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## Notes on the genus *Sauvetrea* (Orchidaceae, Maxillariinae), with a description of a new species

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**Abstract:** The genus *Sauvetrea* Szlach. (Orchidaceae) was segregated from *Maxillaria sensu lato* in 2007. It embraces a group of from 10 to nearly 20 species, all initially defined as *Maxillaria* sect. *Trigonae*. *Sauvetrea* can be easily distinguished from closely related *Rhettinantha* M.A.Blanco by the lip callus. During the revision of the materials stored in AMES we came across specimens collected by Vargas in Peru, which were initially identified by Schweinfurth as *Maxillaria brachypetala* Schltr. We compared Vargas's discovery with the protologue of the latter species and other *Sauvetrea*, but it does not fit the description of any genus representatives known so far. We describe it below as a new species, *Sauvetrea schweinfurthiana* Szlach. & Lipińska.

**Key words:** *Maxillaria*, Neotropics, orchids, Peru, *Sauvetrea*, taxonomy

### 1. Introduction

The subtribe Maxillariinae Benth. is one of the most conspicuous and diverse taxa among the orchid family. Since its first formal description by Bentham (1881), many researchers have attempted to create a classification system of Maxillariinae. Those attempts suffered, however, from the insufficient information available at that time. Modern and more comprehensive molecular and morphological research (Ojeda et al., 2005; Blanco et al., 2007; Whitten et al., 2007; Ojeda et al., 2009) resulted in the splitting of *Maxillaria sensu lato* into 17 genera. Most of them have been accepted in the most recent studies (Szlachetko et al., 2012) with additional generic delimitation within *Camaridium* and *Ornithidium*. Most taxonomists (Dressler, 1993; Szlachetko, 1995) recognized the following genera: *Anthosiphon* Schltr., *Cryptocentrum* Benth., *Mormolyca* Fenzl, *Pityphyllum* Schltr., *Scuticaria* Lindl., and *Trigonidium* Lindl. Other taxa, depending on the adopted concept, were often combined in the collective genus *Maxillaria sensu lato* (e.g., Dressler, 1981, 1993; Christenson, 2002). All these taxonomic changes were neglected by Schuiteman and Chase (2015), who amalgamated all previously segregated genera once again into *Maxillaria sensu lato*.

The genus *Sauvetrea* Szlach. was fragmented from *Maxillaria sensu lato* in 2007. It embraces group of from 10 to nearly 20 species, all initially defined by Christenson (2002) as *Maxillaria* sect. *Trigonae*. *Sauvetrea* can be

easily distinguished from the closely related *Rhettinantha* M.A.Blanco by the lip callus. In 2007 Szlachetko and Sitko included most of the species classified in *Rhettinantha* M.A.Blanco in their broad concept of *Sauvetrea*. Results of molecular research (Blanco et al., 2007; Whitten et al., 2007) revealed that *Sauvetrea sensu lato* was a polyphyletic taxon. Whitten et al. (2007) believed that among the species that have not been sampled during molecular analysis and that were included in *Sauvetrea* by Szlachetko and Śmiszek (2007), *Maxillaria grandimentum* C.Schweinf. actually belongs in *Maxillaria sensu stricto* and *M. planicola* C.Schweinf. in *Camaridium*.

Plants of *Sauvetrea* are caespitose to moderately long rhizomatous. Pseudobulbs are ellipsoid to ovoid, flattened, unifoliate and frequently ancipitous, subtended by a pair of nonfoliaceous bracts. The rhizome is covered by a few short, acutely triangular, two-ranked, strongly keeled papery bracts exposing the green internodes. Leaf is always single, oblong to elliptic-oblong, membranous to coriaceous. Inflorescences arise from the base of the newly emerging pseudobulbs and are usually as long as leaf. Scapes have strongly ancipitous, two-ranked, strongly keeled bracts. Flowers are usually yellowish-green to tan, medium-sized, covered by imbricating sheaths, with spreading perianth segments, without strong fibers. Floral bracts are as long as or longer than pedicel and ovary. Tepals are dissimilar, narrow. Lip is hanging on the column foot, unequally 3-lobed, with a central, ligulate callus with

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sulcate depression along its length. Column foot is short. There are no secretions produced by the flowers.

During the revision of the materials stored in AMES we came across specimens collected by Vargas in Peru, which were initially identified by Schweinfurth as *Maxillaria brachypetala* Schltr. We compared Vargas's discovery with the protologue of the latter species and other *Sauvetrea*, but it does not fit the description of any genus representatives known so far. We describe it below as a new species.

## 2. Materials and methods

Dried herbarium specimens were examined according to the standard procedures. Each studied sheet was photographed and the data from the labels were taken. The standard procedure of preparing herbarium material to facilitate stereomicroscopic observation was applied. Particular parts of the flower were boiled, dissected, measured, and drawn under a stereomicroscope. The results were then analyzed and compared with the type material, diagnoses, and original illustrations.

## 3. Result and discussion

### 3.1. *Sauvetrea schweinfurthiana* Szlach. & Lipińska, sp. nov. (Figures 1–3)

The new species is somewhat similar to its Peruvian congener *Sauvetrea brachypetala*, with which it shares similar size of flowers, but it can be easily separated by the lip form.

Type: Peru. Dept. Cuzco. Prov. Convencion, Sahuayaco. Alt. 1600 m. 17 Jan 1947. C. Vargas C. 6300 (Holotype: AMES!).

Etymology: Dedicated to Charles Schweinfurth (1890–1970), an eminent American orchidologist and the leading authority on Peruvian Orchidaceae.

Plants rhizomatous. Rhizome ca. 4–8 cm between pseudobulbs, relatively thick, massive, covered with some bladeless sheaths, ascending. Pseudobulbs ca. 1.6–2 cm long, ca. 2 cm wide, elliptic to transversely elliptic, compressed, basally ensheathed by a few bladeless sheaths. Leaf single, up to 19 cm long and 3 cm wide, oblong or elliptic-lanceolate, acute to subobtuse. Inflorescence single-flowered, produced from the rhizome below premature pseudobulbs, ca. 5–6 cm long, clothed by ca. 5–7 sheaths; sheaths broadly ovate-lanceolate, acute to subacuminate, basally imbricating. Flowers relatively large, color unknown, floral segments relatively fleshy, soft, with fibrous vascular bundles. Floral bracts ca. 30–32 mm long, broadly ovate-lanceolate, acute to subacuminate. Pedicellate ovary ca. 33 mm long, triquetrous. Dorsal sepal 38 mm long, 12 mm wide, oblong elliptic, somewhat concave along midvein, subobtuse, keeled on the outside. Lateral sepals 34 mm long, 10 mm wide, linear-lanceolate

in outline, falcate, acute. Petals 24 mm long, 5–6 mm wide, oblong spatulate, slightly oblique, obtuse at the apex. Lip 24 mm long in total, distinctly constricted near the middle, prominently 3-lobed, truncate at the base, callus in the basal third of the lip, oblong, sulcate; the middle lobe 12 mm long, 8 mm wide, oblong elliptic-ovate, obtuse at the apex, margins strongly undulate, irregularly denticulate, except apical margin; lateral lobes oblong elliptic-subquadrate, subobtuse at the apex, apical margin undulate and irregularly denticulate. Gynostemium 14 mm long, clinandrium ciliolate on apical margins, column foot 4–5 mm long.

Distribution and ecology. The plant was collected in S Peru in the Dept. Cuzco, and we have found no other collection of this species elsewhere. Nothing is known about the ecological requirements of the new entity, except the information provided on collector's label that it is an epiphyte.

Notes. The new species is somewhat similar to its Peruvian congener *Sauvetrea brachypetala* (see below), with which it shares similar size of flowers, but it differs by having truncate lip base (vs. narrowly cuneate), lateral lobes oblong elliptic-subquadrate (vs. triangular), and oblong elliptic-ovate middle lobe, obtuse at the apex, with strongly undulate margins, irregularly denticulate, except apical margin (vs. middle lobe broadly oblong-elliptic with flared transverse apical part, notched at the apex), and sulcate (vs. bisulcate) callus. The other species similar to *S. schweinfurthiana* is *S. machupicchuensis* (Christenson & Salinas) M.A. Blanco, described from the Machu Picchu Sanctuary. The latter species has, however, much shorter leaves (ca. 5 cm long), shorter inflorescence (ca. 2.5 cm long), smaller flowers (with tepals ca. 1.5–2 cm long), and different lip form. The lip lateral lobes of *S. machupicchuensis* are obliquely elliptic, abruptly acute; the middle lobe is strongly undulate; and the callus is longer, ca. half as long as entire lip length.

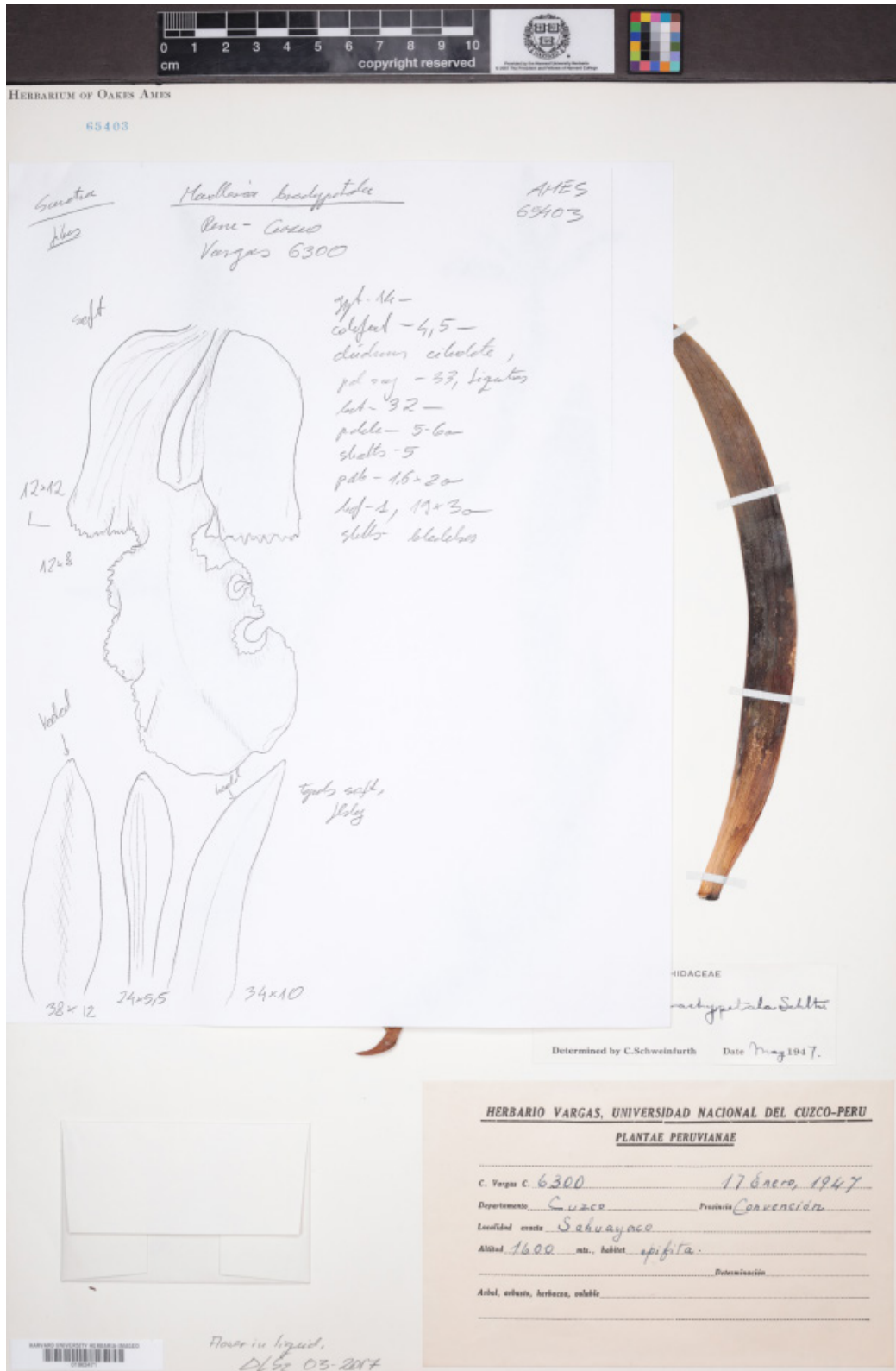
In the course of the study on *Sauvetrea* it became obvious that *Maxillaria brachypetala* Schltr. needed to be transferred to this genus and we validate such a combination below.

### 3.2. *Sauvetrea brachypetala* (Schltr.) Szlach. & Lipińska, comb. nov. (Figure 4)

Basionym: *Maxillaria brachypetala* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 102. 1921; Type: Peru. Junin. Huacapistana. Alt. 2000 m. Jan 1903. *Weberbauer 2160* (B+).

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**Figure 1.** *Sauvetrea schweinfurthiana* Szlach. & Lipińska, **sp. nov.** Herbarium sheet with the type material and hand drawing of the floral parts by Szlachetko (credit: Oaks Ames Herbarium).



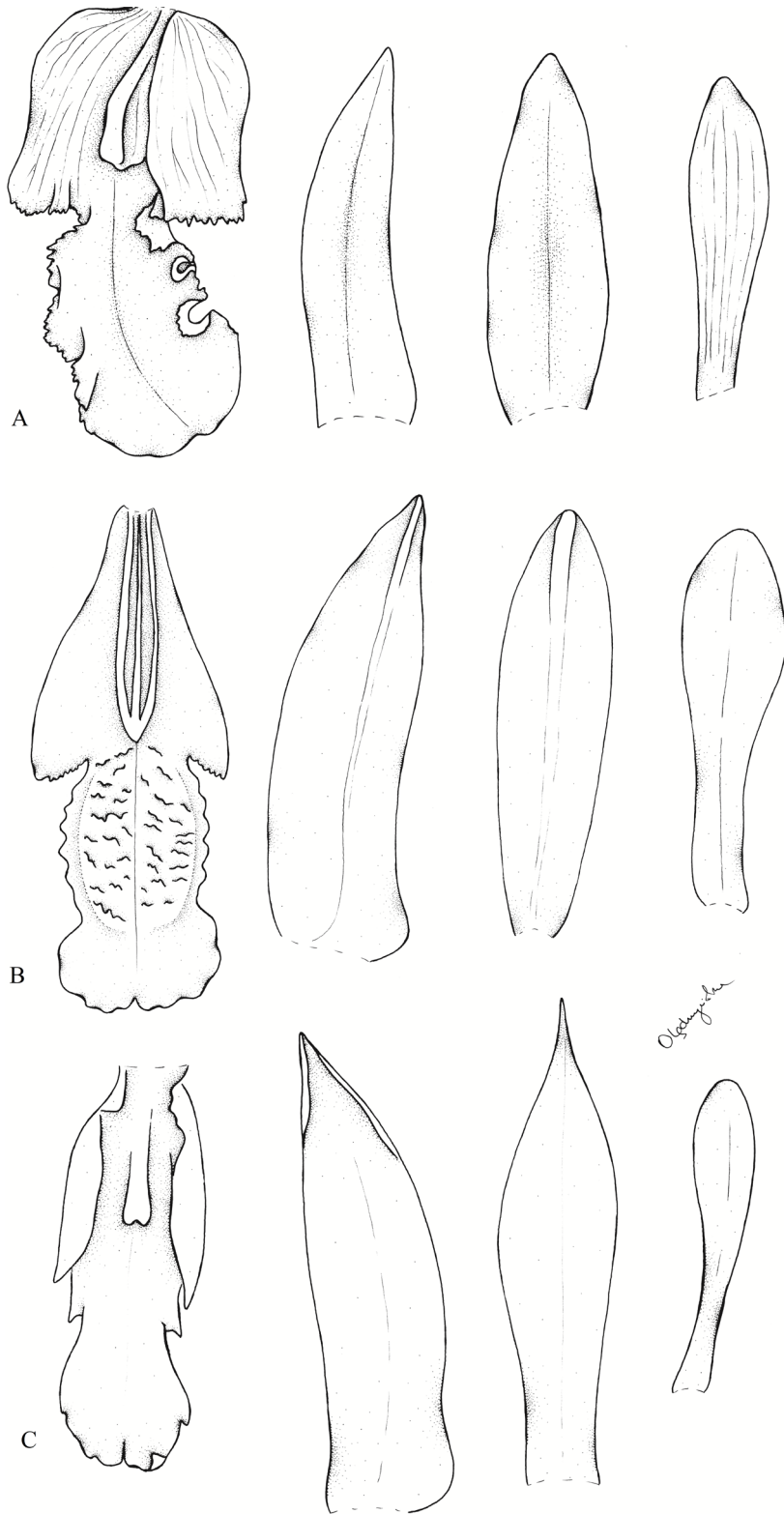
**Figure 2.** *Sauvetrea schweinfurthiana* Szlach. & Lipińska, sp. nov. Herbarium sheet with the type material, drawing removed (credit: Oaks Ames Herbarium).



**Figure 3.** *Sauvetrea schweinfurthiana* Szlach. & Lipińska, **sp. nov.** Desiccated flower: A – lip; B – dorsal sepal; C – petal; D – lateral sepal. Scale bars: 5 mm.



**Figure 4.** *Sauvetrea brachypetala* (Schltr.) Szlach. & Lipińska, **comb. nov.** Schechter's original drawing (Repertorium Specierum Novarum Regni Vegetabilis, Beihefte 9: 102. 1921).



**Figure 5.** Comparison of dissected flower parts belonging to *Sauvetrea schweinfurthiana* (A), *S. brachypetala* (B), and *S. machupicchuensis* (C).



## References

- Bentham G (1881). Ordo CLXIX. Orchideae. In: Bentham G, Hooker JD (editors). *Genera Plantarum*. London, UK: Kew Herbarium, pp. 460-636.
- Blanco MA, Carnevali G, Whitten WM, Singer RB, Koheler S et al. (2007). Generic realignments in Maxillariinae (Orchidaceae). *Lankesteriana* 7: 515-537. doi: 10.15517/lank.vi.7935
- Christenson EA (2002). *Maxillaria*, an overview. In: Clark J, Elliott W, Tingley G, Biro J (editors). *Proceedings of the 16th World Orchid Conference, Vancouver 1999*. Vancouver, Canada: Vancouver Orchid Society, pp. 279-290.
- Dressler RL (1981). *The Orchids: Natural History and Classification*. Cambridge, MA, USA: Harvard University Press.
- Dressler RL (1993). *Phylogeny and Classification of the Orchid Family*. Portland, OR, USA: Dioscorides Press.
- Ojeda I, Carnevali G, Fernández-Concha G, Romero GA (2009). *Nitidobulbon*, a new genus of Maxillariinae (Orchidaceae). *Novon* 19 (1): 98. doi: 10.3417/2007039
- Ojeda I, Carnevali G, Romero GA (2005). New species and combinations in *Heterotaxis* Lindley (Orchidaceae: Maxillariinae). *Novon* 15: 572-582.
- Schuiteman A, Chase M (2015). A reappraisal of *Maxillaria* (Orchidaceae). *Phytotaxa* 225: 1. doi: 10.11646/phytotaxa.225.1.1
- Szlachetko DL (1995). *Systema Orchidaliium. Fragmenta Floristica et Geobotanica Supplement 3*: 1-137.
- Szlachetko DL, Śmiszek M (2007). Nouveaux genres dans le complexe *Maxillaria* (Orchidaceae). *Richardiana* 7 (1): 26-32 (in French).
- Whitten WM, Blanco MA, Williams NH, Koehler S, Carnevali G et al. (2007). Molecular phylogenetics of *Maxillaria* and related genera (Orchidaceae: Cymbidieae) based on combined molecular data sets. *American Journal of Botany* 94 (11): 1860-1889. doi: 10.3732/ajb.94.11.1860