

NINE NEW TAXA OF THE GENUS *ASTRAGALUS*, SECT. *CAPRINI* (LEGUMINOSAE) FROM IRAN

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The following taxa are described as new from Iran: *Astragalus aharicus*, *A. assadii*, *A. controversus*, *A. golestanicus*, *A. kashmarensis*, *A. pinetorum* Boiss. subsp. *alamutensis*, *A. pseudojohannis*, *A. pseudovinus*, *A. reticulato-venosus*. They are all belong to the section *Caprini* and compare with their close affinities.

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تعداد ۹ واحد رده‌بندی جدید از جنس گون (*Astragalus*) در ایران

از: دیتريش پودلش و علی اصغر رمک معصومی

واحد‌های رده‌بندی زیر شامل ۸ گونه و ۱ زیر گونه به عنوان واحدهای جدیدی نامگذاری و شرح داده می‌شوند.

Astragalus aharicus, *A. assadii*, *A. controversus*, *A. golestanicus*, *A. kashmarensis*, *A. pinetorum* Boiss. subsp. *alamutensis*, *A. pseudojohannis*, *A. pseudovinus*, *A. reticulato-venosus*.

تمام گونه‌های فوق متعلق به بخش *Caprini* هستند و با گونه‌های نزدیک و مشابه خود مقایسه می‌گردند.

Introduction

In the course of working on the genus *Astragalus*, sect. *Caprini* in the herbarium of Research Institute of Forests and Rangelands (TARI) by one of us (Ramak Maassoumi), some interesting specimens could not be properly identified. These specimens were sent to the other author who has been revising the section for close study. Then we both came to the conclusion that 8 new species and 1 new subspecies are among the specimens which are described here.

Astragalus aharicus Maassoumi & Podl., spec. nov.

differt ab *A. aegobromus* Boiss. & Hohen. cui bracteis latis et forma leguminis similis, rachidibus partim indurascensibus et persistentibus, foliolis minoribus et latoribus, inflorescentiis paucifloris, bracteis cymbiformibus et stylo glabro.

Plantae 15–40 cm altae, glaberrimae, caule 3–20 cm alto provisae. Stipulae 6–10 mm longae, basi per 1–2 mm petiolo adnatae. Folia 14–18 cm longa, petiolo 2–4 cm longo sicut rachis indurascens et partim persistente. Foliola 8–14 juga, 3–8 mm longa et 2–5 mm lata, elliptica vel fere orbicularia,

apice rotundata vel emarginata, angustissime albi- vel rubrimarginata. Inflorescentiae 1–2 cm longe pedunculatae, 3–4 florum. Bracteae albimembranae, 8–10 mm longae, ovatae, cymbiformes. Pedicelli 4–5 mm longi. Calyx 12–15 mm longus, dentibus 2–5 mm longis. Corolla glabra, viridiusculiflava. Vexillum 28–30 mm longum; lamina elliptica, 10–11 mm lata. Alae 24–25 mm longae; lamina 10–12 mm longa et 3–4 mm lata, apice rotundata, auricula 1–2 mm longa. Carina 17–19 mm longa; lamina oblique ellipticotriangulare, 6–7 mm longa. Ovarium fere sessile. Legumen ca. 1 mm longe stipitatum, anguste ellipticum, 20–25 mm longum, 8–9 mm altum et 6–7 mm latum, ventro nervo carinatim elevato, dorso anguste rotundatum, valvis coriaceis rugosis, incomplete biloculare.

Typus: Iran, Prov. Azarbayegan, 20 km from Ahar on the road to Tabriz, 2000 m, 31.5.1977, Assadi & Vosughi 25031 (holotypus TARI; isotypus herb. PODLECH).

Other specimens seen: Prov. Azarbayegan, 22 km SW Ahar, 1550 m, 18.5.1960, H. Pabot 3260 (G; TARI); 19–20 km from Ahar to Tabriz, 1600–1700 m, 23.6.1986. Maassoumi & Abouhamzeh 56967 (TARI; Herb. PODLECH).

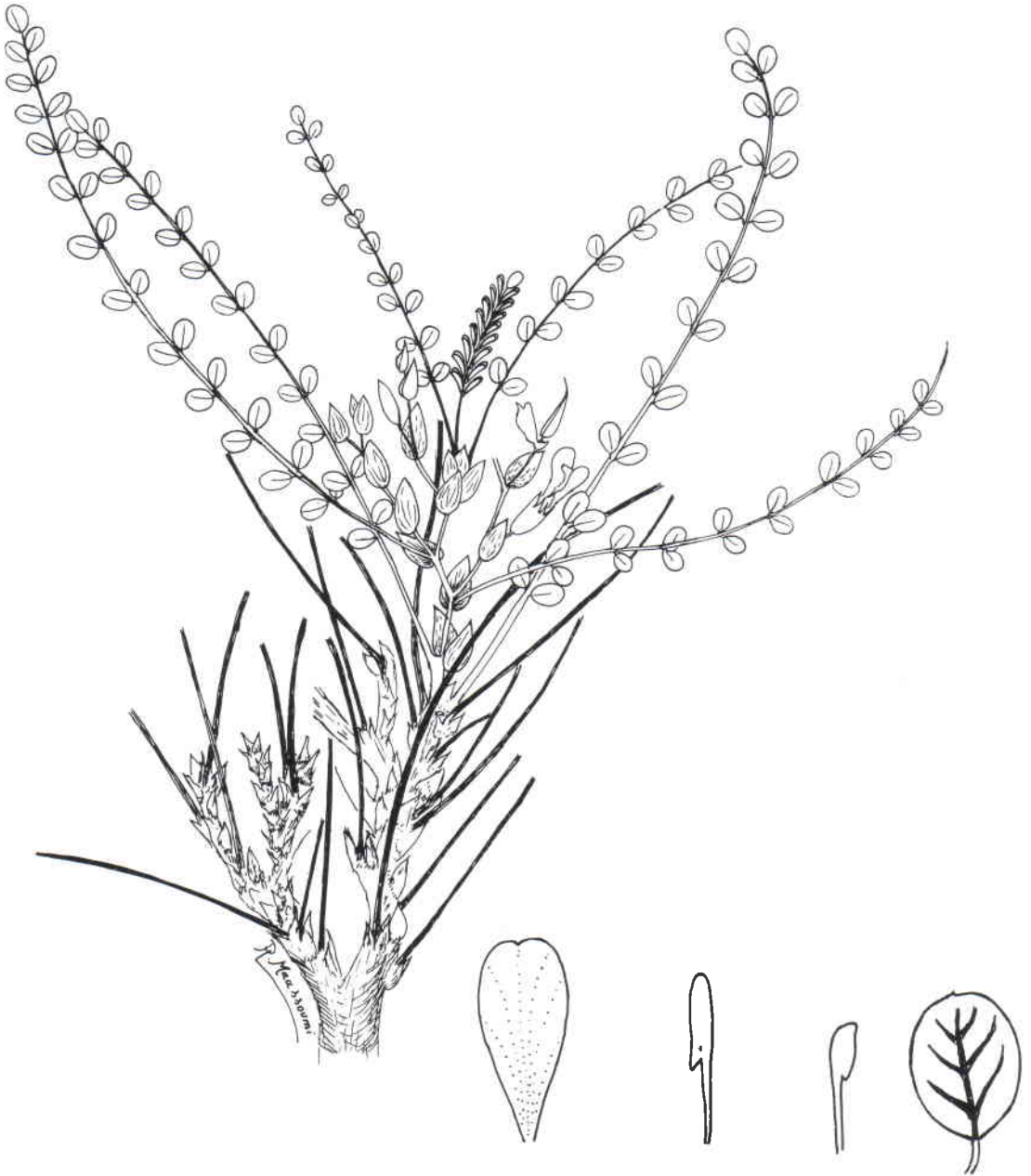


Fig. 1. *Astragalus aharicus* (x 0.63; standard, wing and keel x 1; leaflet x 3).

Astragalus assadii Maassoumi & Podl.,
spec. nov.

differt ab *A. pseudoindurascens* Sirj. & Rech. f. cui similis stipulis basi ad 2 mm petiolo adnatis nec fere liberis, foliolis glaucis, latoribus, nervis lateribus, subtus subprominentibus, carinae lamina in margine superiore denticulis minutis provisa, legumine angustiore valvis non elevatim rugosis.

Plantae 20–35 cm altae, acaules vel breviter caulescentes, glaberrimae vel in rachide pilis singularibus provisae. Stipulae 7–14 mm longae, basi per 2 mm petiolo adnatae. Folia 17–25 cm longa, petiolo 3–5 cm longo; sicut rachis leviter indurascens et partim persistente. Foliola 8–12 juga, 4–10 mm longa et 4–7 mm lata, obovata vel fere orbicularia, apice rotundata vel distincte emarginata, glauca, anguste albidi- vel rubri-marginata, subtus nervo mediano prominente. Inflorescentiae 3–4 cm longe pedunculatae, 3–4 florum. Bractae 5–7 mm longae. Pedicelli 5–7 mm longi. Calyx 13–14 mm longus, dentibus subulatis 3–4 mm longis. Corolla glabra, flava (?). Vexillum ca. 20 mm longum; lamina elliptica. ca. 8 mm lata. Alae ca. 18 mm longae; lamina 8 mm longa et 3 mm lata, auricula 3 mm longa. Carina 18 mm longa; lamina oblique elliptica,

margine superiore in parte apicale dentibus minutis provisa, ca. 7 mm longa. Ovarium ca. 5 mm longe stipitatum. Legumen 7–10 mm longe stipitatum, 20–28 mm longum, ca. 8 mm altum et latum, ventre distincte carinatum, dorso late applanatum, valvis tenuibus, duris, incomplete biloculare.

Typus: Iran, Prov. Khorasan, 60 km N. of Torbat-e Heydarieh, Robot-Sefid, 1750–1900 m, 15.6.1981, M. Assadi & V. Mozaffarian 35841 (holotypus TARI; isotypus Herb. PODLECH).

Other specimen seen: Prov. Khorasan: prope Robot-e Sefid inter Mashhad et Torbat-e Heydarieh, 1800–2000 m, 29.5.1977, J. Renz & H. Runemark in Herb. RECHINGER 55971 (G)

Astragalus controversus Maassoumi & Podl., spec. nov.

differt ab *A. reticulato-venosus* Maassoumi & Podl. in partibus fere omnibus pilosis, foliolis 16–20 (nec 12–14) jugis, lamina carinae in margo superiore sine dentibus minutis.

Plantae 30–35 cm altae, breviter caulescentes, pilis ad 3 mm longis vestitae. Caules 2–5 cm longi, glabri vel sparse breviter pubescentes. Stipulae albidae vel viridiusculae vel rubrosuf-



Fig. 2. *Astragalus assadii* (x 0.65; standard, wing and keel x 1).

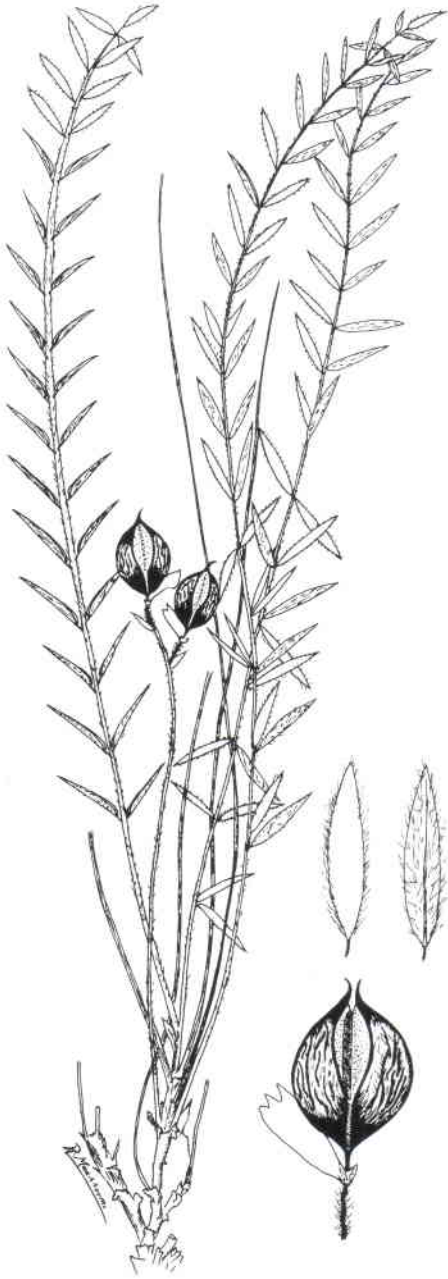


Fig. 3. *Astragalus controversus* (x 0.45; leaflets x 2; Fruit x 1).

fusae, 5–10 mm longae, basi petiolo vix adnatae. Folia 20–30 cm longa, petiolo 4–9 cm longo, sparse vel laxe patenter piloso. Foliola 16–20 juga, 5–18 mm longa et 2–4 mm lata, angusta, supra in margine dense pilosa quasi pilis albis circum-texta, subtus densiuscule fere patenter pilosa, glauca, saepe anguste rubromarginata, subtus nervo mediano prominente, nervis lateralibus vix elevatis curvatis. Inflorescentiae 3–10 cm longe pedunculatae, 2–4 florum. Bracteae 3–5 mm longae, ciliatae. Pedicelli 6–10 mm longi, pilosi. Calyx 12–13 mm longus, tubo in parte basali laxo, apicem versus densiuscule patenter piloso, dentibus 1.5–2.5 mm longis. Corolla glabra, flava. Vexillum ca. 25 mm longum et 9 mm latum. Alae ca. 23 mm longae; lamina apicem versus leviter dilatata, ca. 9 mm longa et 3 mm lata; auricula ca. 1 mm longa. Carina c. 20 mm longa; lamina oblique elliptico-curvata, ca. 8 mm longa et 4 mm lata. Ovarium ca. 3 mm longe stipitatum, in parte ventrali sparse pilosum. Legumen 3–4 mm longe stipitatum, oblongum, 20–30 mm longum, 11–12 mm altum et 18–20 mm latum, ventro dorsoque late applanatum nervo conspicuo, valvis valde convexis, coriaceis, rugulosis, incomplete biloculare.

Typus: Iran, Prov. Khorasan, 14 km from Kashmar to Neyshabour, 1400–1500 m, 12.6.1981, M. Assadi & V. Mozaffarian 35623 (holotypus TARI; isotypus herb. PODLECH).

Other specimen seen: Prov. Khorasan: 13 km N. Kashmar to Rivash, 1300–1400 m, 4.5.1975, K. H. Rechinger 51097 (W)

Astragalus golestanicus Maassoumi & Podl., spec. nov.

differt ab *A. hermannii* Freitag & Podl. stipulis glabris vel margine tantum ciliatis, foliis minus dense pilosis, petiolis brevioribus, floribus majoribus et leguminibus brevioriter stipitatis.

Plantae 15–18 cm altae, acaules, pilis ad 3 mm longis vestitae. Stipulae 8–10 mm longae, basi per 3–4 mm petiolo adnatae, inferiores glabrae, superiores apicem versus ciliatae. Folia 10–17 cm longae, petiolo 3–6 cm longo sicut rhachis laxe patenter piloso. Foliola 12–15 juga, 5–12 mm longa et 2–6 mm lata, anguste ovata vel obovata, supra glabra subtus laxe pilis 0.5–1 mm longis fere patentibus vestita, anguste rubromarginata, pro maxima parte complicata. Inflorescentiae ca. 1 cm longe pedunculatae, 2-florae. Bractee viridiusculae,

8–10 mm longae, sparse ciliatae. Pedicelli 5–7 mm longi, glabri. Calyx 17–18 mm longus, sparse pilosus vel in parte inferiore glaber, dentibus 4–5 mm longis. Corolla glabra, lutea vel dilute rubra. Vexillum 27–30 mm longum, lamina late elliptica, ca. 11 mm lata. Alae 26–28 mm longae; lamina 11–12 mm longa et 4 mm lata, apicem versus distincte dilatata, rotundata; auricula 3 mm longa. Carina alis aequilonga; lamina oblique oblongi-curvata, margine superiore in parte apicale dentibus minutis provisa. Ovarium ca. 6 mm longe stipitatum, pilosum. Legumen ca. 6 mm longe stipitatum, ellipticum, ca. 18 mm longum, ventro leviter carinatum, dorso late applanatum, valvis laxe pilosis, incomplete biloculare.

Typus: Iran, Gorgan, Golestan Park, Almeh, 1100 m, 8.5.1984, Maassoumi 47569 (holotypus TARI; isotypus herb. PODLECH).

Other specimens seen: Gorgan, Kord-Koy, between Radkan and Chaman, 1400–1500 m, 23.5.1986, Maassoumi 55087 (TARI).

Astragalus kashmarensis Maassoumi & Podl., spec. nov.

differt ab *A. nephtonensis* Freyn

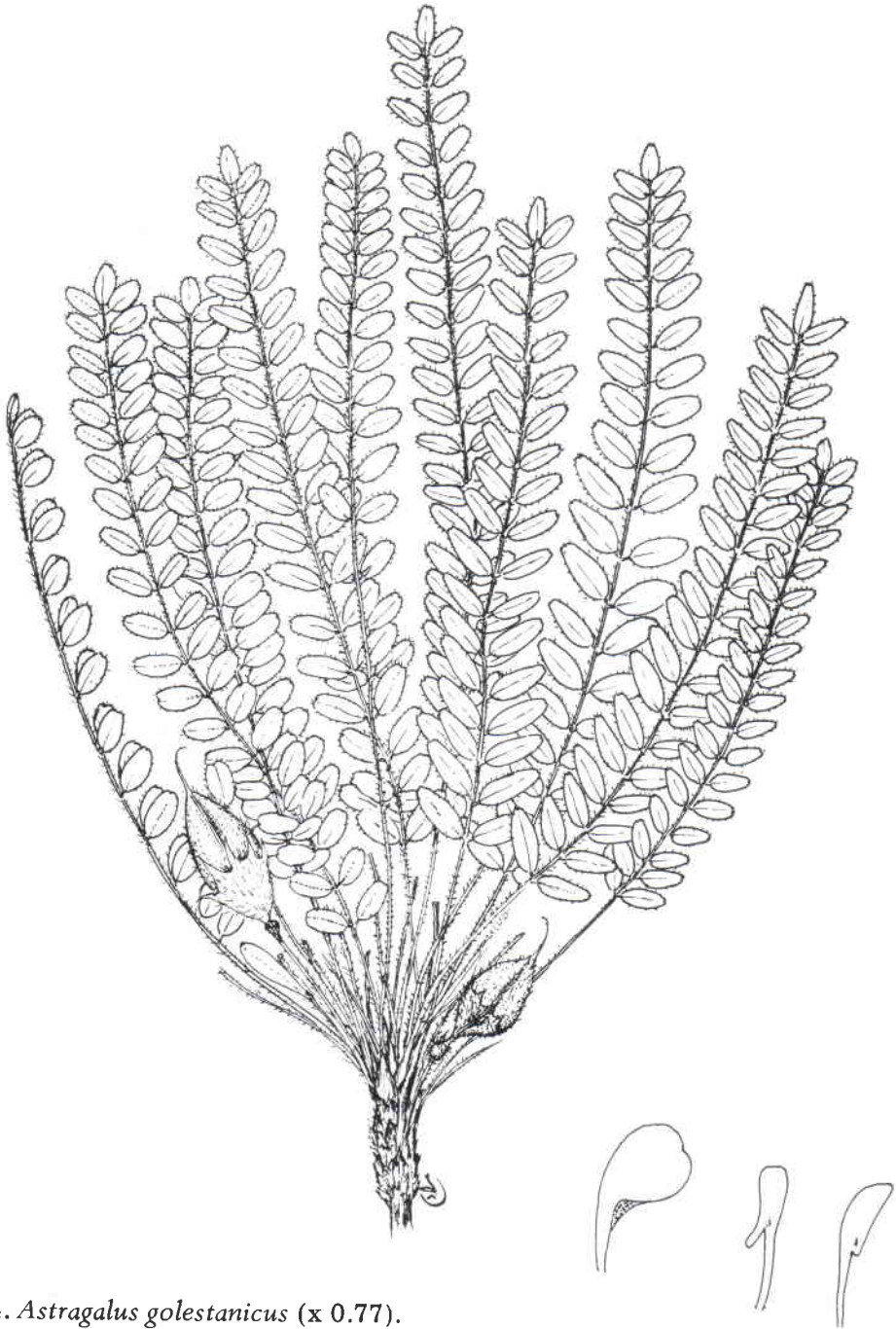


Fig. 4. *Astragalus golestanicus* (x 0.77).

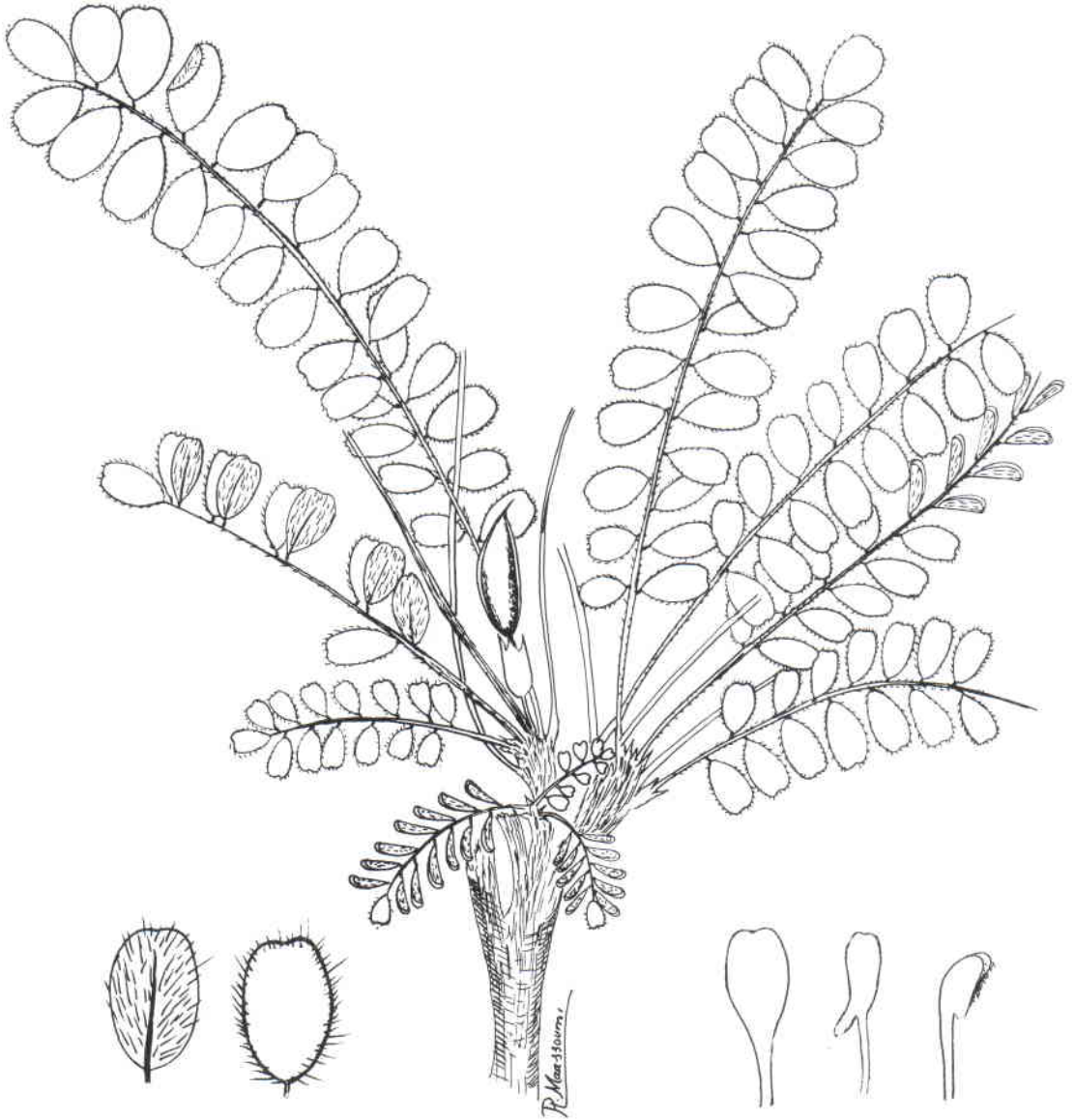


Fig. 5. *Astragalus kashmarensis* (x 0.66; leaflets, standard, wing and keel x 1).

stipulis basi brevissime petiolo adnatae, foliolis paucijugis, glaucis, anguste albi-vel rubrimarginati, leguminibus distincte angustioribus.

Plantae 15 cm altae, acaules, pilis 1–2 (–3) mm longis obtectae. Stipulae 5–7 mm longae, basi per 1–2 mm petiolo adnatae, margine ciliatae. Folia 8–13 cm longa, petiolo 2–2.5 cm longo, laxe patenter piloso. Foliola 8–12 juga, 5–15 mm longa et 4–9 mm lata, obovata, supra glabra, subtus laxe patenter vel semipatenter pilosa, glauca anguste albi-vel rubrimarginata. Inflorescentiae 0.5 cm longe pedunculatae, 2–3 florum. Bracteae 6–8 mm longae, pilosae. Pedicelli ca. 4 mm longi, sparse pilosi. Calyx ca. 13 mm longus, in parte inferiore sparse apicem versus densiuscule fere patenter pilosus, dentibus subulatis, ca. 3 mm longis. Corolla glabra, purpureosuffusa. Vexillum ca. 24 mm longum; lamina 8–9 mm lata. Alae ca. 23 mm longae; lamina 9 mm longa et 3 mm lata, apicem versus leviter dilatata; auricula 3 mm longa. Carina ca. 22 mm longa, lamina oblique oblongi-curvata, margine superiore dentibus minutis provisa. Ovarium ca. 6 mm longe stipitatum, pilosum. Legumen 7–8 mm longe stipitatum, anguste obovatum, 25 mm longum, 7 mm altum et 10 mm latum,

ventro carinatum, dorsi late applanatum et leviter sulcatum, valvis tenuiter coriaceis, ventro sparse fere appresse pilosum, incomplete biloculare.

Typus: Iran, Prov. Khorasan, 70 km from Neyshabour to Kashmar, 1550–1950 m, 11.6.1981, Assadi & Mozaffarian 35482 (holotypus TARI; isotypus herb. PODLECH).

Astragalus pinetorum Boiss. subsp. *alamutensis* Maassoumi & Podl., subsp. nov.

differt ab *A. pinetorum* Boiss. subsp. *pinetorum* pilis 0.3–1 (nec 0.5–2.5) mm longis et stylo sub stigmatate glabro, ab *A. pinetorum* Boiss. subsp. *declinatus* Podl. insupre foliolis supra laxe fere appresse pilosis.

Plantae 5–10 cm altae, acaules, pilis 0.3–1 mm longis obtectae. Folia 5–12 cm. longa; petiolo 1–3 cm longo sicut rachis laxe patenter piloso. Foliola (11–) 14–21 juga, 5–20 mm longa et 2–8 mm lata, anguste ovata, apice anguste rotundata vel leviter emarginata, supra laxe, subtus densiuscule semiappresse pilosa. Inflorescentiae fere sessiles, 1–2-florum. Calyx 10–14 mm longus, dentibus 4–6 mm longis. Vexillum 18–20 mm longum. Ovarium sessile, stylo glabro.

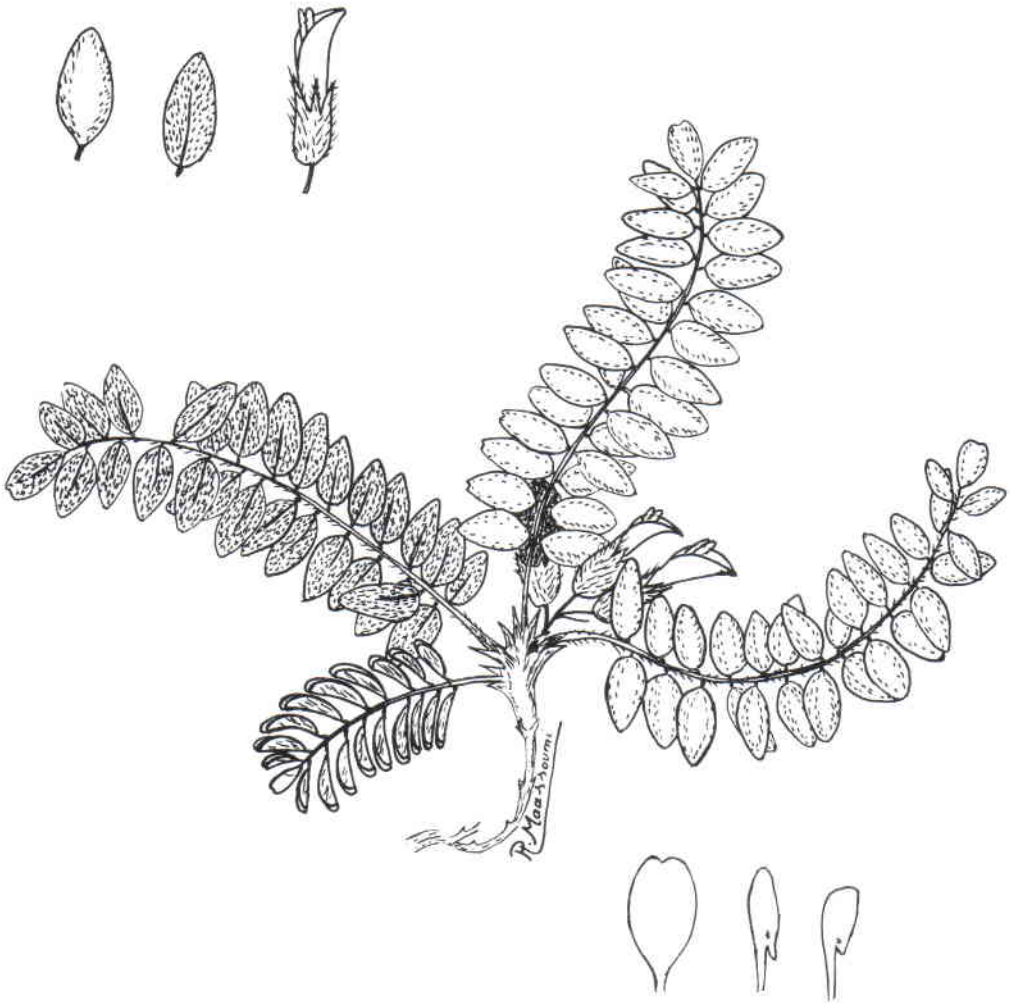


Fig. 6. *Astragalus pinetorum* subsp. *alamutensis* (habit, standard, wing and keel x 0.93; leaflets and flower x 1.4).

Typus: Iran, Tehran, Ghazvin, Alamout area, above the village Evan, S. slope of Khash-e Chal mountain (VA4), 2800–3300 m, 10.7.1984, Assadi & Maassoumi 51079 (holotypus TARI; isotypus herb. PODLECH).

Other specimens seen: Mazandaran: ca. 40 km S of Ramsar, N slope of Khash-e Chal mountain (VA4), 2900–3600 m, 11.7.1984, Assadi & Maassoumi 51206; ca. 30 km S of Ramsar, between Shah-e Sefidkuh mountain and Tanoo-rehkish (VA3), 3000 m, 13.7.1984, Assadi & Maassoumi 51308.

Astragalus pseudojohannis Maassoumi & Podl., spec. nov.

differt ab *A. johannis* Boiss. glabrietate omnium partium ovario legumineque excepto, foliolis paucioribus et dentibus calycis brevioribus.

Plantae ca. 20 cm altae, suffruticosae, breviter caulescentes, in partibus vegetativis fere omnino glabrae vel pilis singularibus tantum provisae. Caules ad 9 cm longi, partibus hornotinis 1–2 cm longis. Stipulae 10–16 mm longae, basi per 5 mm petiolo adnatae. Folia 12–19 cm longa; petiolo 2–5 cm longo, sicut rachis indurascens et persistente sed vix pungente. Foliola 13–18 juga, 2–7 mm

longa et 1–2 mm lata, fere semper complicata. Inflorescentiae 2–3 cm longe pedunculatae, 2–3 florum. Bractee 2–4 mm longae. Pedicelli 4–5 mm longi. Calyx 10–12 mm longus, glaber, dentibus 2–3 mm longis. Corolla glabra, lutea demum purpurascens. Vexillum ca. 20 mm longum; lamina late elliptica, ca. 10 mm lata. Alae ca. 18 mm longae; lamina 8 mm longa et 3 mm lata; auricula ca. 1 mm longa. Carina ca. 16 mm longa; lamina fere triangulare, ca. 6 mm longa. Ovarium ca. 3 mm longe stipitatum, dense appresse pilosum, stylo sub stigmatate linea distincta pilosa proviso. Legumen 2–3 mm longe stipitatum, anguste ellipticum, 13–14 mm longum, ca. 4 mm altum latumque, ventro distincte carinatum, dorso anguste sulcatum, valvis coriaceis densiuscule pilis ad 3 mm longis fere patentis obtectum, fere complete biloculare.

Typus: Iran, Prov. Kerman, S. slope of Kuh-e Khabr, ca. 3000 m, 8.6.1977, Assadi & Miller 25202 (holotypus TARI; isotypus herb. PODLECH).

Astragalus pseudovinus Maassoumi & Podl., spec. nov.

differt ab *A. ovinus* Boiss. foliolis 18–22 jugis (nec 10–12 raro ad 16 jugis), ovario et legumine distincte



Fig. 7. *Astragalus pseudojohannis* (x 0.7).

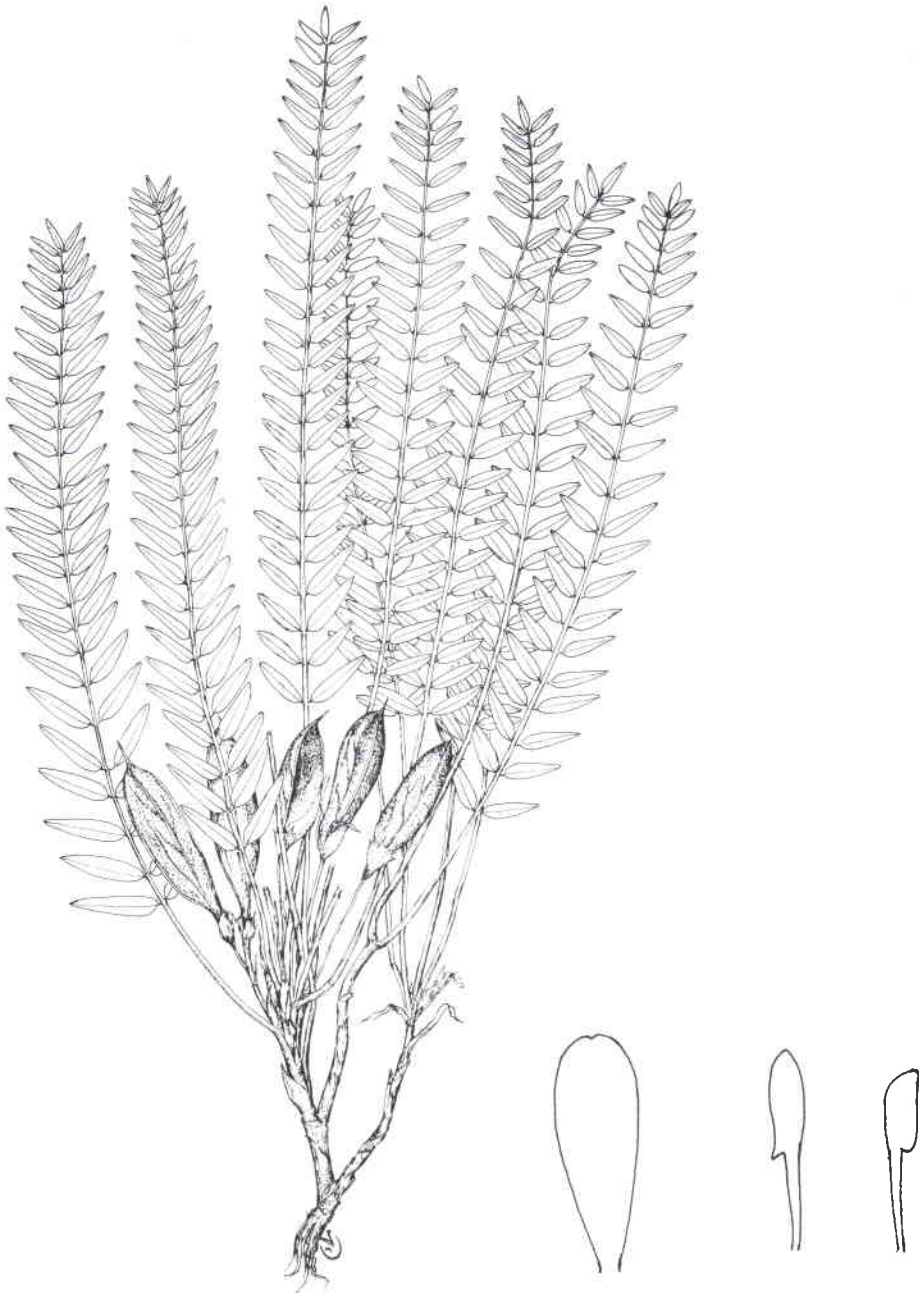


Fig. 8. *Astragalus pseudovinus* (x 0.5; standard, wing and keel x 1).

stipitato, stylo sub stigmatē linea pilosa proviso.

Plantae ad 30 cm altae, acaules, dentibus calycis, ovario et legumine excepto omnino glaberrimae. Stipulae 10–20 mm longae, inferiores ad 5 mm petiolo adnatae. Folia 15–30 cm longa, petiolo 4–6 cm longo. Foliola 18–22 juga, 10–25 mm longa et 2–7 mm lata, anguste ovata. Inflorescentiae pedunculo 1–2 cm longo, ca. 3-florae. Bracteeae 6–10 mm longae. Pedicelli 10 mm longi. Calyx 14–15 mm longus; dentibus ca. 4 mm longis, apice ciliatis. Corolla glabra, lutea. Vexillum ca. 30 mm longum; lamina elliptica, ca. 11 mm lata. Alae ca. 27 mm longae; lamina ca. 10 mm longa et 3 mm lata, apice rotundata; basi auriculata; auricula ca. 1 mm longa. Carina ca. 23 mm longa; lamina fere triangulari, ca. 8 mm longa. Ovarium 4–5 mm longe stipitatum, pilosum. Legumen 3–5 mm longe stipitatum, oblongum, 30–40 mm longum, 9–11 mm altum et 8–9 mm latum, ventre nervo carinatim elevato, dorso late applanatum, valvis coriaceis rogois, incomplete biloculare.

Typus: Iran, Prov. Hamadan, ca. 8 km E of Ganjnameh, 2750 m, 9.7.1981, Assadi & Mozaffarian 36885 (holotypus TARI; isotypus herb. PODLECH).

Astragalus reticulato-venosus Maassoumi & Podl., spec. nov.

Plantae ad 35 cm altae, acaules vel breviter caulescentes, fere omnino glabrae. Stipulae 5–12 mm longae, basi per 1–3 mm petiolo adnatae, glabrae vel raro margine breviter ciliatae. Folia ad 30 cm longa; petiolo 6–12 cm longo, sicut rhachis glabro vel pilis perpaucis instructo, demum leviter indurascēte, ad 3 mm incrassato. Foliola 12–14 juga, remota, glauca, 7–15 mm longa et 3–5 mm lata, anguste ovata vel raro anguste elliptica, apice acuta vel raro obtusiuscula, glabra vel raro margine pilis paucis provisa, subtus nervis prominentibus lateralibus arcuatim in nervum lateralem anastomosantibus. Inflorescentiae pedunculo 4–5 cm longo, 3–4-florae. Bracteeae 5–6 mm longae, ciliatae. Pedicelli 5–6 mm longi. Calyx ca. 12 mm longus, tubo glabro, dentibus triangulari-acutatis, 1–2 mm longis, ciliatis. Corolla glabra. Vexillum 25–27 mm longum, lamina elliptica vel anguste obovata, 8–9 mm lata. Alae 22–24 mm longae, lamina apice rotundata, 9–10 mm longa et ca. 3 mm lata, auricula 1–1.5 mm longa. Carina 21–23 mm longa, lamina oblongo-curveda, margine superiore denticulis minutis provisa, ca. 8 mm longa. Ovarium 4–6 mm longe



Fig. 9. *Astragalus reticulato-venosus* (x 0.5 ; standard, wing and keel x 1).

stipitatum, appresse pilosum. Legumen stipitatum, oblongum, 25–32 mm longum, 10–12 mm altum et 12–17 mm latum, ventro dorsoque late rotundatum nervis prominentibus, valvis coriaceis, sparse hirsutis demum glabrescentibus, incomplete biloculare.

Typus: Iran, prov. Khorasan, ca. 50 km NNE of Kashmar, Kuh-e Bezgh (FE4), 1900–2500 m, 13.6.1981, Assadi & Mozaffarian 35718 (holotypus TARI; isotypus herb. PODLECH).