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Anacheilium madrese Sauleda and Uribe-Velez (Orchidaceae) a new combination in the genus *Anacheilium* Hoffmanns.

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Abstract

A new combination is published in the genus *Anacheilium* Rchb. ex Hoffmanns. The use of *Prosthechea* as the genus for the new combination is rejected for the reasons given.

Introduction

The genus *Anacheilium* was established by Hoffmanns. (*Anacheilium* Rchb. ex Hoffmanns., Verzeichniss der Orchideen 21. 1842) based on *Epidendrum cochleatum* L. The genus was not accepted but considered a synonym of the sub-genus *Osmophytum* Lindl.

The genus *Epidendrum* continued to be widely used until Schlechter (1914) published a reevaluation of the genus *Encyclia* Hook, transferring to the genus species with an entirely or partially free, generally tri-lobed labellum.

Authors used Schlechter's genus *Encyclia* (Hoehne, 1952; Lemée, 1955; Dressler, 1961; Dressler and Pollard, 1974) to transfer species in the section *Aulizeum* and *Osmophytum*, to the genus *Encyclia*, enlarging the concept of *Encyclia* as proposed by Schlechter. However, Acuña (1939) and Small (1933) accepted the genus *Anacheilium* as proposed by Hoffmanns in their floras.

Higgins (1997) stated: “The genus *Encyclia* is currently divided into three subgenera: *Encyclia* subgenus *Osmophytum*, *Encyclia* subgenus *Encyclia*, and *Encyclia* subgenus *Dinema*. An ongoing systematic study of the genus *Encyclia* based on holomorphology has determined that the genus is neither cohesive nor monophyletic (Higgins, unpublished). In a preliminary molecular study, analysis of the internal transcribed spacer (ITS) sequences of nuclear ribosomal DNA supports the morphological conclusion that the *Encyclia* subgenus *Osmophytum* clade should be raised to the generic level because these species are sister to the *Cattleya-Laelia* clade and not to the *Encyclia* subgenus *Encyclia* clade. However, the monophyly of the three currently recognized subgenera of *Encyclia* i.e., *Encyclia* subg. *Osmophytum*, *Encyclia* subg. *Encyclia*, and *Encyclia* subg. *Dinema* is supported by both morphological and molecular analyses.”

Higgins (1997) was correct in stating that *Encyclia* subg. *Osmophytum* and *Encyclia* subg. *Dinema* should be removed from the genus *Encyclia*. He then proposed using *Prosthechea* at the generic level to include the species in *Encyclia* subg. *Osmophytum*, stating that this “will lead to a more predictive

classification” and removing of all the species without the characteristics of *Encyclia* as originally proposed by Hooker and later reevaluated by Schlechter. This made the genus *Encyclia* monophyletic but resulted in a conglomeration of several distinct genera being included in *Prosthechea* and being considered synonyms of *Prosthechea*. Higgins (1997) stated “because the oldest available generic name used in this clade is *Prosthechea*, this name has priority according the *ICBN*. Conservation of *Anacheilium* is inappropriate because of its previous limited application to few members of the clade” Conserving *Anacheilium* over *Prosthechea* would have made no sense although *Anacheilium* was an established genus with several species contrary to Higgins statement. Transferring all of these species into *Anacheilium* would have made as little sense as did transferring the species into *Prosthechea*. The genus *Prosthechea* with the proposed expansion resulted in an extremely polyphyletic genus, a condition that most authors in the past have tried to avoid. Additionally, the concept of *Prosthechea* of Higgins is based on DNA that has no bearing on the morphology of the species and totally ignores the morphology of the species.

Prosthechea (as proposed by Higgins, 1997) non Knowles & Westc., Fl. Cab. 2: 111 (1838).

Hormidium Lindl. ex Heynh., Nom. Bot. Hort.: 880 (1841).

Anacheilium Hoffmanns., Linnaea 16 (Litt.): 229 (1842).

Epicladium Small, Fl. Miami: 56 (1913).

Euchile (Dressler & G. E. Pollard) Withner, Cattleyas and & Relatives 5: 137 (1998).

Pseudencyclia Chiron & V. P. Castro, Richardiana 4: 31 (2003).

Panarica Withner & P. A. Harding, Cattleyas & Relatives: Debatable Epidendrum: 207 (2004).

Pollardia Withner & P. A. Harding, Cattleyas & Relatives: Debatable Epidendrum: 217 (2004).

When a comparison is made of the type of *Prosthechea*, with the species transferred into *Prosthechea* by Higgins, their morphology does not match the type of *Prosthechea*. When all of the species listed in *Prosthechea* by Higgins are considered in their established corresponding genera only *Prosthechea glauca* Knowles & Westc. remains. *Prosthechea* then appears to be a monotypic genus. The only species that resemble *Prosthechea* are species similar to Small’s *Epicladium*. However, in *Epicladium* the column structure is different from *Prosthechea*.



Euchile mariae (Ames) Withner.



Epicladium boothianum (Lindl.) Small.



Pollardia livida (Lindl.) Withner & P. A. Harding.



Panarica brassavolae (Rchb. f.) Withner & P. A. Harding.



Anacheilium cochleatum (L.) Hoffmanns.



Prosthechea glauca Knowles & Westc. Photograph from <https://listadeorquideasmexicana.blogspot.com/>.

Prior to Higgins (1997) Pabst *et al.* (1981) published a paper reestablishing the genus *Anacheilium* and transferring the species in *Encyclia* section *Osmophytum* to *Anacheilium*. After Higgins (1997) the genus was again treated by Withner and Harding (2004). The publication by Withner and Harding (2004) has been the last treatment of the genus.

Prosthechea ionophlebia (Rchb. f.) W. E. Higgins, *Prosthechea chacaoensis* (Rchb. f.) W. E. Higgins and *Prosthechea madrensis* (Schltr.) Karrmans are similar and have been a source of misidentifications.

Karrmans (2009) makes an excellent comparison of the three species. Karrmans (2009) separates *E. madrense* from *A. chacaoense* and transferred it to the genus *Prosthechea*. Karrmans (2009) states: “*Prosthechea madrensis* can be recognized by its ovoid-elliptic pseudobulbs, widely spreading flowers, the elliptic petals, and the suborbicular, apiculate, slightly concave (almost flattened) lip with wavy margins. The lip presents 13 (could also have 15) stripes, with the lateral ones continuous and the median ones truncate; the two outer stripes extend to about half to three fourths the length from the distal portion of the callus to the apex of lip; the central stripe has variable length, but is mostly shorter than the other two; none of the stripes are branched and they are also all equally thick.”

Karrmans (2009) states that “*Prosthechea chacaoensis* can be recognized by its pyriform pseudobulbs, the ringent flowers, the elliptic petals sharply bent at the middle, and the suborbicular, acute, deeply concave lip with straight margins. The lip has 13-15 purple stripes on the lip, divided into five or six lateral stripes on each side and three medium stripes, all of them reaching up to 1-2 mm from lip apex (hereafter referred as “continuous”); a few of the lateral stripes are regularly branched and all the line segments are born at the base of the lip (i.e., there are no disjointed stripes). The stripes are all equally thick, with the central ones straight and continuous.” This description closely matches the Colombian plants.

Prosthechea ionophlebia according to Karrmans (2009) is “distinguished by pyriform pseudobulbs, large flowers, with widely spreading segments, broad petals, have normally a broken margin near the middle, and a subreniform, concave, apiculate lip, with strongly wavy margins. The lip has 15-17 stripes, many of them strongly branched (even basally) and with several disjointed stripes (smaller and usually near the apex); all the lateral stripes are continuous, but the three medium stripes are truncate, the two outermost ones reaching up half the length from the apex of callus to the apex of lip; the central line is longer but normally does not reach lip apex. All stripes have similar thickness.”

Prosthechea ionophlebia and *P. chacaoensis* have been transferred to the genus *Anacheilium*. *Epidendrum madrense* Schltr. (*Prosthechea madrensis*) has not been transferred and properly belongs in *Anacheilium*.

We here abide by the traditional definition of a genus, which is a group of similar species, as is the genus *Anacheilium*, not groups of similar species, as is the concept of *Prosthechea* of Higgins and we here transfer *Epidendrum madrense* Schltr. to the genus *Anacheilium*.

Anacheilium madrense (Schltr.) Saulea and Uribe-Velez comb. nov.

Basionym: *Epidendrum madrense* Schltr., Beih. Bot. Centralbl. 36(2): 405 (1918).

TYPE: Mexico: Sierra Madre, 1000 m. Apr. 1899, Langlassé 1000 bis (holotype, B, destroyed; isotypes, P 00407406, P 00407407; drawing of the holotype, AMES).

Synonym: *Prosthechea madrensis* (Schltr.) Karrmans. *Prosthechea madrensis*, a reconsideration of *Epidendrum madrense* Schltr. (Orchidaceae: Laeliinae). Acta Botanica Mexicana 88: 47-57 (2009).

Withner and Harding (2004) consider *P. madrensis* a synonym of *P. chacaoensis*. However, the discussion of the three species by Karrmans (2009) clearly establishes that they are distinct species. In addition two of the three species are geographically isolated. *Anacheilium madrense* (*P. madrensis*) ranges from Mexico, San Salvador to Nicaragua, *Anacheilium ionophleabum* (*P. ionophlebia*) ranges from Costa Rica to Panama. However, *Anacheilium chacaoense* (*P. chacaoensis*) has a wide distribution, ranging from Mexico to Venezuela. There are numerous reports of *A. chacaoense* in Colombia none of which are well documented (Bernal, 2019). We here report it for Colombia with illustrations and a voucher specimen at HPUJ.

Anacheilium chacaoense (Rchb. f.) Withner & P. A. Harding, *Cattleyas & Relatives: Debatable Epidendrums*: 6. 2004.

Basionym: *Epidendrum chacaoense* Rchb. f., *Bonplandia* 2: 20. 1854.

TYPE: Venezuela, Caracas, 3000 ft., März, *Wagner s. n.* (holotype, W).

Synonym: *Prosthechea chacaoensis* (Rchb. f.) W. E. Higgins, *Phytologia* 82: 376. 1997.

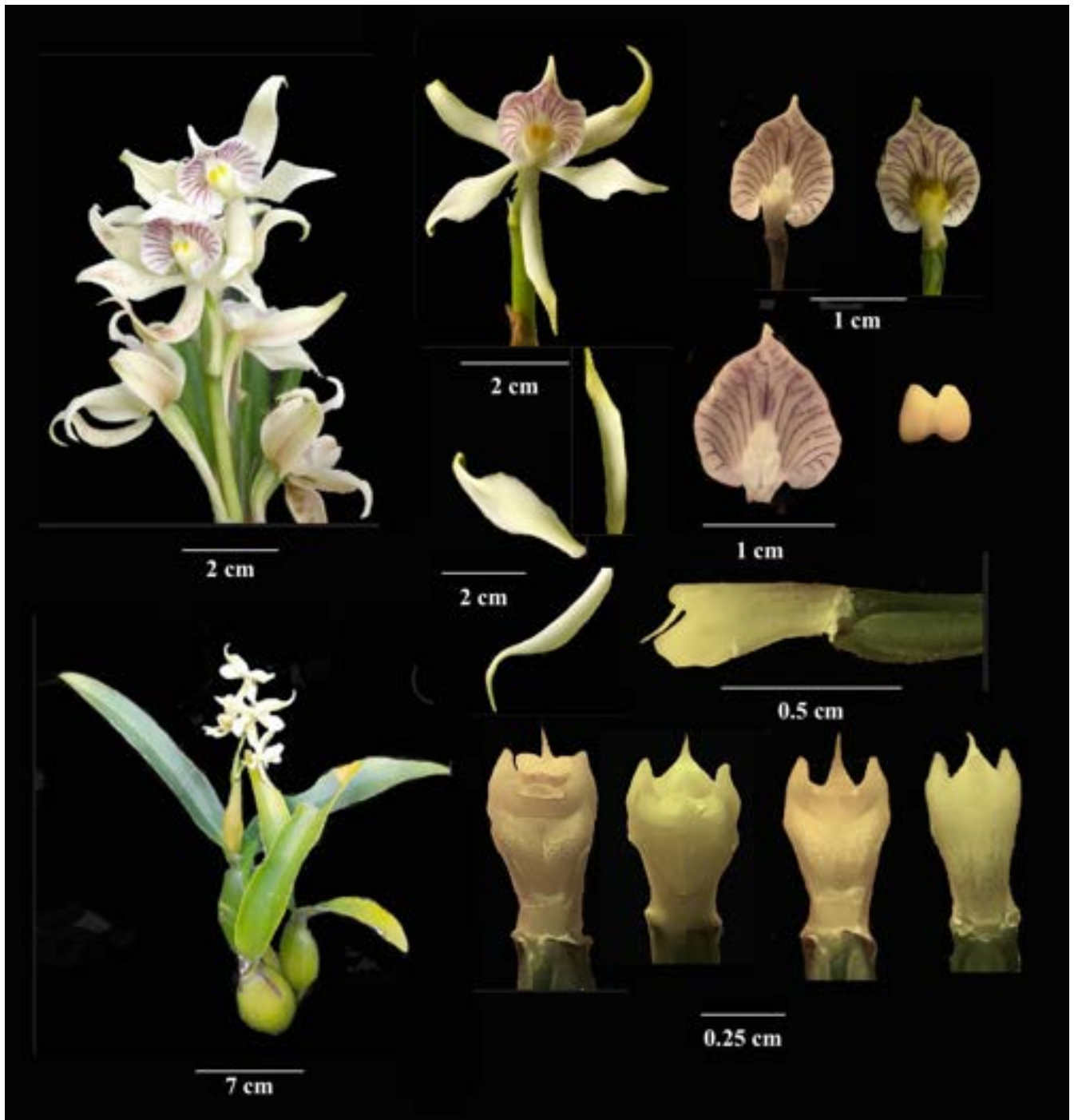
Voucher specimen: Colombia, department Norte de Santander, near Ocaña. Collector unknown. From cultivation, 2000. HPUJ.



Anacheilium chacaoense (Rchb. f.) Withner & P. A. Harding.



Anacheilium chacaoense (Rchb. f.) Withner & P. A. Harding.



Anacheilium chacaoense (Rchb. f.) Withner & P. A. Harding.



Anacheilium chacaoense (Rchb. f.) Withner & P. A. Harding. Photograph courtesy of Frank and Julie Jordan.

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