

Chun SU[#], Shabir A. RATHER[#], Shu WANG and Zhaoyang CHANG^{*}: *Astragalus verus* (*Fabaceae*)—A New Record for the Flora of China

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Summary: *Astragalus verus* Olivier (*Fabaceae*) is reported here as a new record for the Flora of China. A detailed description of the species with illustrations, habitat, ecology, and distribution is provided. This species belongs to *A. sect. Rhacophorus* Bunge, the occurrence of which is also reported for the first time in China. Notes on distinguishing characters of the section are presented here for its easy determination and correct identification in the future.

Astragalus L. is one of the largest genera of the flowering plants with ca. 2900–3000 species (Zarre and Azani 2013, Bagheri et al. 2017, Chaudhary 2018). Its habits vary from annual or perennial herbs to cushion spiny shrubs, and its species exhibit great diversity in habitat and ecological preferences, from semi-arid, arid to cold mountainous areas (Zarre and Azani 2013, Xu and Podlech 2010). China is one of the important diversity centers for the genus, represented by more than 400 species in 59 sections (Xu and Podlech 2010). In China, the species of the genus occur mostly in North to Northwest parts, extending to Qinghai-Xizang plateau (Xu and Podlech 2010).

During a botanical expedition in 2013, the corresponding author and his team collected some unfamiliar *Astragalus* specimens from Diyag, Zhada County of Xizang Autonomous Region. These specimens are woody shrubs, with yellow corollas and calyces covered with woolly white hairs. After careful examination of relevant specimens and literature, they were identified as *Astragalus verus* Olivier,

which has not so far been recorded in China. A description and illustrations based on the collections and literature are given to facilitate their identification.

Astragalus verus Olivier, Voy. Emp. Othoman. 5 (ed. oct.): 342; Atlas 3: t. 44 (1807); Podlech & Zarre, Tax. Rev. Gen. *Astragalus* (*Legum.*) Old World 2: 1528 (2013); Chaudhary, Rev. gen. *Astragalus* (*Legum.–Papilio.*) India: 118 (2018). **Type:** IRAN. Inter Kermanschah et Amadan [Hamadam] Persiae occidentalis mediae, G.A.Olivier & J.G.Bruguère s.n. (P, MNHN-P-P00644441–holotype). [Fig. 1]

Astragalus strobiliferus Benth. in Royle, Ill. Bot. Himal. Mount.: 199 (1835); Baker in Hook. f., Fl. Brit. India 2: 135 (1876); Ali in Nasir & Ali, Fl. W. Pakistan 100: 194 (1977); Sanjappa, *Legum.* India: 95 (1992). **Type:** INDIA. Kanum in Kunawur, J.F.Royle s.n. (LIV–holotype; LE–isotype).

Woody shrubs, erect, generally cushion forming, 15–40 cm tall, profusely branched from the base. Stems covered with woolly white hairs when young, densely armed with ascending, spine-tipped persistent leaf rachises. Stipules persistent, ovate, 5–7 × 1.5–2 mm, adnate to petiole up to middle, acuminate at tip, with white hairs in young stage, glabrous at maturity. Leaves paripinnate, 25–45 mm long; petiole 7–9 mm long, broadened at base; rachis almost terete, smooth, hard, spiny at tip; leaflets 5–10 pairs, 4–7 × ca. 1 mm, caducous, oblanceolate, cuneate at base, entire along margins, covered

stamens diadelphous, staminal sheath ca. 6 mm long, free; filaments 2.5–3 mm long, vexillary filament ca. 7 mm long; ovary ca. 3 mm long, linear, sessile, densely sericeous; style ca. 4 mm long, filiform, slightly curved in upper portion, glabrous; stigma capitate, glabrous. Pods 2–5 × 1–3 mm, ovoid to ellipsoid, with a straight beak of ca. 2 mm long, densely tomentose towards base.

Flowering and fruiting time: July–October.

Habitat and ecology: In gravelly valley up to 3020 m in altitude.

Distribution: Iran, Turkmenistan, Tajikistan, Afghanistan, Pakistan, India, and China.

Specimens examined: CHINA. Xizang Autonomous Region, Zhada County, Diyag to Shipki Village, 31° 48'51"N, 78°48'30"E, alt. 3020 m, 27 July 2013, Chang Z.Y., Liu P.L. & Liu Y.B. 2013167 (WUK).

Astragalus verus belongs to sect. *Rhacophorus* Bunge, with the following characteristics: dwarf shrubs; leaves paripinnate, densely arranged, rachises spine-tipped and persistent; flowers yellowish; calyx covered with densely woolly white hairs; standard panduriform, constricted at middle or in upper third, lower part dilated and wider than upper part (Podlech and Zarre 2013). In China, although some species of *Astragalus*, such as *A. oplites* Benth. ex R. Parker and *A. multiceps* Wall. ex Benth. of sect. *Aegacantha* Bunge, are also small shrubs, with leaves paripinnate, rachises spine-

tipped and persistent, they never have densely woolly white hairs on calyx, and their standards are neither panduriform nor constricted as in *A. verus*, i.e., elliptic to obovate in *A. oplites*, or obovate in *A. multiceps* (Xu and Podlech 2010). The sect. *Rhacophorus* is also a newly recorded section in China to date.

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C.Su, S.A.Rather, S.Wang, Z.Y.Chang : 中国新産の *Astragalus verus* (マメ科)

中国新産のマメ科植物 *Astragalus verus* Olivier を西藏自治区から報告した。ここでは中国産の標本にもとづいて記載を行い、図示した。ゲンゲ属 *Astragalus* は顕花植物でも最大の属の一つで、2900–3000 種からなり、中国で

は 59 節 400 種以上が知られている。本種は *Rhacophorus* 節に所属し、節としても中国新産となる。

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