

## Some new species of *Astragalus* L. sect. *Malacothrix* BUNGE in Iran

by

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### Summary:

5 new species of *Astragalus* L. sect. *Malacothrix* Bunge from Iran are described.

### Introduction:

During my revisional work on Iranian *Astragalus* with basifixed hairs (BUNGE 1868/1869) since four years the section *Malacothrix* Bunge with a higher evolutionary drift was the focal object of my main work. The similarity of most taxa in vegetative characters and the great number of species have led to confusion also between the old and distinct taxa and between them and some recent described species. This confusion was augmented by the fact that most of the older species never were typified and the lack of adequate type material. In 1986 and 1990 I has succeeded to examin the type specimen of most of the older species borrowed by Dr. PODLECH from several European herbaria. Typification of some old species has been done by Dr. PODLECH and the author. This work is also based on the rich material of two big Iranian herbaria (TARI & EVIN) and several duplicate material of other provincial herbaria.

*Astragalus expectatus* Maassoumi, spec. nov.

differt ab *A. inexpectato* Maassoumi & Podl. foliis 7-8 jugis (nec 10-18 jugis), bracteis anguste triangularibus dense nigropilosis (nec linearibus albo-nigropilosis), ab *A. plagiophacos* Maassoumi & Podl. calyce multo longiore et legumine lateraliter compresso (nec inflato).

Plantae perennes, acaules, pilis 0,3-0,8 mm longis obtectae. Caudex ramosus, caudiculos ad 20 cm longos emittens. Stipulae 4-6 mm longae, anguste triangulares, laxe pilosae vel inferiores subglabrae, basi breviter petiolo adnatae, inter se breviter connatae. Folia 2-3,5 cm longa, petiolo 0,5-0,7 cm longo sicut rachis pilis albis patentibus obtecto. Foliola 7-8 juga, contigua, 5-10 mm longa et 3-4 mm lata, anguste elliptica antice acutiuscula, utrinque dense semipatenter ad patentem pilosa, saepissime plicata. Inflorescentiae solitares, pedunculo ad 6 cm longo basi pilis albis apicem versus albis nigrisque patentibus obtecto suffultae, dense capitatae multiflorae. Bracteae anguste triangulares, acutae, 6-7 mm longae, dense nigropilosae. Flores subsessiles. Calyx ca. 12 mm longus, tubulosus, dense albopilosus, dentibus subulatis 4-5 mm longis albo-nigropilosis. Corolla glabra, in vivo flava, in sicco violacea. Vexillum ca. 15 mm longum, lamina obovata. Alae carinaeque deficientes. Ovarium sessile, pilosum. Legumen ovatum, 10-11 mm longum et ca. 5 mm altum, ventro applanato-carinatum, dorso rotundatum et leviter sulcatum, apice in rostro curvato attenuatum, dense pilis brevissimis et insuper pilis mollibus patentibus 2,5-4 mm longis obtectum, complete biloculare.

Holotypus: Iran, Prov. Fars: 20 km from Nurabad to Kore Kan, Doshman-Ziary region (WP2), 1800 m, 31.5.1983, Mozaffarian 45716 (TARI).

*Astragalus ghoortapacensis* Maassoumi, spec. nov.

differt ab *A. iranico* Bunge indumento in rachide pedunculoque e pilis appressis (nec patentibus) consistente, ab *A. molle* MB. foliolis minoribus et indumento in partibus vegetativis e pilis appressis consistente.

Plantae perennes, acaules, 12-14 cm altae. Stipulae 2-4 (-5) mm longae, triangulares, appresse albo-nigropilosae, basi petiolo breviter adnatae, inter se breviter connatae. Folia 6-8 cm longa, petiolo 1,5-2 cm longo, sicut rachis pilis brevissimis appressis vel subappressis albis vel apicem versus nigris etiam obtecto. Foliola 12-16 juga, ovata vel oblonga, apice rotundata vel late emarginata, utrinque dense subappresse pilosa. Inflorescentiae pedunculo 6-8 cm longo, dense pilis appressis, 0,2-0,3 (-0,5) mm longis albis vel apicem versus imprimis nigris obtecto suffultae, ovoideae vel cylindricae, multiflorae. Bracteae lineares, albo-membranaceae, 3-4 (-5) mm longae, albo-nigropilosae. Calyx 10-12 mm longus, tubulosus, longitudinaliter purpureo-nervosus, laxe pilis ad 1 mm longis albis nigrisque patentibus obtectus, dentibus subulatis 3-4 mm longis. Corolla glabra, flava. Vexillum ignotum. Alae 19-20 mm longae, lamina anguste

obovata, apice versum dilatata, antice oblique incisa, ca. 7 mm longa et 2,5-3 mm lata, auricula ca. 1 mm longa provisa, ungue ca. 12 mm longo. Carina ca. 16 mm longa, lamina oblique elliptica, curvata, ca. 6 mm longa et 3 mm lata, ungue ca. 10 mm longo. Ovarium breviter stipitatum, pilosum. Legumen stipite ca. 1 mm longo suffultum, ovoideum vel ellipticum, ca. 15 mm longum, 4-5 mm altum et ca. 3 mm latum, ventre rotundatum et leviter carinatum, dorso anguste sulcatum, apice in rostro breve curvato attenuatum, pilis brevissimis et longis lanatis obtectum, complete biloculare.

Holotypus: Iran, Prov. Esfahan, Semiron, Ghoortapacy, 14.6.1986, M. Nowrozi 4307 (TARI).

*Astragalus khajiboulaghensis* Maassoumi, spec. nov.

differt ab *A. molle* MB. foliolis supra subglabris (nec patenter pilosis), stipulis 3-4 mm tantum longis basi petiolo breviter adnatis (nec per 4-5 mm petiolo adnatis).

Plantae perennes, acaules, 5-9 cm altae. Caudex valde ramosus. Stipulae viridiusculae, 3-4 mm longae, pilosae, basi per 2 mm petiolo adnatae. Folia 3-5 cm longa, petiolo 1,5-2 cm longo, sicut rachis dense pilis albis antrorsis 0,2-1 mm longis obtecto. Foliola 11-13 juga, 3-4 mm longa et 1-2 mm lata, anguste elliptica, antice rotundata, supra glabra vel marginem versus sparse vel laxe appresse pilosa, subtus dense pilis subappressis ad 0,5 mm longis obtecta. Inflorescentiae pedunculo 3-3,5 cm longo dense subappresse albopiloso apicem versus etiam pilis nigris inmixtis suffultae, multiflorae. Bractee 8-9 mm longae, anguste triangulares, albo-nigropilosae. Flores subsessiles. Calyx 15-16 mm longus, tubulosus, apice oblique truncatus, densiuscule pilis ad 3 mm longis albis vel apicem versus nigris inmixtis obtectus, dentibus subulatis 6-7 mm longis. Corolla glabra, in vivo flava. Vexillum 19-20 mm longum, lamina ca. 7 mm lata, subrhomboidea, antice incisa. Alae ca. 16 mm longa, lamina anguste oblonga, antice rotundata, ca. 6 mm longa et 2 mm lata, auricula ca. 1,5 mm longa provisa, ungue ca. 10 mm longo. Carina ca. 15 mm longa, lamina oblique elliptica, ca. 6 mm longa et 3 mm lata. Ovarium dense pilosum. Legumen brevissime stipitatum, ovatum, ca. 10 mm longum et 4-5 mm altum, ventre fere rotundatum dorso profunde sulcatum, antice in rostro breve attenuatum, dense pilis ca. 4 mm longis obtectum, complete biloculare.

Holotypus: Iran, Prov. Azerbayejan: 60 km from Namin to Khaje-Boulagh, above Khaje-Boulagh, 1950 m, 21.6.1980, Mozaffarian & Nowrozi 34603 (TARI).

*Astragalus nahavandicus* Maassoumi, spec. nov.

differt ab *A. sarae* Eig foliolis anguste ellipticis vel linearibus (nec oblongis) supra glabris (nec pilosis), lamina alarum antice rotundata (nec oblique emarginata).

Plantae perennes, acaules, 11-13 cm altae. Caudex ramosus, caudiculos elongatos emittens. Stipulae 4-5 mm longae acuminatae, dense pilis albis vel interdum nigris immixtis obtectae, basi ad 3 mm petiolo adnatae inter se breviter connatae. Folia 8-11 cm longa, petiolo 0,5-2 cm longo sicut rachis densiuscule pilis subappressis vel semipatentibus 0,3-0,5 mm longis et insuper laxe pilis ad 1 mm longis patentibus albis oblecto. Foliola 15-17 juga, 6-10 mm longa et 2-3 (-4) mm lata, anguste elliptica vel linearia, supra glabra vel marginem versus laxe pilosa, subtus laxe vel densiuscule pilis brevibus subappressis vel semipatentibus oblecta. Inflorescentiae pedunculo 5-6 cm longo pilis subappressis brevibus et ad 2 mm longis patentibus albis nigrisque oblecto suffultae, multiflorae elongatae. Bractee anguste triangulares, 5-6 mm longae, albo-nigropilosae. Pedicelli brevissimi. Calx ca. 11 mm longus, tubulosus, basin versus leviter ventricosus pilis brevissimis appressis imprimis nigris et insuper ad 1 mm longis patentibus imprimis albis oblectus, dentibus subulatis ca. 3 mm longis. Corolla glabra, purpurea vel violacea. Vexillum 16-17 mm longum, lamina 8-9 mm lata, rhomboidea antice incisa. Alae 15-16 mm longae, lamina anguste oblonga, antice rotundata, ca. 7 mm longa et 2 mm lata, auricula ca. 1,5 mm longa provisa, ungue 7-8 mm longo. Carina 13-14 mm longa, lamina oblique elliptica, ca. 6 mm longa. Ovarium sessile. pilosum. Legumen ignotum.

Holotypus: Iran, Prov. Hamadan, ca. 21 km from Nahavand on the road to Malayer, 2000 m, 11.9.1987, Maassoumi & Mirhosseini 59365 (TARI, Herb. PODLECH).

*Astragalus rusticus* Maassoumi, spec. nov.

differt ab *A. macrouro* Fischer & C.A. Meyer cui similis corolla violacea (nec flava) et vexillo rhomboidei (nec distincte ligulato).

Plantae perennes, acaules, 10-11 cm altae. Stipulae 5-8 mm longae, anguste triangulares, albopilosae, basi per 2 mm petiolo adnatae, inter se breviter connatae. Folia 5-6 cm longa, petiolo 1-1,5 cm longo, sicut rachis dense pilis brevissimis et insuper pilis longis subappressis oblecto. Foliola 11-12 juga, 5-7 mm longa et 2-4 mm lata,

elliptica, acuta vel obtusiuscula, utrinque appresse vel subappresse pilosa. Inflorescentiae solitares, pedunculo 5-6 cm longo sicut rachis piloso suffultae, 7-9 florum. Bractee anguste triangulares, 5-6 mm longae, albo-nigropilosae. Flores subsessiles. Calyx 11-12 mm longus, brevissime nigro- et longe albopilosae, dentibus subulatis, 1-3,5 mm longis. Corolla intense violacea. Vexillum ca. 18 mm longum, rhomboideum, antice emarginatum. Alae ca. 17 mm longae, lamina anguste oblonga, apicem versus leviter dilatata, rotundata, breviter auriculata, ungue lamina sequante. Carina ca. 15 mm longa, lamina oblique elliptica. Ovarium stipitatum, pilosum. Legumen ignotum.

**Holotypus:** Iran, Azerbayejan, Kandewan road to Esfanjan, before Kahnemou, 2090 m, 27.5.1987, Olfat & Sarkarat 233 (TARI).

*Isotype* in the herbarium of the Institute of Botany, University of Tehran, Iran. *Paratype* in the herbarium of the Institute of Botany, University of Tehran, Iran. *Other* in the herbarium of the Institute of Botany, University of Tehran, Iran.

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