

A New Species of *Astragalus* L. (Fabaceae) from Indo-Nepal Region

L. B. Chaudhary and Z. H. Khan¹

Plant Biodiversity and Conservation Biology Division, National Botanical Research Institute, Rana Pratap Marg, Lucknow 226 001, India. E mail: dr_lbchaudhary@rediffmail.com

¹Department of Botany, Christ Church College, Kanpur 208 001, India.

Abstract

Astragalus sanjappae Chaudhary & Khan, a new species in Fabaceae, is described from Indo-Nepal region. This species is closely allied to *A. tenuicaulis* Benth. ex Bunge and *A. sikkimensis* Benth. ex Bunge but differs from both in having leaflets hairy on both sides, calyx teeth very minute, keel petals shorter than wing petals and distinctly stipitate pods. It is illustrated.

Keywords: *Astragalus sanjappae*, New species, Fabaceae, Indo-Nepal region

Introduction

There are c. 3000 species of *Astragalus* L. in the world (Zarre & Podlech, 1997). In India, the genus is represented by c. 80 species, chiefly distributed in temperate and alpine Himalayas (Sanjappa, 1992; Chaudhary & Rao, 2002; Kumar & Sane, 2003).

We came across an undescribed species of the *Astragalus* while examining the herbarium specimens housed at BM, BSD and CAL for a taxonomic revision of the genus in India. Specimens of the new species had been collected much earlier from several localities in India in 1883, 1967 and 1987 between Gangotri to Bhojwasa in the Garhwal Himalaya and Thangu to Yongdi in North Sikkim Himalaya in both flowering and fruiting conditions. They were misidentified as *A. himalayanus* Klotz and *A. strictus* Grah. ex Benth. or remained as unidentified (Duthie's collection at BM and specimen from Nepal at CAL).

The new taxon has been compared with Type specimens of its related species *A. tenuicaulis* Benth. ex Bunge and *A. sikkimensis* Benth. ex Bunge deposited at CAL. A taxonomic key is provided to identify the new species from its allied taxa. The new species is described and illustrated below.

Astragalus sanjappae Chaudhary & Khan, *sp. nov.*

Fig. 1.

Differt ab *A. sikkimensis* foliolis utrinque pilis, calyx

campanulatus-tubuloso, dentibus minutus, carina alae breviores, legumina stipite tubo calycis breviores.

Type: INDIA, **Sikkim**, North Sikkim District: Thangu, Yongdi, after military camp, 4200 m, 13 August 2004, L. B. Chaudhary 225071 (Holotype, LWG; Isotype, CAL).

Perennial herbs, (5-) 15-36 cm long with fibrous or woody rootstock, prostrate, several stems arising from the base. *Stem* slender with distant internodes (2.5-5 cm long in the middle of the stem), pubescent with flat, white, adpressed to half spreading hairs, sometimes black hairs present at nodal regions; stipules 2-3 (-5) x 1.0-1.5 mm, free from petiole, connate at base on the opposite side of the petiole or free, spreading, triangular-lanceolate, pilose with white hairs outside, glabrous inside. *Leaves* 25-55 mm long, imparipinnately compound; petioles 0-10 mm long; rachis and petioles pilose with adpressed, white, sometimes mixed with a few black hairs; leaflets 11-19, 3-9 x 1.5-4 mm, alternate (in lower portion) to opposite (in upper portion), ovate, narrowly ovate, oblong or oblong-elliptic, acute, obtuse, emarginate or retuse at apex, strigose with white, adpressed hairs below, thinly pilose with spreading white hairs above. *Inflorescence* axillary, shortly peduncled capitate raceme; peduncles 3-15 (-25-35) mm long, shorter than subtending leaf, pilose with black or white or mixed black and white, spreading or adpressed hairs;

racemes 4-12 (-16)-flowered, dense; bracts 2-3 (-4) x 1 mm, almost equal to or exceeding the pedicel, lanceolate, pilose with long, mixed black and white or black hairs. *Flowers* 8-11 mm long, purple or white with purple tinge; pedicels 1-2 mm long, generally densely pubescent with black hairs; calyx 3.5-5 mm

long, campanulate, very oblique at mouth, pilose with black or sometimes mixed black and white, adpressed, flat hairs outside, glabrous inside, more hairy on teeth region, teeth very minute (sometimes indistinct); standard petals 8-11 x 4 mm, narrowly elliptic, emarginate at apex; wing petals usually

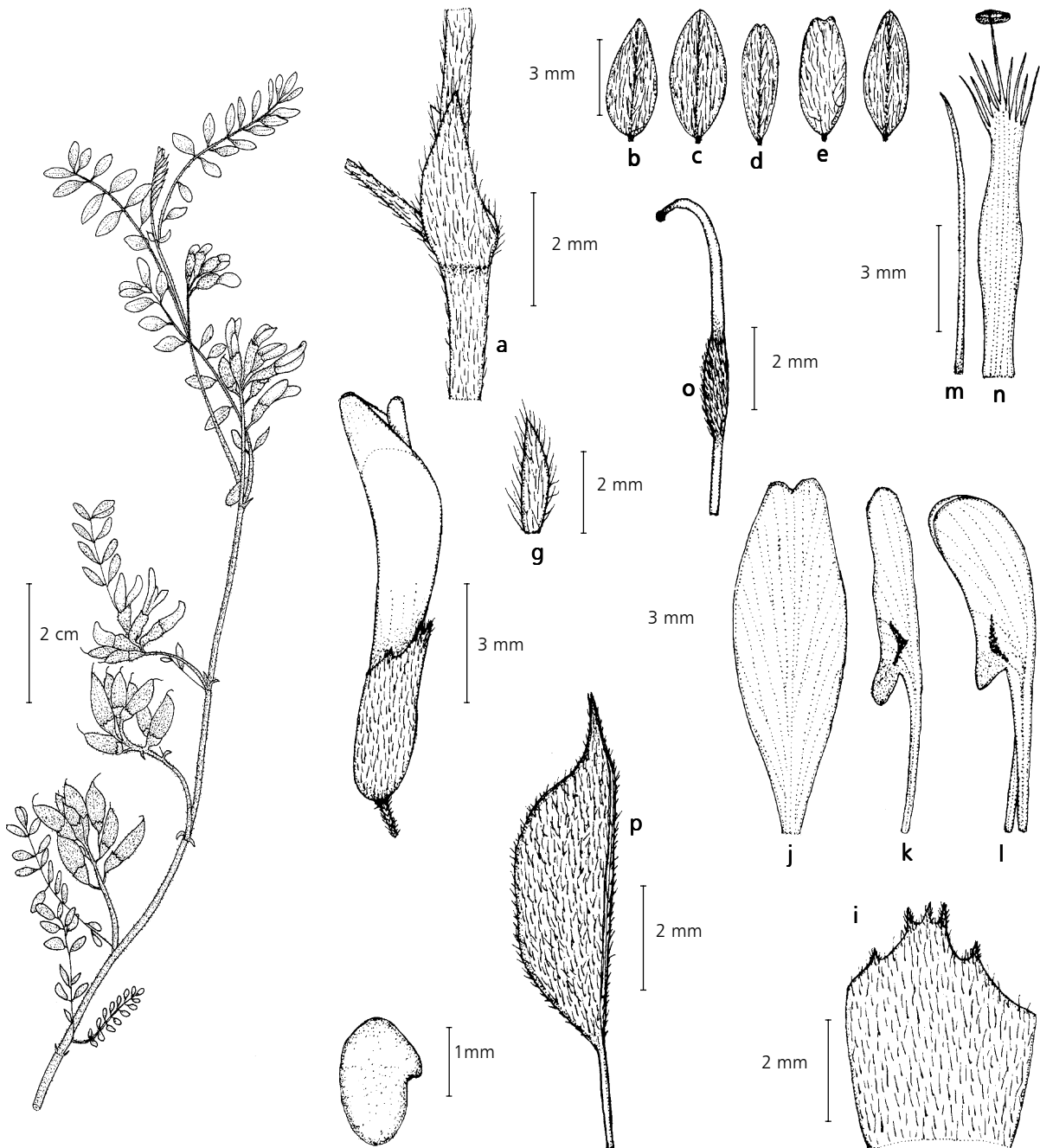


Figure 1. *Astragalus sanjappae* Chaudhary & Khan - a. A twig; b. Stipule; c-g. Leaflets (c-e & g: lower surface, f: upper surface); h. Bract; i. Flower; j. Calyx split open (outer surface); k. Standard; l. Wing Petal; m. Keel Petal; n. Vexillary filament; o. Staminode (opened); p. Carpel; q. Pod; r. Seed (a from Chaudhary 225071) b, f & g from Uniyal & Balodi 80536; c-e from Duthie 986; c, h-p from Khan 223085; q & r from Khan 223100).

shorter than or sometimes almost equal to standard, lamina *c.* 5 x 1.5 mm, oblong, obtuse, claw *c.* 5 mm long; keel petals 9-9.5 mm long, shorter than wing petals, lamina *c.* 4.5 x 2 mm, oblong with slightly incurved towards rounded tip, claw *c.* 5 mm long; stamens diadelphous, (9 + 1); vexillary filament 8 - 8.5 mm long, free; staminal sheath 7-8 mm long, slit on dorsal side, obtuse at apex, filaments free, 1.5-2 mm long; ovary 2-2.5 mm long, stipitate (stipe *c.* 2.5 mm long), *c.* 6-ovuled, pubescent with white, adpressed hairs; style *c.* 4 mm long, incurved at tip, glabrous; stigma capitate, glabrous. *Pods* (5 -) 6-7.5 x 3-4 mm (excluding stipe), stipitate, oblong, narrowed at apex, turgid, unilocular, (2-) 4 (-6) seeded, pubescent with minute, flat, spreading, generally black or sometimes white or mixed black and white hairs, stipe 2-2.5 mm long, shorter than calyx tube. *Seeds* *c.* 2 x 1.5 mm, reniform, turgid, smooth, glabrous, black.

Etymology: This species is named after Dr M. Sanjappa, Director, Botanical Survey of India, Kolkata for his valuable contributions to Indian legumes.

Flowering & Fruiting: April-September.

Habitat: Common in sandy or hard soils on moist mountain slopes, road sides, river sides and flat lands at altitudes ranging from 3300-4200 m.

Distribution: India (Sikkim, Uttaranchal), Nepal.

Specimens Examined (paratypes): INDIA, **Sikkim**, North Sikkim District: Thangu, 4000 m, 12 August 2004, L. B. Chaudhary 225066 (LWG); **Uttaranchal**, Garhwal Himalaya, Uttarkashi District: 4 km away from Gangotri towards Chirbasa, 3360 m, 5. 9. 2002, Z. H. Khan 223081 (LWG); Chirbasa, 3500 m, 5 September 2002, Z. H. Khan 223085 (LWG); Bhojwasa, 3700 m, 5 September 2002, Khan 223100 (LWG); Bhojwasa, 3700 m, 11 September 2002, Z. H. Khan 206792 (LWG); Gangotri-Bhojwasa, 31 July 1987, B. P. Uniyal & B. Balodi 80536 (BSD); Pushpabasha-Gaumukh, 3900 m, 24 September 1967, B. D. Naithani 37437 (BSD); Rhudughera, 10000-11000 ft., 19 July 1883, J. F. Duthie 986 b (BM, CAL). NEPAL: Batase, 13000 ft., 16 April 1921, T. B. Shrestha & M. S. Bistha 2289 (CAL).

Note: *A. sanjappae* Chaudhary & Khan exhibits close resemblance with *A. sikkimensis* Benth. ex Bunge and *A. tenuicaulis* Benth. ex Bunge but differs in having leaflets hairy on both sides, calyx teeth very minute (sometimes indistinct), keel petals shorter than wing petals and pods distinctly stipitate with stipe shorter than calyx tube. These three species can easily be

identified with the key provided below. Kumar and Sane (2003) treated *A. tenuicaulis* as a synonym of *A. sikkimensis* but these two species are quite distinct.

Key to species

- 1a. Petals deep purple throughout, pods sessile to subsessile, adpressed thinly hairy **A. tenuicaulis**
- 1b. Petals purple in upper half and whitish in lower half or white throughout, pods stipitate, spreading densely hairy **2**
- 2a. Leaflets hairy below and glabrous above; calyx campanulate, teeth 2 – 2.5 mm long; pod stipe equal to or slightly longer than the calyx tube **A. sikkimensis**
- 2b. Leaflets hairy on both sides; calyx campanulate-tubular, teeth very minute (sometimes indistinct); pod stipe shorter than the calyx tube **A. sanjappae**

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