

THREE NEW SPECIES OF THE GENUS ASTRAGALUS L. SECT. INCANI DC. FROM IRAN

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Among the rich materials collected from different parts of Iran, three new species from *Astragalus* section *Incani* DC. including; *A. culminatus* Maassoumi, Kazempour Osaloo & Joharchi, *A. elezgensis*, Maassoumi & Kazempour Osaloo and *A. kalatehensis* Maassoumi & Kazempour Osaloo as new species are described and illustrated.

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سه گونه جدید گون (*Astragalus* sect. *Incani*) از ایران

علی اصغر معصومی و شاهرخ کاظم پور اوصالو

نمونه‌های جمع‌آوری شده هرباریوم مرکزی ایران و پژوهشکده علوم گیاهی مشهد و مرکز تحقیقات منابع طبیعی مشهد نامگذاری شدند. از میان گونه‌ها سه گونه: *A. culminatus*, *A. elezgensis*, *A. kalatehensis* بعنوان گونه‌های جدید برای اولین بار شرح داده شده‌اند. گونه‌های جدید به همراه دیاگنور، شرح و تصاویر کامل گیاه ارائه می‌شوند. گونه‌های جدید با نزدیک‌ترین خویشاوندان خود مقایسه گردیده‌اند. همه نمونه‌های تیپ در هرباریوم مرکزی ایران نگهداری می‌شوند.

Introduction

Section *Incani* DC. with over 80 distinct species is one of the most homogeneous and natural sections in the genus *Astragalus* L. (Maassoumi 1998; Kazempour Osalou et al. 2003, 2005). Recently, several new species from the section have been described (Podlech & Maassoumi, 2003; Ranjbar & Karamian, 2003; Podlech, 2004; Zarre, Podlech & Taeb, 2005). In order to prepare a revision on the sect. *Incani* in Iran, we came across to three other new species among new available materials from the provincial herbaria and from the Central Herbarium of Iran (TARI). In this paper a short Latin diagnosis with full English descriptions and illustrations for *A. culminatus*, *A. kalatehensis* from Khorassan province and *A. elezgensis* from Esfahan province are given. All type specimens are at TARI.

Taxonomic treatment

Astragalus culminatus Maassoumi & Kazempour Osalou & Joharchi, **sp. nov.** (Fig. 1).

Diagnosis. Differt ab *A. subalpinus* Boiss. & Buhse foliolis 4 (nec 6-10) jugis, supra dense pilosis (nec sparse pilosis).

Description. Plants 3 cm tall, caespitose, densely furnished with appressed symmetrically to asymmetrically hairs 0.3-0.4 mm long. Caudex up to 5-8 mm in diameter, mostly with a pluricipital root-crown; branches short, thick, with blackish remnants of old stipules and petioles. Stipules 5-9 mm long, triangular, adnate to the petiole for 3 mm, densely white hairy. Leaves 2 cm long; petiole 7 mm long, like the rachis rather densely white hairy. Leaflets 4 pairs, narrowly elliptic, acute at the apex, often minutely mucronulate, 8 mm long and 2 mm wide, densely appressed hairy. Peduncle 5 mm long, hairy. Raceme short, 2-3 flowered. Bracts narrowly ovate, acute, 2-3 mm long, with white hairs. Pedicels 1.5 mm

long, with black and white hairs. Flowers erect to spreading. Bracteoles filiform, ca. 1 mm long, located on the pedicel, permanent. Calyx 10 mm long, reddish, tubular, slightly gibbous at the base, obliquely cut at the mouth, loosely to densely with symmetrically to asymmetrically medifixed white hairs mixed with medifixed short black hairs; teeth subulate, 2.5-3.5 mm long. Corolla red to purplish violet. Standard 17 mm long; limb panduriform, constricted at the middle, upper part ca. 6-7 mm wide, middle ca. 4 mm wide, gradually narrowing into a short claw. Wings ca. 16 mm long; limb obovate, dilated at apex, frequently slightly asymmetrically notched at the apex, 8 x 3 mm; auricle ca. 1 mm long; claw 8.5 mm long. Keel ca. 14 mm long; limb obliquely elliptic, subobtusate at the apex, 6.5 x 3 mm; auricle very short; claw 8 mm long. Ovary sessile, linear, glabrous; style glabrous. Legumes linear, erect, sessile, tapering at the apex into a straight beak, densely hairy.

Holotypus. Khorassan: km 37 road of Boghmach to Hezar-Massjed, 2400 m, Hojjat & Zangoie 24575 (TARI).

Another specimen seen. Khorassan: Top of Hezar-Massjed mountain, 3000 m, Hojjat & Zangoie 24627.

Astragalus kalatehensis Maassoumi & Kazempour Osalou, **sp. nov.** (Fig. 2).

Diagnosis. Differet ab *A. khadem-kandicus* Maassoumi & Podlech foliolis 1-2 jugis (nec unifoliolatis), vexillo ca. 18 (nec 24) mm longo, ovario sessile (nec breviter stipitato).

Description. Plants 3-4 cm tall, densely furnished with appressed symmetrically to asymmetrically medifixed hairs 0.3-0.4 mm long. Caudex up to 5 mm in diameter, mostly with a pluricipital root-crown, branches short, thick, covered with blackish remnants of old

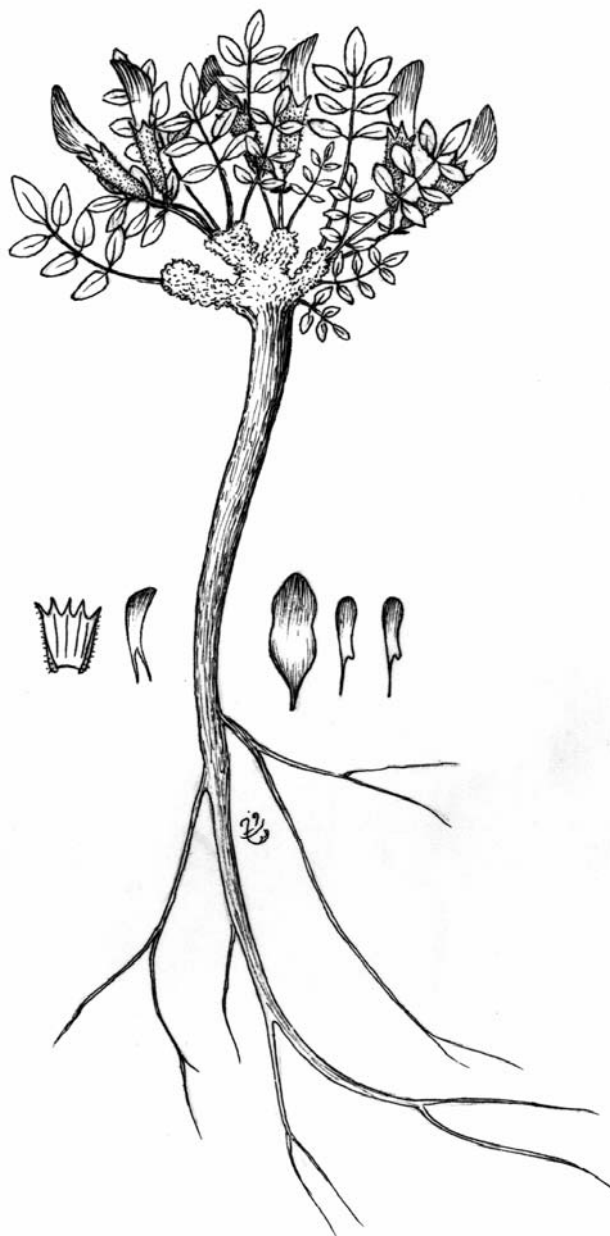


Fig. 1. *Astragalus culminatus* (natural size).



Fig. 2. *Astragalus kalatehensis* (natural size).

stipules and petioles. Stipules 10 mm long, triangular, adnate to the petiole for 5 mm, densely white hairy. Leaves 4 cm long; petiole 1.5 cm long, ca. 1 mm thick, rather densely white hairy. Basal leaves unifoliolate. Leaflets 2-3 pairs, ovate to elliptic, rounded at the base, acute to more rarely rounded at the apex, 5-14 mm long and 3-8.5 mm wide, loosely to rather densely hairy on both sides, often spotted with minute dark reddish dots. Peduncle 1 cm long, up to 0.4 mm thick, densely hairy. Raceme 2 flowered. Bracts narrowly ovate, acute, 2 mm long, covered with white hairs. Pediceles 2 mm long, flowers erect to spreading. Bracteoles filiform, ca. 3 mm long, at the base of calyx, permanent. Calyx 13 mm long, tubular, slightly gibbous at the base, obliquely cut at the mouth, loosely to densely covered with asymmetrically white medifixed hairs mixed with black ones; teeth subulate, 4 mm long,

inner side white hairy. Corolla yellow, changing to purplish violet. Standard 19 mm long; limb ca. 11-12 wide, almost rectangular, retuse tip, slightly constricted in middle part, gradually narrowing into a short claw. Wings ca. 18 mm long; limb narrowly obovate, dilated, rounded at the apex, 10 x 4 mm; auricle ca. 2 mm long; claw ca. 10 mm long. Keel ca. 16.5 mm long; limb elliptic, subobtusate at the apex, 8 x 3.5 mm; auricle very short; claw 10 mm long. Ovary sessile, linear, appressed hairy; style glabrous. Legumes (immature) linear, erect, tapering at the apex into a straight beak up to 3 mm long, ca. 15 mm long and 2 mm wide, straight, densely white hairy.

Holotypus. Khorassan: Mashhad to Kalat-e Naderi, on the last road, 1700-2000 m, Moussavi & Abbasi 4780 (TARI).

Astragalus elezgensis Maassoumi & Kazempour Osaloo, **sp. nov.** (Fig. 3).

Diagnosis. Inter speciebus ab oblongo-clavatis leguminibus sed differt foliolis 2-3 jugis, leguminibus erectus, rostratus (nec multifoliolatis et leguminibus curvatis); inter speciebus ab foliolis multijugis et speciebus unifoliolatis sed differt ab leguminibus, oblongo-clavatis (nec linearibus arcuatis).

Description. Plants 12-17 cm tall, densely furnished with appressed symmetrically hairs 0.3-0.4 mm long. Caudex up to 7 mm in diameter, mostly with a pluricipital root-crown; branches short, thick, covered with blackish remnants of old stipules and petioles. Stipules 12 mm long, triangular, adnate to the petiole for 8-9 mm, densely white hairy. Leaves 5-7 cm. long; petiole 2-4 cm long, like the rachis finely striate, 1 mm thick, rather densely appressed white hairy. Leaflets 3 pairs, ovate to elliptic, acute at the apex, 12-20 mm long and 5-14 mm wide, densely covered with symmetrically medifixed appressed hairs on both sides, margin cartilaginous, reddish. Peduncle 5-9 cm. long, strong, up to 2.5 mm thick, terete to angular sulcate, loosely appressed hairy. Raceme 7 flowered, in fruit mostly elongated, 5-6 cm long. Bracts narrowly ovate, acute, 2.5 mm long, with white and/or black hairs, margin with small glands. Pedicels 1 mm long, black hairy flowers erect to spreading. Bracteoles filiform, ca. 0.5 mm long, located on the pedicel, permanent or caducous. Calyx 8 mm long, tubular, slightly gibbous at the base, obliquely cut at the mouth, loosely to densely covered with black and sometimes white hairs; teeth subulate, 1.5 mm long. Corolla unknown. Legumes oblong, erect, sessile, 18 mm long, 5 mm high, 3.5 mm wide straight, tapering at the apex into a straight beak up to 4 mm long, carinate ventrally, slightly to distinctly sulcate dorsally; valves brownish, distinctly reddish to

chestnut brown spotted, loosely to densely covered white appressed to spreading symmetrically medifixed to tangled hairs; completely bilocular.

Holotypus. Esfahan: Kashan, Ghohrud area, in front of the village Elezg (WT2), 2620 m, 12.6. 2002, Assadi 82688 (TARI).

Other specimens seen. Fars: Shadkam, 2400 m, Teyebi-Khorami 807; Markazi: Arak: Haftad Golleh, 2100-2250 m Khajeddin 12218; Isfahan: Daran to Chadegan, km 4 N. of road, protected area, 2290 m, Khajeddin 3570.

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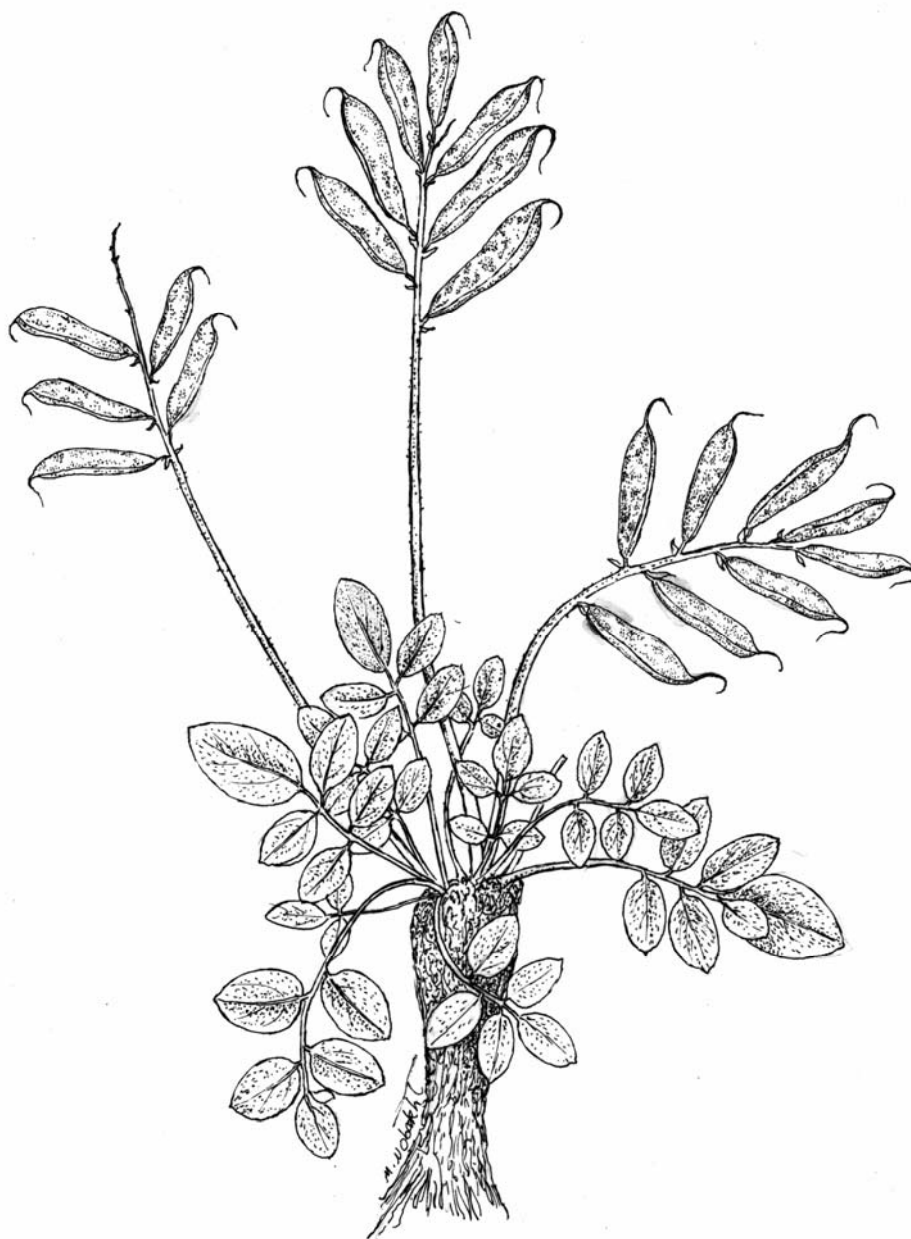


Fig. 3. *Astragalus elezgensis* (natural size).