

# TWO NEW SPECIES OF THE GENUS *ASTRAGALUS* SECT. *AMMODENDRON* (FABACEAE) FROM IRAN

Y. Nasseh, M. R. Joharchi & A. A. Maassoumi

Received 27 09 2009. Accepted for publication 03 03 2010.

Nasseh, Y., Joharchi, M. R. & Maassoumi, A. A. 2010 12 31: Two new species of the genus *Astragalus* Sect. *Ammodendron* (Fabaceae) from Iran. -*Iran. J. Bot.* 16 (2): 221-224. Tehran.

The specimens collected from different parts of Khorassan province were revised. Based on this study two species of *Astragalus* from the section *Ammodendron* Bunge, namely *Astragalus qohestanicus* and *A. khonikensis* are introduced and described as new species from NE of Iran. These species have been collected from NE of Iran and are preserved in Ferdowsi University of Mashhad Herbarium (FUMH). The illustrations of the new species are presented.

Yasamin Nasseh (correspondence, <yasamin.naseh@gmail.com> & Mohammad Reza Joharchi, Ferdowsi University of Mashhad, Herbarium (FUMH), Mashhad, Iran.- Aliasghar Maassoumi, Research Institute of Forests and Rangelands. P.O. Box 13185-116, Tehran, Iran.

**Key words.** *Astragalus*, sect. *Ammodendron*, *Fabaceae*, new species, Khorassan, Iran.

دو گونه جدید گون از بخش *Astragalus* sect. *Ammodendron* Bge. از ایران

یاسمین ناصح و محمدرضا جوهرچی، اعضای هرباریوم دانشگاه فردوسی مشهد.

علی اصغر معصومی، استاد پژوهش مؤسسه تحقیقات جنگلها و مراتع کشور.

نمونه‌های گیاهی جمع‌آوری شده متعلق به بخش *Ammodendron* از جنس *Astragalus* موجود در هرباریوم پژوهشکده علوم گیاهی دانشگاه فردوسی مشهد مورد بررسی قرار گرفتند. نتایج حاصل از این بررسی، نامگذاری و معرفی گونه‌های *A. qohestanicus* و *A. khonikensis* به عنوان آرایه‌های جدید برای دنیا است. شواهد ریخت‌شناسی تعلق این گونه‌ها را به این بخش نشان می‌دهد. این گونه‌ها از شمال شرقی ایران، استان خراسان جمع‌آوری شده‌است و در هرباریوم پژوهشکده علوم گیاهی دانشگاه فردوسی مشهد نگهداری می‌شود. همچنین این گونه‌ها با نزدیکترین خویشاوندان خود مقایسه و تفاوت‌های آنها در این مقاله ارائه شده‌است. تصاویر گونه‌ها ارائه می‌گردد.

## Introduction

Herbarium materials of Ferdowsi University of Mashhad Herbarium (FUMH) belonging to *Astragalus* sect. *Ammodendron* Bunge was studied. Among them two new species came to light. This section belongs to the subgenus *Cercidothrix* with medifixed bifurcate hairs and includes shrub or mostly subshrubs with aerial caudices more or less developed often becoming leaflet-less in age. Stipules connate and adnate to petiole. Leaves imparipinnate. Racemes loose or less often somewhat compact. Bracteoles absent. Calyx campanulate or nearly so, not inflated in fruit. Pods stipitate or sessile, bilocular, coriaceous, often covered with long, appressed of ascending hairs, rarely glabrous or with short appressed hairs (Gontsharov 1946; Rechinger et al. 1961; Podlech and Zarre 2003; Maassoumi 2005).

Sect. *Ammodendron* is a predominantly central Asian section. Based on Flora of the USSR (Gontsharov 1946) it is distributed throughout Central Asia, Iran and very rarely in Asia Minor and Arabia. Mostly psammophytes or associated with more or less sandy substrata, rarely petrophilous plants of foothills and low mountains, very rarely occurring on fine-textured mountain slopes. Except *A. acutifolius* and *A. ammodendroides*, other species belong to sect. *Ammodendron* are concentrated with its psammophyte species in arid and semiarid regions mainly in central, southern and eastern parts of Iran. The members of this section are found especially in sandy and salty habitats. In this paper the two new species are described.

***Astragalus qohestanicus* Nasseh & Maassoumi, sp. nov., Fig. 1**

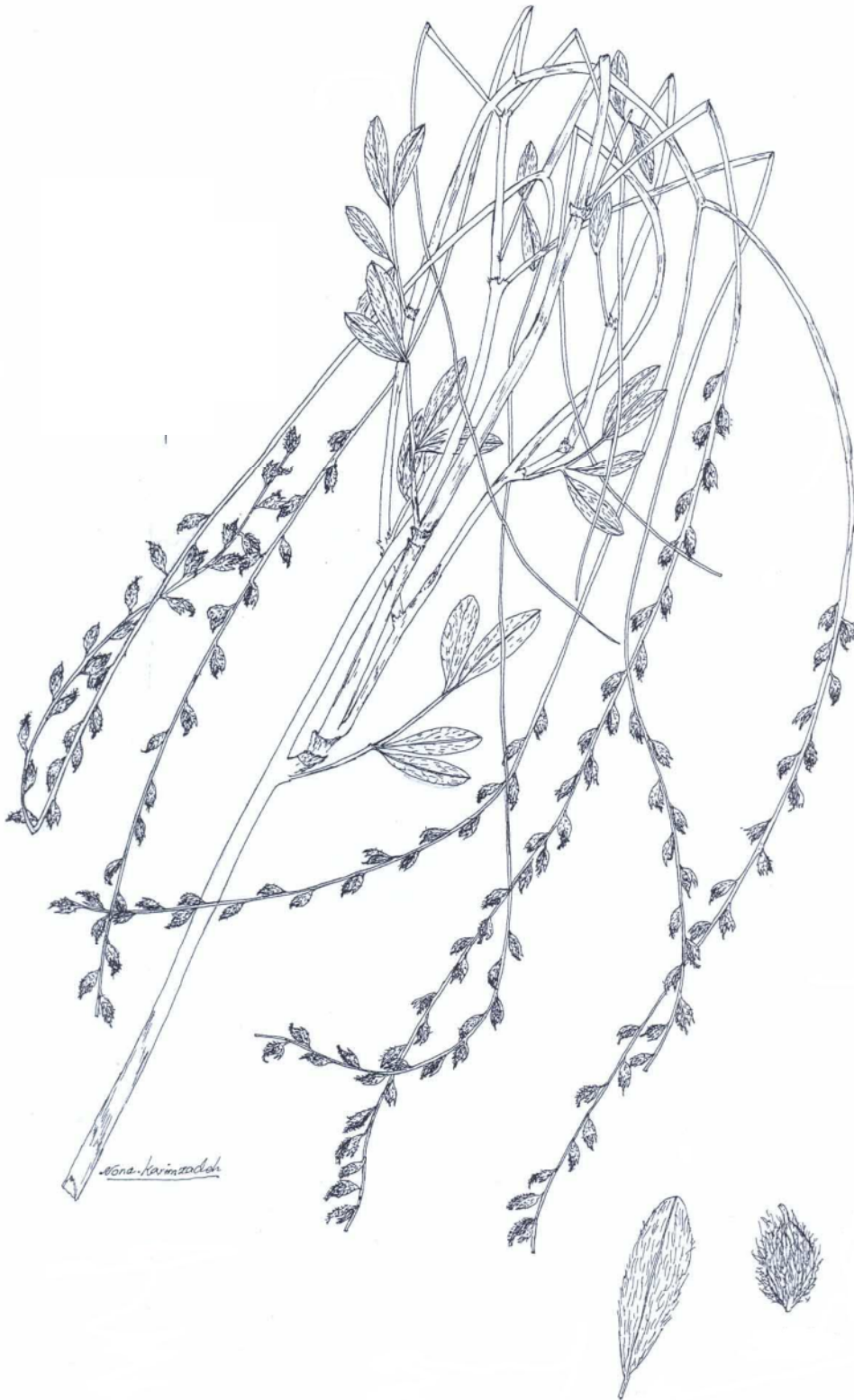


Fig. 1. *Astragalus qohestanicus* ( $\times 2$ ); pod ( $\times 2$ ); leaflet ( $\times 1.5$ ).



Fig. 2. *Astragalus khonikensis* ( $\times 1$ ); details ( $\times 4$ ).

Affinis ab *A. macrobotrys* Bge. sed differt foliolis late ellipticis (nec oblongo-obovatis); legumine 4.5-5 mm longo (nec 5-7 mm longo), leguminis rostro 2-2.5 mm longo (nec 1 mm); leguminis pilis longis non in tuberculis insidentibus tantum (nec pilis longis et brevissimis) obtecto.

Differt ab *Astragalus bazarganii* Podlech & Zarre foliolis late ellipticis (nec anguste ellipticis), racemis 13-35 cm longis (nec 8-20 cm), leguminis rostro 2-2.5 mm longo (nec 1 mm), leguminis pilis longis non in tuberculis insidentibus tantum (nec pilis longis et tuberculis insidentibus).

Plants perennial, suffruticose, ca. 80 cm tall, in upper parts with branches covered with dense medifixed appressed white hairs. Stipules 2-4 mm long, triangular, membranaceous, subglabrous or loosely sparsely white hairs. Leaves 2-4.5 cm long, indurate and persistent; petiole 0.7-1.7 cm long, together with the rachis densely hairy like the stem. Leaflets in 2 rarely 1 pairs, wide elliptic, 1.5-2.7 cm long, 0.7-0.9 cm wide, lower surface covered with dense medifixed appressed white hairs; upper surface very sparsely hairy to glabrous. Peduncles 3-6 cm long, covered with medifixed,

appressed white hairs. Racemes 13-35 cm long, remotely 20-45 flowered. Bracts 0.75-1 mm long, ovate, acute, more and less glabrous. Calyx 4-4.5 mm long, cylindrical, sparsely covered with medifixed, appressed white hairs; the teeth triangular to subulate, 0.75-1 mm long. Corolla dark yellow in drying. Legumes sessile, hairy, with a curved beak 1.5-2.25 mm long, ovate to elliptic, 4.5-5 mm long and 2.5-3 mm wide, rather densely to sparsely covered with spreading basifixed long white hairs 2.5-3 mm long without little tubercles at the base, without short hairs.

*Typus.* Khorassan: Qayen: Zirkouh, between Ahangaran-e bala & Ahangaran-e paeen, 1050 m, Joharchi & Zangooei 23289 (holotypus FUMH).

*Ethymology.* Qohestan is the old name of the type locality.

The new species is compared with close relatives in Table 1.

***Astragalus khonikensis* Nasseh & Joharchi, sp. nov., Fig. 2**

Affinis *A. arvatensis* Gontsch. sed differt planta 7-10 (nec 14) cm alta, foliis 6-9 (nec 10-15) mm longis, foliolis 5-5.5 (nec 5-10) mm longis, leguminis pilis longis (nec pilis brevissimis).

Table1. Comparison of three relative *Astragalus* species.

Character	<i>A. macrobotrys</i>	<i>A. qohestanicus</i>	<i>A. bazarganii</i>
Length of raceme	7-23 cm	13-35 cm	8-20 cm
Shape of leaf	oblong – obovate	wide elliptic	narrowly elliptic
Number of flowers	10-12 (-15)	20-45	numerous
Length of pod	5-7 mm	4.5-5 mm	5 mm
Length of pod beak	1 mm	2-2.5 mm	1 mm
Hairs of pod	long and short hairs	long hairs without little tubercles	long hairs with little tubercles

Plants 7-10 cm tall, suffruticose, subpulvinate, from the base branched, with woody former years branches, covered with dense medifixed appressed white hairs. Stipules 1-1.5 mm long, triangular, at the base adnate to the petiole and free at the apex, membranaceous, covered with appressed white hairs. Leaves 6-9 mm long; petiole 1-3 mm long, covered with dense medifixed appressed white hairs; leaflets 2 pairs, obovate to elliptic, 5-5.5 mm long, 2-3 mm wide, obtuse to acute, on both sides covered with dense medifixed appressed white hairs. Peduncles 0.5-1 cm long, hairy like the branches. Inflorescence axillary racemes; racemes 1-2 cm long, laxe, 2-5 flowered. Bracts minute, ca. 0.5 mm long. ovate, membranaceous, sparsely white hairy. Pedicels 0.5-0.75 mm long, densely white hairy. Calyx 5-6 mm long, campanulate-tubular; teeth shortly triangular, ca. 0.5-0.7 mm long, covered with medifixed appressed white hairs. Corolla 9.5-10.5 mm long, yellowish in drying; standard 9.5-10.5 mm long; the limb 5.5-6 mm long and 4-4.5 mm wide, oblong-elliptic, obtuse; claw 4.5-5 mm long; keel 9.25-9.5 mm long; limb 3.75-4.25 mm long and 2-2.3 mm wide; claw 5.5-6 mm long. Stamen 9.5-10 mm long. Ovary 5.5-6 mm long, 1.5-2 mm wide, covered with ascending basifixed white hairs. Legumes 8.5-9.5 mm long, ca. 2.5 mm wide, narrowly elliptic to oblong, sessile, covered with

ascending basifixed white hairs without little tubercles at the base, without short hairs, with a short beak.

*Typus.* Khorassan: Nehbandan, 1 km of Khonik-e Paean towards Sefidabeh, 1350 m, Joharchi & Zangoeei 10914 (holotypus FUMH, isotypus TARI).

*Ethymology.* Khonik is the name of the type locality.

The new species is compared with its relative in Table 2.

Table 2. Comparison of two relative *Astragalus* species.

Character	<i>A. khonikensis</i>	<i>A. arvatensis</i>
Height of plant	7-10 cm	14 cm
Length of leaf	6-9 mm	10-15 mm
Length of leaflet	5-5.5 mm	5-10 mm
Hairs of calyx	white	white and black
Hairs of pod	spreading long hairs	appressed short hairs

### Acknowledgement

We thank Mrs. Karimzade for drawing of the illustrations.

### References

- Gontscharov, NF., 1946: *Astragalus* in Komarov, V. L. (ed.) *Flora of the U.S.S.R.* Vol. 12. -Moskova & Leningrad.
- Maassoumi, A. A., 2005: The genus *Astragalus* in Iran, vol. 5. -Research Institute of Forests and Rangelands, Tehran.
- Maassoumi A. A. 1998: Old world check-list of *Astragalus*. -Research Institute of Forests and Rangelands, Tehran.
- Podlech D. & Zarre Sh. 2003: New species of *Astragalus* Sect. *Ammodendron* (Fabaceae) with a key for the species of the Flora Iranica area. - *Willdenowia* vol. 33: 314-352.
- Rechinger, K. H., Dulfer, H. & Patzak, A. 1961: *Sirjaevii fragmenta astragalologica XV. Astragalus* Sect. *Ammodendron*. - *Sitzungsber. Oesterr. Akad. Wiss., Mathem.-Naturw. Kl., Abt. I*, 170: 35-53.