
Astragalus beitashanensis, a New Species of Leguminosae from Xinjiang, China

Chai Wei and Yan Ping*

College of Life Science, Shihezi University, Shihezi 832003, Xinjiang, People's Republic of China. *Author for correspondence: yanpzhw@sohu.com

ABSTRACT. The new species *Astragalus beitashanensis* W. Chai & P. Yan (Leguminosae) is described from Xinjiang, China. *Astragalus beitashanensis* is similar to *A. laguroides* Pall., but differs by its elliptic to suborbicular leaflets that are $4-9 \times 3-6$ mm, ovate bracts, and deeply emarginate standard.

Key words: *Astragalus*, China, IUCN Red List, Leguminosae, Xinjiang.

Astragalus L. is comprised of about 2500 to 3000 species, which are distributed mainly in arid and semi-arid mountainous regions of the Northern Hemisphere as well as in South America and Africa (Podlech, 1986; Chang et al., 2007). It is considered perhaps the largest genus of vascular plants and the most complex group within the family Leguminosae (Podlech, 1986; Ranjbar & Karamian, 2003). China is one of the largest centers of diversity for the genus with 388 species, of which 210 are endemic (Chang et al., 2007; Podlech & Xu, 2007).

For the preparation of the Leguminosae for the *Flora Xinjiangensis*, herbarium specimens of *Astragalus* were examined by the first author from the herbaria at HNWP, LZD, PE, SHI, WUK, and XJBI. Moreover, in expeditions, many of these species were studied in the field by the authors. During this investigation, a new and distinctive species of *Astragalus* was discovered and is described here.

Astragalus beitashanensis W. Chai & P. Yan, sp. nov. TYPE: China. Xinjiang: Qitai, Mt. Beita, sunny hillside, 3000 m, 21 July 2000, Q. G. Liu & L. Yu 057 (holotype, SHI; isotype, WUK).

Species *Astragalo laguroidi* Pall. affinis, sed ab eo foliolis ellipticis usque suborbicularibus $4-9 \times 3-6$ mm, bracteis ovatis ca. 2.5 mm longis, calycis dentibus triangularibus $2-3$ mm longis, vexillo profunde emarginato lobulis ca. 2 mm longis, alis late emarginatis atque legumine immaturo piloso differt.

Plants perennial, ca. 5 cm tall, acaulescent. Stipules greenish, $4-6$ mm, adnate to the petiole to $1/2$ of length, lower stipules widely ovate, acute, sparsely hairy, upper stipules ovate-lanceolate, acu-

minate, densely pubescent; leaves $3-6$ cm, petiole $1.5-2.5$ cm, like the rachis very densely covered with appressed white trichomes; leaflets in 3 to 5 pairs, elliptic to suborbicular, obtuse, $4-9 \times 3-6$ mm, pubescence sparse adaxially but densely pubescent abaxially with appressed \pm medifixed white trichomes $0.5-0.9$ mm. Peduncles $1.5-3$ cm, shorter than the leaves, densely covered with ascending white hairs; racemes ovate, $3-3.5$ cm, congested with 6 to 11 flowers; bracts whitish green, membranous, with greenish midvein, ovate or ovate-lanceolate, ca. 2.5 mm, sparsely pubescent with ascending white and black hairs, at the margins densely covered with spreading white trichomes to 1.2 mm. Calyx soon becoming inflated, oblong to elliptic, $13-15$ mm, bifid between the 2 upper teeth to $1/4$ of tube length, adaxially covered with subappressed to ascending very asymmetric and bifurcate white trichomes, $0.5-1.5$ mm long, abaxially covered with flexuose, appressed \pm medifixed, black hairs, $0.2-0.6$ mm, with a few longer, white hairs mixed in; calyx teeth green with reddish margins, triangular, $2-3$ mm, externally covered with ascending, very asymmetric and bifurcate, black hairs to 1 mm on the margins, internally covered with long soft, entangled, white hairs; corolla with petals purplish red; standard ca. 23 mm, limb ca. 11×9 mm, elliptic, deeply emarginate to 2 mm, abruptly contracted into a wide, cuneate claw ca. 12 mm; wings ca. 21 mm, oblong, widely emarginate, ca. 9×3 mm, auricle ca. 1 mm, claw $12-13$ mm; keels ca. 19 mm, limbs obliquely obovate, ca. 6×3 mm, auricle ca. 0.5 mm, claw ca. 13 mm; ovary with the stipe ca. 1 mm, hairy, style pubescent only at the base. Legumes (only immature seen) subsessile, oblong, ca. 8 mm, unilocular, very densely covered with spreading, basifixed white trichomes to 1.7 mm, with a few sub-basifixed ones mixed in, the short beak covered with ascending black or black and white hairs; seeds unknown.

Distribution and habitat. *Astragalus beitashanensis* is known only from its type locality in the Beitashan region, Qitai County, Xinjiang, China, at about 3000 m elevation, on gravelly mountain slopes.

IUCN Red List category. *Astragalus beitashanensis* is threatened by global warming and stock breeding, and its conservation status is evaluated as Endangered (EN) according to IUCN Red List criteria (IUCN, 2001). Two mature plants of this species were found on Beitashan in 2000, and it was not seen during our second expedition in the area in 2008. *Astragalus beitashanensis* is known only from the holotype and isotype collections from Beitashan; therefore, it may be rare and endemic to the area. The altitude at which this species' habitat occurs will increase as the overall temperature of the Earth's atmosphere gradually increases; while it is currently distributed at altitudes ca. 3000 m, this will likely increase to ca. 3400 m.

Phenology. The new species is known to flower in July and August.

Etymology. The new species epithet is taken from the mountain Beitashan in Xinjiang, China.

Discussion. *Astragalus beitashanensis* belongs to *Astragalus* sect. *Laguroopsis* Bunge as its plants are acaulescent, the leaves are pubescent with appressed, more or less medifixed trichomes, and the calyx is vesicularly inflated, enveloping the pod.

Astragalus beitashanensis is similar to *A. laguroides* Pall. in overall height and in its acaulescent plants and leaf pubescence with appressed, medifixed trichomes. It differs from *A. laguroides* by its elliptic to suborbicular leaflets, measuring $4-9 \times 3-6$ mm (vs. lanceolate to elliptic, $10-20 \times 4-8$ mm), ovate bracts,

ca. 2.5 mm long (vs. linear, 5–7 mm), triangular calyx teeth, 2–3 mm long (vs. subulate, 3–4 mm), deeply emarginate flower standard (vs. shallowly emarginate), widely emarginate wings (vs. entire), and the ovary pubescent with white and black trichomes (vs. only white trichomes).

Acknowledgments. We thank the curators of HNWP, LZD, PE, WUK, and XJBI for their help during our examination of specimens. We are also grateful to Xue-liang Hou for help with the Latin diagnosis and Lang-ran Xu for helpful comments on our study.

Literature Cited

- Chang, Z. Y., L. R. Xu & D. Podlech. 2007. *Astragalus eerqisiensis* and *A. shadiensis*, two new species of Leguminosae from Xinjiang, China. *Acta Bot. Boreal.-Occid. Sin.* 27: 168–172.
- IUCN. 2001. IUCN Red List Categories and Criteria, Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- Podlech, D. 1986. Taxonomic and phytogeographical problems in *Astragalus* of old world and south-west Asia. *Proc. Roy. Soc. Edinburgh* 89B: 37–43.
- & L. R. Xu. 2007. New species and a new combination in *Astragalus* (Leguminosae) from China. *Novon* 17: 228–254.
- Ranjbar, M. & R. Karamian. 2003. Some remarks on the genus *Astragalus* sect. *Incarni* in Iran. *J. Linn. Soc.* 143: 443–447.



Wei, Chai and Ping, Yan. 2010. "Astragalus beitashanensis, a New Species of Leguminosae from Xinjiang, China." *Novon a journal of botanical nomenclature from the Missouri Botanical Garden* 20, 21–22.

View This Item Online: <https://www.biodiversitylibrary.org/item/123332>

Permalink: <https://www.biodiversitylibrary.org/partpdf/121971>

Holding Institution

Missouri Botanical Garden, Peter H. Raven Library

Sponsored by

Missouri Botanical Garden

Copyright & Reuse

Copyright Status: Permission to digitize granted by rights holder

Rights: <https://www.biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.