

Habenaria pseudorostellifera, a new orchid species from China

Marta Kolanowska*, Dariusz L. Szlachetko & Marta Kras

Department of Plant Taxonomy and Nature Conservation, University of Gdańsk, ul. Wita Stwosza 59, PL-80-308 Gdańsk, Poland (*corresponding author's e-mail: martakolanowska@wp.pl)

Received 28 Nov. 2014, final version received 26 June 2015, accepted 26 June 2015

Kolanowska M., Szlachetko D.L. & Kras M. 2015: *Habenaria pseudorostellifera*, a new orchid species from China. — *Ann. Bot. Fennici* 52: 365–368.

Habenaria pseudorostellifera Kolan., Szlach. & Kras, a new orchid species from China is described and illustrated. It is distinguishable from the fairly similar *H. rostellifera* by details of gynostemium, shape of petals, different lateral sepals, and by presence of a dentate appendage at the petal base.

The orchid flora of China is one of the most unique in the World. About 35% of the species occurring in that country are thought to be endemic (Zhang *et al.* 2015). The most species-rich genus in the subfamily Orchidoideae is *Habenaria*, comprising 58 species, 20 of them restricted exclusively to China (Wu *et al.* 2009, Wang & Wang 2010, Ormerod 2011, Liu *et al.* 2012).

These terrestrial orchids produce fleshy, unlobed tubers and one to several basal or cauline leaves. The leaves are cordate to grass-like and they can be appressed either to substrate or to the stem, but most often they are erectopatent. The inflorescence is terminal, racemose, and few- to many-flowered. The flowers are resupinate with free perianth segments, most often whitish or greenish. The dorsal sepal is connivent with petals, forming a hood over reproductive structures. The petals are simple or bilobed, or occasionally 3-lobed. The lip is entire to deeply 3-lobed, usually spurred at base. The gynostemium is very diverse and it was the basis for the generic delimitation within *Habenaria* proposed by Szlachetko (2001, 2004a, 2004b).

Chinese representatives of *Habenaria* grow in forests, shrubby grasslands, damp places on shaded rocks, as well as on soil-covered rocks. They have been reported from the altitudes of 100 to 4300 m a.s.l. (Wu *et al.* 2009). During our recent studies on Asian Habenariinae we found a specimen of *Habenaria* which did not match any known species. It belongs to *H. rostrata* complex, which is represented in China by *H. rostrata* and *H. rostellifera*. They are characterized by cauline leaves scattered in the lower stem half, presence of leaflets (bract-like leaves) above them, rather a dense raceme, a 3-lobed lip with equal lobes, and by presence of a transversal structure in front of the spur base.

***Habenaria pseudorostellifera* Kolan., Szlach. & Kras, *sp. nova* (Fig. 1)**

TYPE: China. Yunnan. Mt. Yuanbao, Kunming Institute of Botany, Kunming, 1850 m a.s.l., 14 August 1978 Qiu Bingyun 7886 (holotype MO).

ETYMOLOGY: In reference to the similarity to *H. rostellifera*.



Fig. 1. *Habenaria pseudorostellifera* (from the holotype). — **A:** Lip. — **B:** Spur. — **C:** Gynostemium. — **D:** Dorsal sepal. — **E:** Petal. — **F:** Lateral sepal. Scale bars (**A–F**) = 3 mm. — **G:** Plant habit. Scale bars = 5 cm.

Plant 26 cm tall. Leaves 3, gathered in basal part of stem, 4–6.5 cm long, 1–1.3 cm wide, narrowly ovate, acute. Stem with 4 sterile bracts, 3.5–2.2 cm long, ovate, acuminate. Raceme 4.5 cm long. Flowers red. Floral bracts 5–17 mm long, ovate, acuminate. Ovary 11–18 mm long. Dorsal sepal 5 mm long, 2.4–3 mm wide when spread, ovate, obtuse, cucullate in natural position. Petals 4.8–5.5 mm long, 2.5–3.2 mm wide, ovate with a dentate appendage, obtuse, 4-veined. Lateral sepals 5.5–6.5 mm long, 2.8–3.7 mm wide, obliquely elliptic-ovate, obtuse, 3-veined. Lip 3-lobed, with a 3-toothed, subcylindric lamella near spur base; middle lobe 6.5–8.5 mm long, about 1 mm wide, oblong-lanceolate, 5-veined, glandular-ciliate along margin; lateral lobes 4.5–6 mm long, 0.4–0.5 mm wide, linear-lanceolate, obtuse, 1-veined. Spur 15–23 mm long, narrowly clavate, obtuse. Gynostemium 3.5 mm long, antherophores slightly longer than stigmatophores. Flowering in August.

DISTRIBUTION AND HABITAT: So far, this species is known exclusively from southern China, Yunnan-Guizhou Plateau. It was found growing at the altitude of about 1850 m a.s.l.

Habenaria pseudorostellifera can be distinguished from *H. rostellifera* (Fig. 2), known from China, Cambodia, Peninsular Malaysia, Thailand and Vietnam, by the presence of a tooth-like appendage at the petal base. Moreover in *H. rostellifera* the antherophores are about two times longer than stigmatophores (vs. nearly equal in length in *H. pseudorostellifera*) and the spur is nearly as long as the ovary (vs. spur longer than ovary in *H. pseudorostellifera*). In some *Habenaria* species, the lip shape and relative spur length vary greatly (eg. *H. chloroleuca*, *H. reniformis*, *H. xanthantha*), however, the petal shape is a relatively conservative character. In *H. rostellifera* the petal is narrowly ovate or narrowly elliptic, and often ciliate along upper margin.

Representatives of the *H. rostrata* complex (*H. rostellifera*, *H. rostrata* and *H. erostrata*)

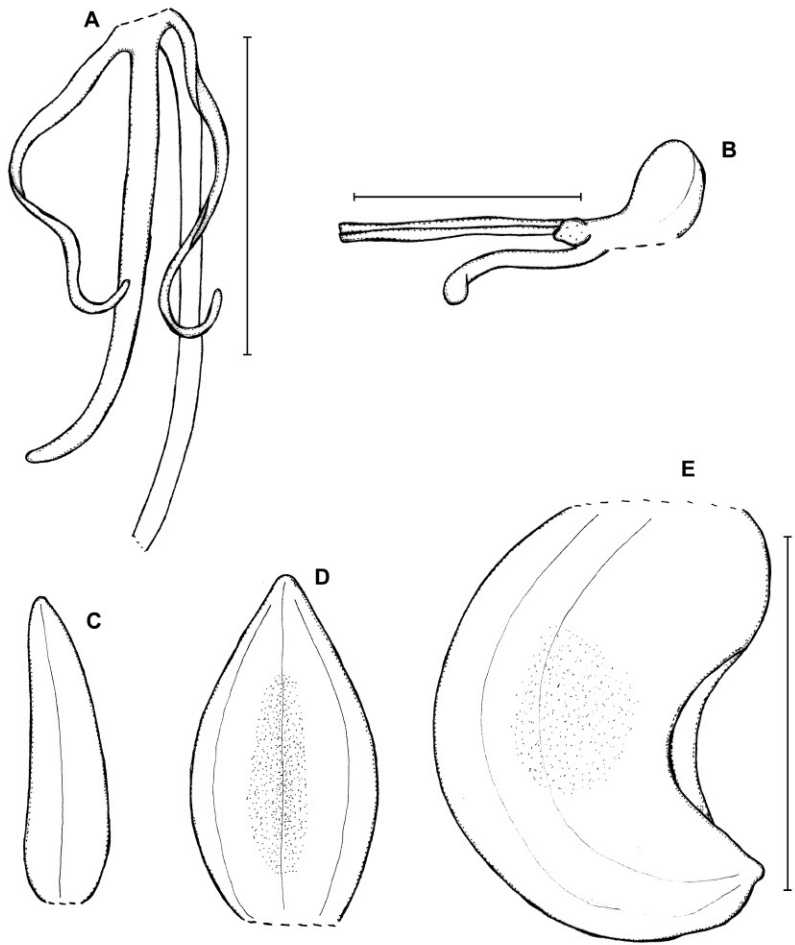


Fig. 2. *Habenaria rostellifera* (from the type, K). — **A:** Lip and spur (part). — **B:** Gynostemium. — **C:** Petal. — **D:** Dorsal sepal. — **E:** Lateral sepal. Scale bars = 5 mm.

are usually identified based on the shape of the spur basal transversal structure (3-toothed in *H. rostellifera*, collar-shaped in *H. rostrata* and *H. erostrata*) and on the spur/ovary length ratio. An additional difference within the complex was supposed to be the antherophore shape, but apparently the degree of antherophore curvature can differ even within a single specimen and apparently depends on the age of the flower. Petal shape is another character for species delimitation within the complex. As mentioned before, petals of *H. rostellifera* are narrowly ovate or narrowly elliptic, in *H. rostrata* they are obliquely triangular, with minutely denticulate margins, and in *H. erostrata* they are oblong-ligulate with papillose margins. A tooth-like appendage in the petal base is not present in any of those species.

Acknowledgements

We are grateful to Joanna Hryniewska and Zhang Li-Fang for their help in translation of the herbarium labels. The study was financed by the Faculty of Biology, University of Gdańsk (grant no. 538-L150-B583-14) and supported by The Foundation For Polish Science (Fundacja na rzecz Nauki Polskiej).

References

- Liu Q., Li J.-W., Yin J.-T., Tan Y.-H., Wen B., Huang W. & Yin S.-H. 2012: *Habenaria myriotricha*, a new record of Orchidaceae from Yunnan, China. — *Guihaia* 32: 440–441.
- Ormerod P. 2011: Orchidaceous additions to the flora of China. — *Taiwania* 56: 42–49.
- Szlachetko D.L. 2001: *Senghasiella* gen. nov., eine neue Gattung aus der *Habenaria* Verwandtschaft. — *Journal für den Orchideenfreund* 8: 365–368.

- Szlachetko D.L. 2004a: Matériaux pour la revision des Habenariinae (Orchidoideae) 4. — *Richardiana* 4: 52–65.
- Szlachetko D.L. 2004b: Habenariinae (Orchidoideae) — Beiträge zu einer Revision der Subtribus (10). — *Die Orchidee* 55: 487–489.
- Wang Y. & Wang Y. 2010: *Habenaria anomaliflora*, a new record of Orchidaceae from China. — *Journal of Wuhan Botanical Research* 28: 696–697.
- Wu Z.-G., Raven P. & Hong D.Y. 2009: *Flora of China*, vol 25. *Orchidaceae*. — Science Press, Beijing & Missouri BG Press, St. Louis.
- Zhang Z., Yan Y., Tian Y., Li J., He J.-S. & Tang Z. 2015: Distribution and conservation of orchid species richness in China. — *Biological Conservation* 181: 64–72.