

ON *MAXILLARIA BOMBOIZENSIS* AND *CAMARIDIUM CARINATUM* (ORCHIDACEAE)

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Abstract. *Maxillaria bomboizensis* is synonymized under *Camaridium carinatum*. Two previously published combinations based on *Maxillaria bomboizensis* (*Camaridium bomboizense* and *Sauvetea bomboizensis*) are invalid. A complete synonymy is provided for *Camaridium carinatum*, and lectotypes are designated for its basionym *Maxillaria carinata* and its synonym *Maxillaria imbricata*. The name *Maxillaria jenischiana* has been misapplied to *Camaridium carinatum* since 1959.

Resumen. *Maxillaria bomboizensis* es puesta en la sinonimia de *Camaridium carinatum*. Dos combinaciones previamente publicadas, basadas en *Maxillaria bomboizensis* (*Camaridium bomboizense* y *Sauvetea bomboizensis*) son inválidas. Se provee una sinonimia completa para *Camaridium carinatum*, y se designan lectotipos para su basónimo *Maxillaria carinata* y su sinónimo *Maxillaria imbricata*. El nombre *Maxillaria jenischiana* ha sido mal aplicado a *Camaridium carinatum* desde 1959.

Keywords: *Camaridium hoehnei*, *Maxillaria bomboizensis*, *Maxillaria jenischiana*

Blanco et al. (2007) provided a generic reclassification for taxa in “core” subtribe Maxillariinae (Orchidaceae) compatible with the phylogenetic results of Whitten et al. (2007). *Maxillaria bomboizensis* Dodson (1994) was transferred to two different genera (*Camaridium* Lindl. and *Sauvetea* Szlach.) in the same publication because of an oversight on my part.

Later, Blanco et al. (2008) published a short list of corrections and additions, among them a clarification that the name *Sauvetea bomboizensis* (Dodson) M. A. Blanco was the intended transfer. However, the simultaneous transfers in Blanco et al. (2007) rendered both names invalid (Art. 34.2 in McNeill et al., 2006).

Moreover, recent examination of photographs of the type collection of *Maxillaria bomboizensis* (Baker & Zaruma 6473, QCNE and MO) has convinced me that this species is conspecific with *Camaridium carinatum* (Barb. Rodr.) Hoehne to which it is referred herein.

Maxillaria bomboizensis was considered endemic to Ecuador and was known only from the type collection.

Camaridium carinatum (Barb. Rodr.) Hoehne, Arq. Bot. Estado São Paulo, n.s., f.m., 2(4): 72. 1947.

Basionym: *Maxillaria carinata* Barb. Rodr., Gen. Sp. Orchid. 2: 206. 1881. *Camaridium imbricatum* (Barb. Rodr.) Hoehne var. *carinatum* (Barb. Rodr.) Hoehne, Arq. Bot. Estado São Paulo, n.s., f.m., 6: 127. 1952; *Camaridium hoehnei* Pabst var. *carinatum* (Barb. Rodr.) Pabst, Anais Bot. Herb. “Barbosa Rodrigues” 5: 71. 1953; *Maxillaria jenischiana* (Rchb.f.) C. Schweinf. var. *carinata* (Barb. Rodr.) Pabst, Bradea 1: 174. 1972. TYPE: BRAZIL. Rio de Janeiro, “Hab. croissant sur les arbres des montagnes des environs de Rodeio. Fleurit en Mars,” *J. Barbosa*

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Rodrigues s.n. (Holotype: not located and probably destroyed; Lectotype, designated here: t. 66A in volume I of Barbosa Rodrigues' "Iconographie des Orchidées du Brésil," RB [not seen; digitally restored image published in Sprunger et al., 1996: 120]).

Synonyms: *Maxillaria imbricata* Barb. Rodr., Gen. Sp. Orchid. 1: 120–121, t. 343. 1877. *Camaridium imbricatum* (Barb. Rodr.) Hoehne, Arq. Bot. Estado São Paulo, n.s., f.m., 2(4): 72. 1947; *nom. illeg.*, not *Camaridium imbricatum* Schltr., Beih. Bot. Centralbl., Abt. 2, 36(2): 415–416. 1918. *Camaridium hoehnei* Pabst, Anais Bot. Herb. "Barbosa Rodrigues" 5(5): 70. 1953. TYPE: BRAZIL. Rio de Janeiro. "A Petropolis, dans la Province de Rio de Janeiro. Fleurit en Décembre," *J. Barbosa Rodrigues s.n.* (Holotype: not located and probably destroyed; Lectotype, designated here: t. 278 in volume VI of Barbosa Rodrigues' "Iconographie des Orchidées du Brésil," RB [not seen; digitally restored image published in Sprunger et al., 1996: 406]).

Maxillaria imbricata Barb. Rodr. var. *major* Cogn., Fl. Bras. (Martius) 3(6): 60. 1904. TYPE: BRAZIL. Rio de Janeiro. "In sylvis supra arbores ad Theresopolis in Serra dos Orgãos," *H. Schenk 2711* (Holotype: not located; not found at BR).

Maxillaria iguapensis Hoehne & Schltr., Arq. Bot. São Paulo 1: 271, t. 5. 1926; *Camaridium iguapense* (Hoehne & Schltr.) Hoehne, Arq. Bot. Estado São Paulo, n.s., f.m., 2(4): 72. 1947; *Camaridium imbricatum* (Barb. Rodr.) Hoehne var. *iguapense* (Hoehne & Schltr.) Hoehne, Arq. Bot. Estado São Paulo, n.s., f.m., 6: 127. 1952; *Camaridium hoehnei* Pabst var. *iguapense* (Hoehne & Schltr.) Pabst, Anais Bot. Herb. "Barbosa Rodrigues" 5: 71. 1953; *Maxillaria jenischiana* (Rchb.f.) C. Schweinf. var. *iguapensis* (Hoehne & Schltr.) Pabst, Bradea 1: 175. 1972. TYPE: BRAZIL. São Paulo: Iguape, Ararapira, 27 April 1918, *F. C. Hoehne s.n.* (Lectotype, designated by Barros in Orchid Memories: 14. 2004): SP [No. 1872 ; image seen]).

Maxillaria bomboizensis Dodson, Orquidología 19(3): 59–61. 1994; *Camaridium bomboizense* (Dodson) M. A. Blanco in Blanco et al., Lankesteriana 7: 519. 2007, *nom. inval.*; *Sauvetrea bomboizensis* (Dodson) M. A. Blanco in Blanco et al., Lankesteriana 7: 535. 2007, *nom. inval.*, *syn. nov.* TYPE: ECUADOR. Morona-Santiago: La Misión Salesiano, 5 km al S del Rio Bomboiza y cerca de la carretera Zamora-Gualaquiza, 800 m, 30 October 1985, *M. A. Baker & J. Zamora 6473* (Holotype: QCNE; Isotypes: MO [image seen], NY [not found], QAME [not seen]).

"*Maxillaria jenischiana*" auct. non (Rchb.f.) C. Schweinf.: Dunsterville and Garay in Venez. Orchid. III. 1: 224–225. 1959; Pabst in Bradea 1: 174–175. 1972; Pabst and Dungs in Orchidaceae Brasil.: 187, 237. 1977; Dunsterville and Garay in Orchids Venezuela: 519. 1979; Boggan et al. in Checkl. Pl. Guianas: 320. 1992; Ortiz in Orquídeas de Colombia, ed. 2: 282. 1995; Sprunger et al. in João Barbosa Rodrigues' "Iconographie des Orchidées du Brésil": 120, 406, 486. 1996; Jørgensen and León-Yáñez in Cat. Vasc. Pl. Ecuador: 703. 1999; Funk et al. in Contr. U.S. Natl. Herb. 55: 126. 2007.

My initial impression was that *Maxillaria bomboizensis* belonged in *Camaridium*, and for this reason the transfer to *Camaridium* was included in Blanco et al. (2007). However, Dodson (1994: 61) referred this species to the "Alpestris group" (comprised by *Maxillaria alpestris*, the type species of the genus *Sauvetrea*, and its close relatives). Dodson probably based his opinion on the apparently trigonous ovary, a condition not reported for species of *Camaridium* but common for species of *Sauvetrea* (Whitten et al., 2007; Blanco et al., 2007). This seemed like a strong argument in favor of its position in *Sauvetrea*, and therefore we later included the combination in that genus in Blanco et al. (2007), but forgot to delete the combination in *Camaridium*.

Dodson did not study live material of *Maxillaria bomboizensis* to prepare its description, but only the holotype at QCNE (the only specimen cited in the protologue) and the isotype at MO (not mentioned in the protologue;

C. Dodson, pers. comm.). It is likely that the apparently trigonous ovary is an artifact of the pressing process. The specimen label indicates the existence of additional duplicates in NY and QAME. The duplicate at MO has been located recently; it has four flowers in good condition that clearly show the characteristic floral shape of *Camaridium hoehnei* (an image of this isotype is already posted on <http://www.tropicos.org>). The putative duplicate in NY has not been found, and likely was never received at that herbarium (T. Zanoni, pers. comm.). It has not been possible at this time to verify the existence of a duplicate at QAME.

Some character states of *Camaridium carinatum* which are present in the type of *Maxillaria bomboizensis* but which are absent in species of *Sauvetrea*, are: (1) the plants have ascending branches (each one consisting of several successive sympodia), with roots produced exclusively at the base; (2) ovate to fusiform, laterally compressed pseudobulbs closely spaced along each branch (and subparallel to it) but usually not overlapping; (3) leaf sheaths are usually scabrous; (4) leaf blades are produced by most internodes of each sympodial unit, not just by the pseudobulbs; (5) the leaf blades are caducous, often being present only on the most distal portions of each branch; (6) the leaf apex is emarginate and unequally 2-lobate; (7) the floral bract is conspicuously longer than the pedicel and ovary and overlaps with the base of the dorsal sepal; and (8) the labellar callus is wide and truncate.

In contrast, species of *Sauvetrea* have caespitose or rhizomatous plants, occasionally with ascending branches (but then roots are produced from every sympodial unit along the branch), only the pseudobulbs bear leaf blades that are not early deciduous (the rhizome internodes are covered by ancipitous, scarious, smooth bracts), the leaf apices are acute, the floral bract is usually shorter than the pedicel and ovary, and the labellar callus is always acute and elongate.

Camaridium carinatum is one of the few species of this predominantly Central American genus (as circumscribed by Blanco et al., 2007 and Whitten et al., 2007) present in South

America, where it is widely distributed (currently known from Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Surinam, and Venezuela). It is variable, especially in terms of leaf width and flower size and color, and possibly several discrete species are currently treated under this name (e.g., see the descriptions and illustrations in Hoehne [1953] as *Camaridium imbricatum* (Barb. Rodr.) Hoehne; in Dodson and Dodson [1980] and Dodson and Vásquez [1989] as *Maxillaria imbricata*; and in Sprunger et al. [1996] as *Maxillaria jenischiana* (Rchb.f.) C. Schweinf.). Flower color ranges from pure white (in Brazil) to yellowish (often spotted with reddish brown) to dull orange.

Camaridium carinatum is closely related to *C. bracteatum* (Schltr.) Schltr., *C. gomezianum* (J. T. Atwood) M. A. Blanco, and *C. longicolumna* (J. T. Atwood) M. A. Blanco, all from southern Central America (Whitten et al., 2007, treated as *Maxillaria imbricata* Barb. Rodr., *M. bracteata* (Schltr.) Ames & Correll, *M. gomeziana* J. T. Atwood, and *M. longicolumna* J. T. Atwood, respectively). They all share the features enumerated above for *C. carinatum*, and form a well-defined group that is in need of taxonomic revision. Blanco et al. (2007: 522) used the name *Camaridium hoehnei* instead of *C. carinatum*, but *C. carinatum* has priority.

Dunsterville and Garay (1959) misapplied the name *Maxillaria jenischiana* (Rchb.f.) C. Schweinf. to *Camaridium carinatum*. *Maxillaria jenischiana* is a nomenclatural synonym of *Ornithidium jenischianum* Rchb.f., a very different species with red flowers endemic to Venezuela. Foldats (1970: 464) noticed this erroneous determination, but Pabst (1972), Pabst and Dungs (1977), and Dunsterville and Garay (1979) continued using the misapplied name, probably because Foldats's correction was overlooked since it was published in Spanish. This led other authors to propagate this error (see "*Maxillaria jenischiana* auct. non (Rchb.f.) C. Schweinf." at the end of the synonymy). Romero and Carnevali (2000) made the correction in the second edition of *Orchids of Venezuela—An Illustrated Field Guide*.

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