

SOME NEW SPECIES OF THE GENUS *ASTRAGALUS* SECT. *MALACOTHRIX* IN IRAN.

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Maassoumi, A.A. 1991 02 11: Some new species of the genus *Astragalus* Sect. *Malacothrix* in Iran. - *Iran. Journ. Bot.* 5(1): 9-15. Tehran.

Following species are described as new species from the different parts of Iran:

Astragalus belgheisicus, *A. birangae*, *A. canosus*, *A. daghdaghabadensis*, *A. glochidiatus*, *A. hendelanicus* and *A. rudimentus*.

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تعدادی گونه جدید از جنس *Astragalus* بخش *Malacothrix* از ایران

از: علی اصغر معصومی

گونه‌های زیر بعنوان گونه جدید از نواحی مختلف ایران نامگذاری و معرفی می‌گردند:

Astragalus belgheisicus, *A. birangae*, *A. canosus*, *A. daghdaghabadensis*, *A. glochidiatus*, *A. hendelanicus*, *A. rudimentus*.

Introduction

Revision of the Iranian *Astragal* section *Malacothrix* Bge. in the group with basifixed hairs has been my scientific subject since 1986, the identification of the collected materials (in the herbaria of TARI & EVIN) was my preliminary goal. For solving the taxonomical complexity of this section in 1986 and 1990 I examined the type specimens in München; borrowed by Prof. Dr. Podlech from different European herbaria. Then several specimens became clear as to be the new taxa which are described in this paper, all of the type materials are preserved in the herbarium of Forests & Rangelands Research Institute (TARI) and partly in the Plants Pests and Diseases Research Institute (EVIN).

Astragalus belgheisicus Maassoumi, sp. nov. e sect. *Malacothrix* Bge.

Differs from *A. takhtadzhianii* Grossh. in having the scapiform habit (not caulescent). Bracts shorter than the calyx (not much longer), peduncle covered with spreading long and short hairs (not appressed), from *A. comosoides* Cham. & Math. rachis and peduncle covered with spreading hairs (not appressed), pods covered only with long hairs (not mixed with long and short hairs).

Perennis, acaulis ca. 10-12 cm alta. Stipulae triangulari-lanceolate, pilosae, ca. 4-5 mm longae, basi ca. 1-1.5 mm petiolo adnatae, inter se connatae. Folia 7-8 cm longa, petiolo ca. 1.5-2

cm, sicut rachis dense patenter piloso, foliola 12-13 juga, oblongo-elliptica, obtusa vel retusa, ca. 8-10 mm longa et 3-5 mm lata, supra glabra, subtus subapresse pilosa. Inflorescentiae capitulae, multiflorae, pedunculo 5-7 cm longo, patenter albo-piloso, ad basim capiluta nigro piloso immixtis. Bractae lineariae, lanceolatae, ca. 7-8 mm longae, dense albo-nigrosque pilosae, Calyx tubulosus basi sensim dilatus, dense albo-lanatus immixtis ab brevissimis nigripilis ca. 15 mm longus, dentibus linearibus, ca. 4-5 mm longus. Corolla flava, glabara. Vexillum ca. 22 mm longum; lamina rhomboida, ca. 9 mm lata, apice emarginata. Alae 18 mm longae; lamina elliptica, antice rotundata, base auriculata, auricula ca. 2 mm longa, ungue laminam subaequantis. Carina ca. 16 mm longa; lamina triangularis curvata, ungue laminam duplolongioris. Ovarium pilosum, sessile. Legumen (immatura) ca. 8 mm longum et 3-4 mm latum, dense lanatum.

Typus. Zanjan, Mahneshan, Anguran, Belgheis mts. 2700-2900 m, 25.4.1987, Maassoumi 64843 (hol. TARI).

Other specimens seen. Zanjan, Mahneshan, Anguran, Belgheis mts, 2700-2900m, 25.4.1987, Maassoumi 64842 (TARI); 34 km from Gilvan to Zanjan, N. slope of Alburz ranges, 1600 m, 6.5.1987, Assadi & Shah-Mohammadi, 60301; Hamadan: Avadje, Sultan Bulagh mts. 2000-2400 m, 12.5.1987, Maassoumi & Mirhosseini 59394.

Astragalus birangae Maassoumi, sp.

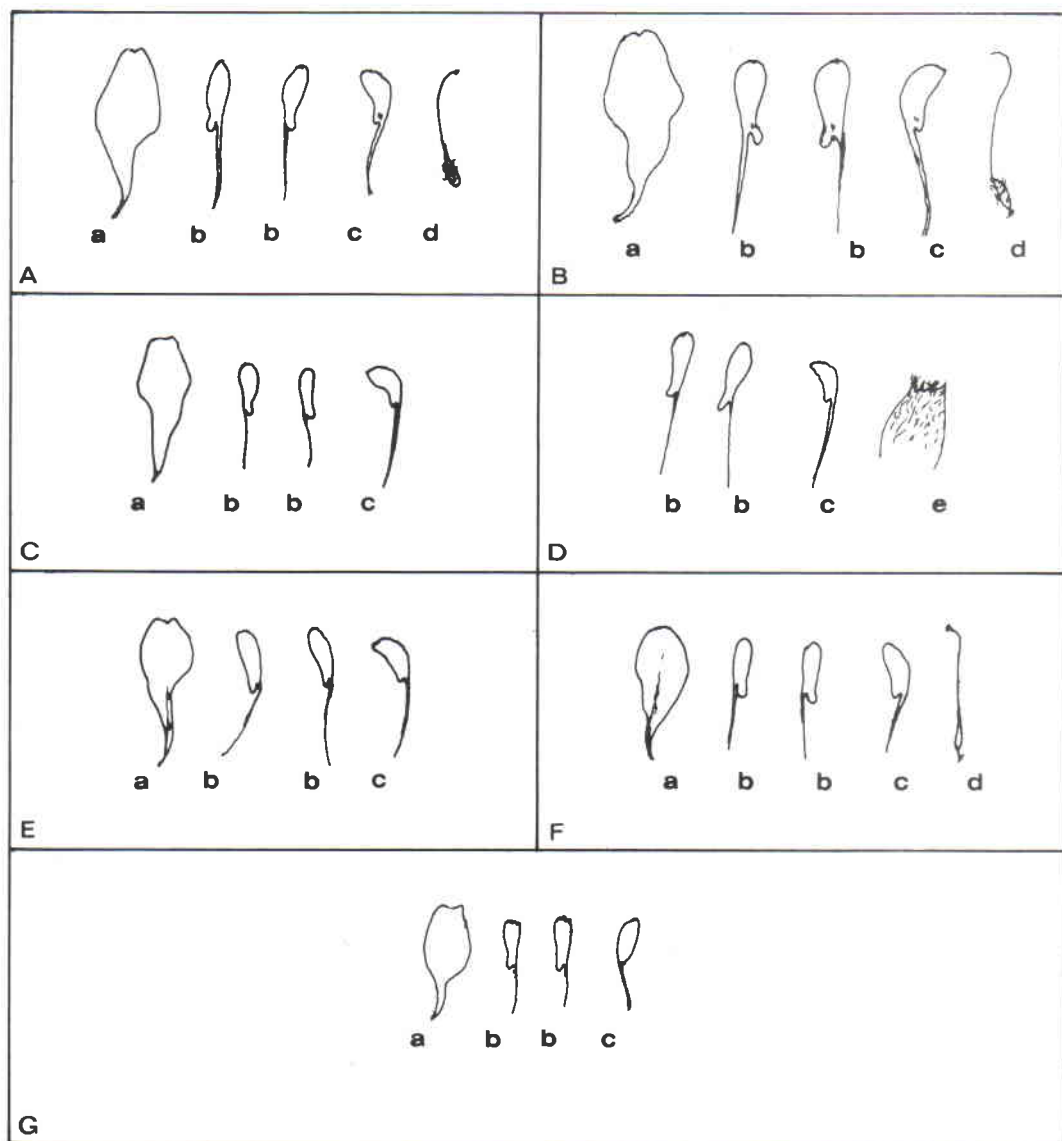


Fig 1. Dissections of flowers. -A. *Astragalus belgheisicus*. -B. *A. birangae*. -C. *A. canosus*. -D. *A. daghdaghabadensis*. -E. *A. glochidiatus*. -F. *A. hendelanicus*. -G. *A. rudimentus*. (a. standard; b. wing; c. keel; d. ovary; e. calyx; nat. size).

nov. e sect. *Malacothrix* Bge.

Differs from *A. mollis* M.B. with the upper surface of the leaflets glabrous (not hairy) and narrowly-elliptic or linear, leaflets (not oblong).

Perennis acaulis ca. 20-30 cm alta, vel caule ca 3-4 cm longo. Stipulae lanceolate acuminatae, viridiusculae, ca. 7-8 mm longae, albonigrosque pilosae, basi ca. 3 mm petiolo adnatae, inter breviter se connatae. Folia 20-30 cm longa, petiolo ca. 8-10 cm longo, sicut rachis albo subapresse pilosa; foliola 14-15 juga, inferiora oblonga vel ovato-elliptica, superiora anguste elliptica vel linearia, ca. (-5) 10-15 mm longa et 3-5 mm lata, supra glabra, marginem versus laxiusculi pilosa, subtus dense appresse pilosa. Inflorescentiae multiflorae, capitulae; pedunculo ca. 20-25 cm longo albo patenter hirsuto et brevissime appresse piloso suffultae, apicem versus pilis nigris immixtis. Bractae subulatae vel lineares, ca. 6-8 mm longae. Calyx tubulosus ca. 15 mm longus, albo-nigrosque pilosus, dentibus linearibus ca. 4 mm longis. Corolla in vivo flava, in sicco intense violacea, glabra. Vexillum ca. 26 mm longum; lamina rhomboidea, ca. 11 mm lata, apicem versus attenuata, antice emarginata vel biloba. Alae ca. 23 mm longae; lamina oblonga, apicem versus dilatata, antice rotundata, basi auriculata, auricula ca. 2.5 mm longa. Carina ca. 23 mm longa, lamina fere triangularis curvata. Ovarium sessile pilosum. Legumen ignotum.

Typus. Azarbayejan: Dasht-e Moghan, ca. 160 m, 15.4.1986. Youssefy 24 (hol. TARI).

Species named in honour of prof. Miss. Birang

in University of Tabriz, Faculty of Agriculture.

Astragalus canosus Maassoumi, **sp. nov.** e Sect. *Malacothrix* Bge.

Differs from *A. iranicus* Bge. in having the dense ovoid capitate inflorescence and the rhomboide standard limb (not oblong-elliptic).

Perennis, ca. 15 cm alta, acaulis vel caule abbreviato ca. 1-1.5 cm longo, dense albo lanata vestitus, caudex multiceps, basi lignosa. Stipulae albonigrosque pilosae, ca. 5-6 mm longae, base 3-4 mm petiolo adnatae, inter se connatae. Folia ca. 12 cm longa, petiolo 3-4 cm longo, sicut rachis dense albo hirsuto immixtis ab nigro patenter piloso; foliola 11-13 juga, ovato-elliptica, utrinque dense longe hirsuta, ca. 7-9 mm longa et 3-6 mm lata. Inflorescentiae capitatae, dense ovoidae, multiflorae, pedunculo 8-9 cm longo, longe hirsuto immixtis ab brevissime albo-nigrosque patenter piloso, capitulum versus intense nigripiloso. Bractae lineares ca. 4 mm longae, albonigrosque pilosae. Calyx tubulosus, ca. 12-13 mm longus, dense longe albo et breviter nigro pilosus, base sensim dilatatus; dentibus linearibus, ca. 3 mm longis, albo-nigrosque pilosis. Corolla flava (in sicco), glabra. Vexillum ca. 18 mm longum; lamina rhomboidea ca. 7 mm lata, antice retusa. Alae ca. 15 mm longae; lamina oblonga, antice rotundata, basi auriculata; auricula ca. 1.5 mm longa; ungue lamina paulo longioribus. Carina ca. 11 mm longa, lamina triangularis. Legumen ovoideum, ca. 12 mm longum et 6 mm latum, dense albo lanatum, apicem rostratum, rostro

ca.4-5 mm longum, ventro carinatum, dorso rotunduto-aplanatum, breviter sulcatum, complete biloculare.

Typus. Azarbajejan: Rezaiyeh, hill by the lake, just north of Golman-Khaneh, 1400 m, 1.6.1974, Wendelbo, Assadi & Shirdelpur 11981 (hol. TARI).

Astragalus daghdaghabadensis Maassoumi. **sp. nov.** e Sect. *Malacothrix* Bge.

Differs from *A. mollis* M. B. in rachis and leaflets which are covered with short appressed hairs (not spreading). Calyx teeth much longer, stipules glabrous (not hairy).

Perennis, acaulis, viridis, ca.13-22 cm alta. Caudex multiceps. Stipulae 4-8 mm longae, lanceolatae, acuminatae, glabrae, margine ciliatae, basi rugosae, per 2 mm petiolo adnatae, inter breviter se connatae. Folia 8-10 cm longa, petiolo 2-3.5 cm longo, sicut rachis albi-nigrosque apresse piloso. Foliola 12-13 juga, oblonga, apice rotundata vel retusa, ca.5-8 mm longa et 2-3 mm lata, supra glabra, subtus brevissime apresse albo pilosa. Inflorescentiae solitariae, multiflorae; flores sessilis, pedunculo 7-13 cm longo, patenter albi-vel apicem versus nigripilis suffultae. Bractee lanceolatae, acuminatae, ca.5-8 mm longae, pilosae. Calyx tubulosus, leviter inflatus, dense albo-nigrosque hirsutus, ca.14-15mm longus, dentibus linearibus ca.5 mm longis. Corolla glabra, in vivo flava. Ovarium pilosum, sessile. Legumen ovoideum, ca.10-12 mm longum et 4-

5 mm latum, basi breviter stipitatum, apicem versus curvato-rostratum, dense albo vel flavo lanatum, ventro applanato-carinatum, dorso rotundatum, profunde sulcatum, complete biloculare.

Typus. Hamadan: Kabutar Ahang, Dagh-daghabad, Gholiabad, Kuh-e Gholiabad, 1800-2100 m, 4.6.1988. Mozaffarian 64502 (holotypus TARI).

Other specimens seen. Azarbajejan: 44 km Sud de Rezaiyeh, Darreh-ye Ghasemlou, 1850-1990 m, 10 jun. 1978 Matine & Daneshpajou 38407 (Evin).

Astragalus glochidiatus Maassoumi, **sp. nov.** e Sect. *Malacothrix* Bge.

Species is distinguished with linear leaflets, capitate inflorescence and the ovate-oblong standard limb.

Perennis, acaulis, ca.10 cm alta. Stipulae lanceolatae, acuminatae, ca. 12 mm longae, glabrae vel margine ciliatae, basi ca.5 mm petiolo adnatae inter se connatae. Folia ca.7-8 cm longae, petiolo 3-3.5 cm longo, sicut rachis glaberrimo vel rarus brevissime albo piloso; foliola 5-6 juga, lineari-lanceolata, complicata, ca.15 mm longa et 2 mm lata, utrinque dense apresse pilosa. Inflorescentia solitaria; flores numerosis, in dense capitula; pedunculo ca.6-9 cm longo, glaberrimo vel leviter nigro patenter piloso. Bractee lanceolatae, ca.5-7 mm longae, albi-nigrosque pilosae. Calyx tubularis,

ca.12-14 mm longus, albi-nigrosque pilosus; dentibus setaceus ca.5 mm longus, nigripilosus. Corolla glabra, in sicco violacea. Vexillum ca.20 mm longum; lamina ovato-oblonga, apice retusa, base in unguem versus leviter contracta. Alae ca.18 mm longae; lamina angust-elliptica, antice rotundata, basi auriculata, auricula ca.1 mm longa, ungue laminam duplolongiore. Carina ca.16 mm longa lamina triangulari-curvata, apice acutiuscula, ungue lamina duplolongioribus. Ovarium pilosum, breviter stipitatum. Legumen ellipticum, ca.12 mm longum et 4-5 mm latum, dense albo lanatum, ventre rotundato carinatum, dorso rotundato profunde sulcatum, complete biloculare.

Typus. Kordestan: Bidjar, Kuh-e Hamzeh-Arab, 1.7.1971, 2000-2600 m, Terme s.n. (holotypus Evin, iso. W.).

***Astragalus hendelanicus* Maassoumi, sp. nov.** e Sect. *Malacothrix* Bge.

Differs from *A. takhtadzhiani* Grossh. in following characters: upper surface of leaflets with appressed hairs (not glabrous), stipules acuminate, glabrous or ciliate on the margine (not pilose), bracts much shorter. Standard limb obovate (not rhomboid). From *A. sulukiensis* Freyn & Sint. flowers yellow (not purplish), standard limb obovate (not rhomboid). From *A. mollis* M.B., leaflets with appressed hairs (not spreading), calyx teeth much longer.

Perennis, ca.20-22 cm alta, acaulis vel caule abbreviato ca.2-3 cm longo. Stipulae lanceolatae

abrupte acuminatae ca.10-11 mm longae, glabrae, vel margine ciliatae base 2-4 mm petiolo adnatae, inter breviter se connatae. Folia ca.15-17 cm longa, petiolo 3-5.5 cm longo, sicut rachis patenter albopiloso; foliola 12-13 juga, remota, oblongo-elliptica, apice rotundata vel leviter emarginata, ca.10-15 mm longa et 4-6 mm lata, utrinque appresse hirsuta. Inflorescentiae in axillis foliorum. Flores sessiles, numerosus, in racemo primo densiusculo diende laxiusculo longisti, pedunculo ca.10-13 cm longo, brevissime patenter albopiloso. Bractae lineariae, filiformes, ca.10 mm longae, albi-nigro pilosae. Calyx tubulosus, ca.14-15 mm longus, albo-nigrosque pilosus. Corolla glabra, in vivo flava. Vexillum ca.17 mm longum; lamina obovata. Alae ca.15 mm longae; lamina anguste elliptica, antice rotundata, basi auriculata; auricula ca.1.5 mm longa, ungue laminam aequantes. Carina ca.14 mm longa, lamina oblique elliptica, ungue lamina aequantes. Ovarium pilosum, breviter stipitatum. Legumen (immatura) breviter stipitatum, ovoideum, ca.7 mm longum et 3-4 mm latum, apicem versus attenuatum, rostratum, dense albo-lanatum et brevissime patenter pilosum, ventre rotundato-carinatum, dorso applanatum vel leviter sulcatum.

Typus. Azarbayejan: Mianeh to Khalkhal, ca.32 km on the road from Hendelan to Yal-Gheshlagh, 1550 m. 27.5.1987, Maassoumi 64907 (holotypus TARI, isotypus herb. Podlech).

***Astragalus rudimentus* Maassoumi, sp. nov.** e Sect. *Malacothrix* Bge.

Differs from *A. pauperiflorus* Bornm. in having the hairy stipules (not glabrous), upper surface of the leaflets densely hairy (not subglabrous). Calyx teeth linear setaceous, ca.3 mm long (not triangular). Covered with spreading hairs (not short appressed hairs).

Perennis, acaulis, humilis, ca.4-6 cm altus. Caudex multiceps. Stipulae lanceolatae, alba-pilosae, ca.3-4 mm longae, basi petiolo per ca.1 mm adnatae, inter breviter se connatae. Folia 2-2.5 cm longa; petiolo ca.5-6 mm longo, sicut rachis dense appresse albo-piloso; foliola contigua, ca.8-10 juga, elliptica vel lanceolata, ca.4 mm longa et 1-2 mm lata, utrinque dense appresse pilosa. Inflorescentiae solitariae, subcapitatae, 5-6 florae, pedunculo ca.2.5-3(-5)cm longo, erecto vel subdeflexo ad basim dense albo appresse piloso, apicem versus nigris immixtis obtecto. Bractee anguste ovatae dense albo-nigrosque pilosae, ca.3 mm longae. Calyx tubulosus, ca.10-11 mm longus, albo-nigrosque subpatenter pilosus; dentibus linearibus, ca.3 mm longis, dense albo-nigrosque pilosis. Corolla in vivo flava, in sicco violacea. Vexillum 14-15 mm longum; lamina rhomboidea, in parte mediano ca.6 mm lata. Alae ca.11 mm longae; lamina anguste elliptica, apicem

manifeste dentata, basi auriculata; auricula ca.1 mm longa, ungue lamina aequantes. Carina c.10 mm longa, lamina oblique elliptica, ungue lamina aequantes. Ovarium sessile, pilosum. Legumen ovoidum, ca.6-7 mm longum et 4 mm latum, apicem curvatum, dense longe albo lanatum immixtis ab pilis parvis patentibus, ventro rotundatum, dorso applanato-sulcatum, complete biloculare.

Typus. Azarbaydjan: Ardabil to Ghotour- Sou, Kuh-e Sabalan, 3400-3600 m, 15.7.1971, Terme 40821. (holotypus Evin; iso. TARI).

Other specimens seen. Azarbaydjan: Osku to Sahand, Kuh-e Soltan, 2600-3130 m, 22.6.1985, Termeh, Moussavi & Tehrani 41593 (Evin); N. of Savalan, 3500-3800, 30.7.1987, Javanshir 1263 (University of Tabriz); Savalan Heram mts. 3500-3800 m., 29.7.1987, Javanshir 1251 (University of Tabriz); Yekly Yeylaghy (Sabalan) 3420 m, 29.5.87, Javanshir 1074 (University of Tabriz); Savalan, 2935-3410 m, 18.8.1986, Javanshir 854 (University of Tabriz); Sardabeh to Sabalan Mt. 24.7.1968, 13325E; Sarab to Kuh-e Sabalan, 24.7.1968 Termeh 13325: Ibidem, Rechinger, Lamond & Termeh 44190 (W.).