, 7) *Stanhopea graveolens*, 8) *Campylocentrum microphyllum*.

## A NEW NAME FOR A DISTINCTIVE *RHYNCHOSTYLIS* (ORCHIDACEAE) AND THE MISAPPLICATION OF *RHYNCHOSTYLIS PRAEMORSA*

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**ABSTRACT.** The genus *Rhynchostylis* has three currently accepted species. The name *Rhynchostylis praemorsa* Willd. has been misapplied to a Philippine species. This attractive forth species is named and described. A dichotomous key to *Rhynchostylis* is provided.

**Key words:** Epidendroideae, Vandaeae, Aeridinae, nomenclature, taxonomy, key

### INTRODUCTION

When Carl Ludwig von Blume described the genus *Rhynchostylis* (*Rynchostylis*) in 1825, he included two species *Rhynchostylis retusa* Blume and *R. praemorsa* Blume. Carl Blume listed *Aerides retusa* (L.) Sw. as a synonym of *Rhynchostylis retusa* and *Aerides praemorsa* Willd. as a synonym of *R. praemorsa*. Both species were described as growing on trees in *Bantam et Buitenzorg* (Java). The differences stated by Blume between the two species are the month of flowering and the leaf apex. *Rhynchostylis retusa* has a bifid retuse apex and flowers in February while *Rhynchostylis praemorsa* has an oblique praemorsis (bitten off) apex and flowers in April. Java experiences two distinct seasons; the rainy season from October to April, and the dry season from May to September.

When Olof Swartz treated *Aerides retusum* (= *R. retusa*) in 1799(a), he stated that the habitat was in Malabar. Swartz also listed as synonyms his *Limodorum retusum* Sw. (1799b) and *Epidendrum retusum* L. (Linnaeus 1753) [miscited as Rheed Mal. 12. Tab. 1]. Linnaeus states that India is the habitat for *Epidendrum retusum* L. Carl Linnaeus also lists *Anjeli Maravara* Rheede, and *Biti Maram Maravara* Rheede, (Rheede 1693) as synonyms. Hendrik Adriaan von Rheede states that both species are found growing epiphytically in Malabar.

When Carl Ludwig von Willdenow described *Aerides praemorsa* in 1805 he stated that the species was from west India. He also listed *Biti Maram Maravara* Rheede from Malabar as a synonym. The Malabar Coast of India (southwestern lowlands) has a humid tropical wet monsoon climate. Most rainfall occurs between May and November. December to March represent the driest months when precipitation is rare.

It is clear that the World Checklist of Selected Plant Families is correct that *Rhynchostylis retusa* and *R. praemorsa* are the same species or at most

different forms of the same species. The leaf apex of *Rhynchostylis retusa* is highly variable and flowering period is influenced by climatic conditions. The species occurs in semi-deciduous and deciduous dry lowland forests woodlands at elevations of sea level to 700 m; it is native to India, Malaya, Singapore, Sri Lanka, and Thailand.

Another species from the Philippines has been called *Rhynchostylis praemorsa* by orchidologists for many years. An image of the plant can be found on page 170 of *The Orchids of the Philippines* (Cootes, Banks, and Titmuss 2001). What name could apply to this entity? The previous epithets in *Rhynchostylis* have been misapplied and are unavailable for various reasons.

### DISCUSSION

There are currently three recognized *Rhynchostylis* species, *R. coelestis* Rchb.f. ex A.H.Kent, *R. retuse*, *R. gigantea* (Lindl.) Ridl., and two subspecies *R. gigantea* subsp. *gigantea*, *R. gigantea* subsp. *violacea* (Lindl.) Christenson (World Checklist of Selected Plant Families 2012). In July 2009, Robert Riefer flowered a plant that he had purchased at the Miami International Orchid Show from Mac's Orchids (Fort Lauderdale) the previous year as *Rhynchostylis praemorsa* Blume which is a synonym of *R. retusa* (L.) Blume. This plant from the Philippines has several distinct characteristics that distinguish it from *R. retusa* (TABLE 1). The leaf tips are sub-oblique with the central vein extending into a small sharp acute point, and the flowers are smaller. The labellum is narrow with a small sharp upturned and hook-like apicule at the apex and the mentum or spur also has a distinctive shape.

### TAXONOMIC TREATMENT

***Rhynchostylis rieferii*** W.E.Higgins, sp. nov.  
TYPE: Ex hort.—July 2009, *R. Riefer s.n.* (Holotype: SEL). FIGURES 1, 2.

TABLE 1. Comparison of Taxa.

Species	Spike	Lip	Lip tip	Spur	Side-lobes	Raceme	Flowers	Range
<i>R. gigantea</i>	arching - pendent	apex distinctly 3-lobed	straight	straight, pointed	folded up	short	January-February	Hainan - Malaysia
<i>R. gigantea</i> subsp. <i>violacea</i>	arching - pendent	apex distinctly 3-lobed	straight	straight, pointed	folded up	short	December-March	Philippines
<i>R. retusa</i>	pendent	apex not 3-lobed	down	straight, rounded	folded up	long	June-October*	Yunnan - Trop. Asia
<i>R. coelestis</i>	upright	apex not 3-lobed	straight	downwards, pointed	spreading	long	June-August	Indochina
<i>R. riefferii</i>	pendent	minutely 3-lobed	upwards	straight, truncate	spreading	long	July	Philippines

\* Flowering can be sporadic throughout the year.

*A Rhynchosstylis retusa, cui similis, foliis et labello differt: Labello linguiforme, subtrilobo, apice erecto unciforme, calcare truncate; folia apice subobliqua, retusa, apiculata. Flos minor, columna ornithorhynchiformis, inflorescentia cernua.*

**Plant** epiphytic, ascending monopodial habit, 27 cm tall, 44.6 cm wide. **Leaves** glabrous, coriaceous, sessile, distichous, linear, conduplicate 2.5 × 21–25 cm, margin entire, apex sub-oblique, retuse, apiculate (FIGURE 1). **Inflorescence** axillary, pendulous, densely flowered cylindrical raceme, indeterminate, 4.3 × 36 cm. **Flower**

white marked violet, fragrant, 16–18 mm vertically and 14–15 mm horizontally (FIGURE 2). **Pedicel** (with ovary) 14 × 1.5 mm, floral bracts acute, dry, brown, 7 mm long. **Dorsal sepal** white with dilute violet veining, obtuse, entire, 4 × 7 mm. **Lateral sepals** white with suffused violet, oblique-lunate, obtuse, entire, 6 × 7 mm. **Petals** white and irregularly spotted with violet, elliptical, acute, entire, 3 × 7 mm; **Column foot** 2 × 8 mm. **Spur** truncate, flattened, 5 × 2 mm, and 8 mm deep. **Labellum** violet with a white tip, lingulate, minutely 3-lobed, acute, entire with an upturned hook-like apex, 6 × 8 mm. **Callus** papillate at

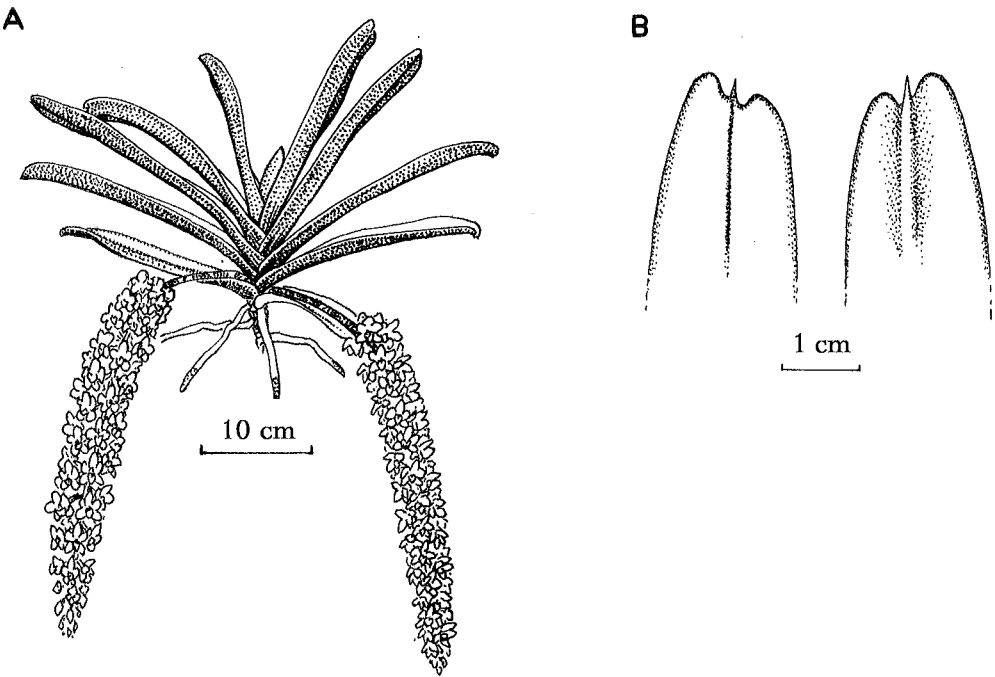


FIGURE 1. *Rhynchosstylis riefferii* - Habit. A. Plant habit. B. Leaf apex, dorsal and ventral (All drawn from the holotype, *R. Rieffer* s.n., by Stig Dalström).

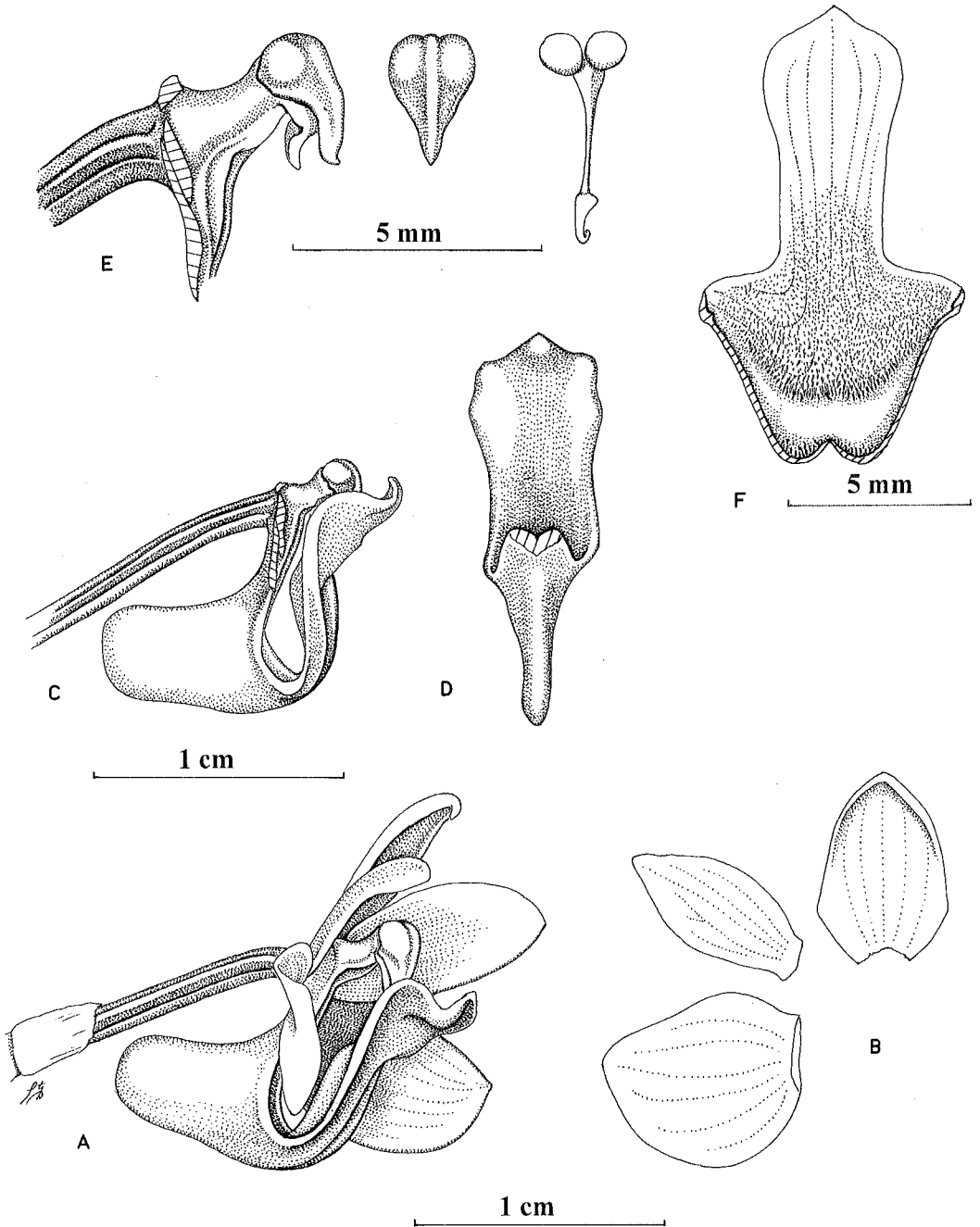


FIGURE 2. *Rhynchostylis rieferii* - Floral morphology. **A**. Profile of flower. **B**. Dissected sepals and petal. **C**. Side view of spur and lip. **D**. Top view of lip and spur. **E**. Side view of column, front views of anther cap, pollinarium. **F**. Flattened view of lip and callus. (All drawn from the holotype, *R. Rieffer* s.n., by Stig Dalström).

base of lip (FIGURE 2F). **Column** green, beaked, short, 0.15 × 0.3 mm. **Anther cap** yellow, tip white, cordate, 0.15 × 0.3 mm. **Pollinia** two, spherical, connected by a stipe, 0.1 × 0.1 mm.

**DISTRIBUTION:** Reported from the Philippines by Mac Rivenbark and illustrated in *The Orchids of the Philippines*.

**ETYMOLOGY:** Named for Robert Riefer a serious orchid hobbyist that brought this plant to my attention.

**Key to *Rhynchostylis***

- 1. Inflorescence upright ascending, flowers white marked with lilac, tip of spur distinctly bent downwards . . . *R. coelestis*
- 1'. Inflorescence arching or pendent, flowers white marked with pink, red or violet, spur not bent . . . . . 2
- 2. Lip apex distinctly 3-lobed, tip of spur angular, column foot absent . . . . . 3
- 2'. Lip apex not 3-lobed, column foot present . . . . . 4
- 3. Flowers winter-spring, the lip apex gradually tapered. . . . .  
     . . . *R. gigantea* subsp. *violacea*
- 3'. Flowers summer-fall, labellum apex lobulate; . . . . .  
     . . . *R. gigantea* subsp. *gigantea*

- 4. Lip tip straight or downwards, tip of spur rounded . . . . . *R. retusa*
- 4'. Lip tip upwards and hook-like, tip of spur truncate. . . . .  
     . . . . . *R. rieferii*

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*CALATHEA MONSTERA*, A NEW SPECIES IN THE ORNATA GROUP OF  
*CALATHEA* (MARANTACEAE)

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**ABSTRACT.** *Calathea monstera* H. Kenn. from Panama and western Colombia is described as new. *Calathea monstera* belongs to the "Ornata group" of *Calathea*. It shares a similar inflorescence and capsule morphology with *C. sanderiana* (Sander) Gentil, but is distinguished by the longer and narrower leaves, the acute to acuminate vs. obtuse apex, the markedly unequal vs. equal-sided leaf base and the non-patterned juvenile foliage.

**Key words:** Panamá, Colombia

**TAXONOMIC TREATMENT**

***Calathea monstera*** H. Kenn. sp. nov. TYPE: Panamá—Colón: Río Guanche, ca. 1.5 mi upstream from the bridge, 10–20 m, wet lowland evergreen forest, 4 September 1974, H. Kennedy, R.L. Dressler, P.J.M. Maas & C. Toft 3388 (Holotype: PMA; Isotypes: MEXU, MO, UCR). FIGURE 1.

*Haec species a Calathea sanderiana foliis proportione longioribus angustioribusque (ratione longitudinis cum latitudine 2.54–3.28 vs. 1.67–1.88), apice acutis acuminatisve (vs. obtusis), base manifeste inaequalibus (vs. subaequalibus) atque venis tessellatis crebrioribus 20 ad 24 (ad 28) (vs. 16 vel 17) per 5 mm inter venas laterales distinguitur.*

**Herb**, rhizomatous, caulescent, 1.3–2.25 m, bearing 2–5 leaves, (1) 2–4 basal, 0 or 1 cauline above a 54–107 cm long internode. **Cataphylls** coriaceous, narrowly ovate, apex obtuse, apiculate, purple, minutely hispid, 40–52 cm long. **Stem** dark green, minutely hispid. **Leaf blades** coriaceous, elliptic to ovate-elliptic, length:width ratios of 2.54–3.28:1, apex acute to acuminate, base rounded, unequal, one side up to 1.9 cm lower than other, shortly attenuate, (30.5–) 42–64 (–75.5) × (12–) 17–24 (–29.5) cm in subtending leaves, 58–86 × 19.5–29 in basal leaves; lateral veins 11–15 (–18) per 3 cm, cross veinlets 20–24 (–28) per 5 mm. Leaf blade shiny, dark green, glabrous above, midrib lighter, yellow-green, glabrous except subglabrous at very base; lower surface semi-shiny with a slight metallic cast, medium green, minutely tomentose, trichomes more dense along major veins, trichomes 0.2–0.4 mm, midrib yellow-green, densely minutely tomentose along sides, centrally subglabrous in basal 2/3. **Pulvinus** elliptic in cross-section, olive-green, glabrous throughout or sparsely tomentose

in narrow row above, (3.7–) 4.7–8 (–11) cm long in cauline leaf, 8.7–14.5 cm long in basal leaves. **Petiole** dark green to dark olive-green, slightly hispid, (0–) 6–25.5 (–46.5) cm long in subtending leaf, 54–105 cm long in basal leaves. **Leaf sheath** not auriculate, dark green, dying at the margins in cauline leaves, lighter, olive-green toward apex, minutely appressed tomentose to minutely hispid basally, trichomes stiff, 0.2–0.5 mm long in cauline leaves, hairs denser, to 1 mm long at base in basal leaves, 15–35 cm in cauline leaves, 43–55 cm in others. Node yellow-green, lighter than sheath base. **Inflorescence** terminal, 1 per aerial shoot, borne well above the leaves, lax, broadly ovoid to subcylindric, 4–7 × 4.5–6.5 cm. **Peduncle** olive-green, densely minutely appressed tomentose to subhispid apically, hairs 0.3–0.5 mm long, sparsely so toward base, 43–130 cm long. **Bracts** 4–6, stiff, chartaceous, spirally arranged, remote, spreading, patent to reflexed, narrowly ovate, apex acute, 3.5–5 × 1.2–1.5 cm. Abaxial bract surface pale olive-green, cream-colored at very base or tinged purple, densely appressed tomentose, trichomes 0.8–1.2 mm long; each bract subtending potentially to 34 or more flower pairs. **Bicarinate prophyll** membranous, in age dilacerating into fibers, ovate, apex obtuse to 90°, purple or translucent pale straw-colored, tinged purple apically, sides abaxially pilose, trichomes to 0.5 mm long, center glabrous, 1.8–2.1 × 1.1–1.2 cm, carina to carina ca. 0.55 cm. **Secondary bracts** membranous, ovate, apex obtuse, translucent pale straw-colored, pilose along margins and at apex, ca. 2.5–2.6 × 1.5 cm. **Bracteole** 1 per flower pair, linear, needle-like, claviculate, yellow, glabrous except for a tuft of trichomes at junction with pedicel, 1.9–2 cm long. **Sepals** firm, narrowly elliptic, apex acute, shiny dark purple, glabrous except at very base, at junction with ovary, densely minutely pilose, 25–27 × 5–8 mm.