

## New Astragali and Oxytropis from North Africa and Asia, including some new combinations and remarks on some species

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### Abstract:

PODLECH, D.: New Astragali from North Africa and Asia, including some new combinations and remarks on some species. – Sendtnera 6: 135–174. 1999. ISSN 0944–0178.

One new species from Morocco and 39 new species and subspecies from Asia of the genus *Astragalus* and one species of the genus *Oxytropis* (*O. azerbaijanica*) are described here. They belong to the following sections: Sect. *Aegacantha*: *A. langtanensis*, *A. nepalensis*; Sect. *Astragalus*: *A. diyarbakirensis*, *A. nigrocalycinus*; Sect. *Brachycarpus*: *A. bowes-lyonii*, *A. thomsonii*; *A. villosulus*; Sect. *Caprini*: *A. akhanii*, *A. antalyensis*, *A. avajensis*, *A. diversipilosus*, *A. glaberrimus*, *A. malatyaensis*; Sect. *Cytisodes*: *A. neyshaburensis*; Sect. *Dissitiflora*: *A. fallacinus*; Sect. *Hypoglottidei*: *A. cedreticola*; Sect. *Incani*: *A. brevidentatus*, *A. longisubulatus*, *A. mercklinii* subsp. *farsicus*, *A. nevshahiricus*, *A. polhillii*; Sect. *Laxiflora*: *A. gigantostegius*, *A. karasarensis*; Sect. *Leucocercis*: *A. kentrophyllus*; Sect. *Malacothrix*: *A. bakirdgahensis*, *A. jacobsii*, *A. kashanensis*, *A. sultan-bulaghensis*; Sect. *Mikrophyton*: *A. mikrophytoides*; Sect. *Onobrychoidei*: *A. arakliensis*, *A. demirizii*, *A. eskishehircus*, *A. konyaensis*, *A. pineticola*; Sect. *Rhabdotus*: *A. venulosus* subsp. *iraqensis*; Sect. *Sisyrophorus*: *A. nigdeanus*; Sect. *Stereothrix*: *A. hakkariensis*, *A. montis-varvashti*; Sect. *Tapinodes*: *A. tetuanensis*; Sect. *Trachycercis*: *A. longivexillatus*. Furthermore two new sections: *Aberrantes* and *Mikrophyton* and 9 new names and combinations are presented.

### Zusammenfassung:

Eine neue Art der Gattung *Astragalus* aus Nordafrika und 39 neue Arten und Unterarten aus Asien sowie eine neue *Oxytropis*-Art (*O. azerbaijanica*) werden hier beschrieben. Sie gehören folgenden Sektionen an: Sect. *Aegacantha*: *A. langtanensis*, *A. nepalensis*; Sect. *Astragalus*: *A. diyarbakirensis*, *A. nigrocalycinus*; Sect. *Brachycarpus*: *A. bowes-lyonii*, *A. thomsonii*; *A. villosulus*; Sect. *Caprini*: *A. akhanii*, *A. antalyensis*, *A. avajensis*, *A. diversipilosus*, *A. glaberrimus*, *A. malatyaensis*; Sect. *Cytisodes*: *A. neyshaburensis*; Sect. *Dissitiflora*: *A. fallacinus*; Sect. *Hypoglottidei*: *A. cedreticola*; Sect. *Incani*: *A. brevidentatus*, *A. longisubulatus*, *A. mercklinii* subsp. *farsicus*, *A. nevshahiricus*, *A. polhillii*; Sect. *Laxiflora*: *A. gigantostegius*, *A. karasarensis*; Sect. *Leucocercis*: *A. kentrophyllus*; Sect. *Malacothrix*: *A. bakirdgahensis*, *A. jacobsii*, *A. kashanensis*, *A. sultan-bulaghensis*; Sect. *Mikrophyton*: *A. mikrophytoides*; Sect. *Onobrychoidei*: *A. arakliensis*, *A. demirizii*, *A. eskishehircus*, *A. konyaensis*, *A. pineticola*; Sect. *Rhabdotus*: *A. venulosus* subsp. *iraqensis*; Sect. *Sisyrophorus*: *A. nigdeanus*; Sect. *Stereothrix*: *A. hakkariensis*, *A. montis-varvashti*; Sect. *Tapinodes*: *A. tetuanensis*; Sect. *Trachycercis*: *A. longivexillatus*. Ferner werden 2 neue Sektionen: *Aberrantes* und *Mikrophyton* und 9 neue Namen und Kombinationen mitgeteilt.

## 1. New species and sections

Sect. *Aberrantes* Podlech, sect. nov.

Typus sectionis: *A. clausii* C.A.Mey.

Differt a sect. *Alopecuroidei* racemis laxis, pedicellis perlongis, calyce dentibus longis corollam superantibus, vexillo piloso, lamina carinae porrecta.

Plantae validae, erectae, dense longe albobillosae. Stipulae angustae, basi petioli adnatae. Racemi laxe multiflori, longe pedunculati. Pedicelli perlongi, bracteolis filiformibus instructi. Calyx campanulato-tubulosus, dentibus filiformibus tubo aequilongis vel longioribus. Corolla calyce brevior. Petala breviter unguiculata. Vexillum dorso pilosum. Carina lamina porrecta.

Plants tall, erect, long white-villous. Stipules narrow, adnate at the the base to the petiole. Racemes loosely many-flowered, with a long peduncle. Pedicels long, with filiform bracteoles. Calyx campanulate-tubular; teeth filiform, as long as the tube or longer. Petals shorter than the calyx, with a short claw. Standard hairy on upper side. Keel with straight blades.

The two known species (*A. clausii* C.A.Mey., *A. vassilczenkoi* Berdyev) of this aberrant section have been up to now always put into the section *Alopecuroidei* DC. although the descriptions fit by no means the description of this section. BECHT 1978 without having seen the type thought *A. clausii* to be a synonym of *A. vulpinus* Willd., a very curious procedure.

*Astragalus langtangensis* Podlech, spec. nov. e sect. *Aegacantha*

Holotype: Nepal, [Langtang Himal], Langtang valley, 13000 ft., 24.6.1965, *Achilling, Sayers & Bista 380* (K).

Fruticulus spinosus ad 30 cm altus, ramosus. Stipulae membranaceae, 7–10 mm longae, lineares vel anguste triangularibus, petiolo per 3 mm adnatae, margine albo-ciliatae. Folia juvenilia imparipinnata, 9–11-juga 3–4 cm longa, petiolo 1–1,5 cm longo, rachide pilis patentibus 1–2 mm longis oblecta. Rachides foliorum adultorum 3,5–7 cm longae, erectae, pungentes. Foliolum terminale minutum, demum deciduum. Foliola cetera obovata, 3–4 × 2–2,5 mm, supra glabra, subtus laxe longe subpatenter pilosa. Pedunculus ca. 5 mm longus, 2-florus. Bracteeae 4–5 mm longae. Calyx membranaceus, 11–12 mm longus, tubulosus, laxe ad densiuscule pilis flexuosis albis nigris immixtis patentibus ad 1 mm longis oblectus, dentibus subulatis 3–4 mm longis. Petala flava. Vexillum ca. 22 × 7 mm, apice incisa. Alae ca. 20 mm longae. Carina 17 mm longa, laminis oblique ellipticis, apice breviter acutiusculi-rostrata. Legumina brevissime stipitata, oblique elliptica, 10–13 mm longa, 5–7 mm alta, 5–6 mm lata, ventro carinata, dorso appanata vel leviter et late depressa, apice subabrupte in rostrum tenuem 5–8 mm longum attenuatum, complete biloculare, valvis tenacibus, stramineis, tenuiter transversaliter rugosis, laxe pilis tenuibus albis ad 1 mm longus appressis ad subpatentibus oblectis.

Plants fruticose, spiny, up to 30 cm tall, with a thick, branched caudex. Main stems up to 8 mm in diameter, with blackish bark, densely covered with remnants of old stipules, glabrous, in upper part branched. Branches erect, very densely leafy, growth rate of the year 1–2 cm. Stipules membranous, 7–10 mm long, linear to narrowly triangular, adnate to the petiole for 3 mm, otherwise free, white ciliate at the margins, otherwise glabrous. Leaves in the youth im-

paripinnate, 3–4 cm long, with a petiole 1–1.5 cm long, rachis flexible, loosely covered with slender, flexuous, spreading white hairs 1–2 mm long. Old leaves 3.5–7 cm long, the rachis erect, slender but rigid, pungent, brown-blackish, glabrescent to glabrous, sometimes without leaflets. Terminal leaflet minute, soon falling. The other leaflets in 9–11 pairs, obovate, 3–4 × 2–2.5 mm, at the apex truncate to emarginate, minutely mucronulate, on upper side glabrous, on underside loosely covered with long, nearly spreading hairs, flat or complicated. Raceme with a peduncle ca. 5 mm long, 2-flowered. Bracts whitish-membranous, linear-acute, 4–5 mm long, white and black-hairy. Pedicels 3–4 mm long, erect, white and black-hairy. Calyx membranous, pale greenish-yellow, sometimes red-suffused, 11–12 mm long, tubular, loosely to rather densely covered with flexuous, spreading white and some black hairs up to 1 mm long; teeth subulate, 3–4 mm long. Petals yellow. Standard ca. 22 mm long, narrowly elliptic, ca. 7 mm wide, at the apex incised, at the base gradually narrowed into the long claw. Wings ca. 20 mm long; blades narrowly gibbous-elliptic, obtuse at the apex, 8 × 3 mm, auricle ca. 1 mm long, claw 11–12 mm long. Keel 17 mm long; blades obliquely elliptic, with gibbously curved lower edge and nearly straight upper edge, at the apex shortly acutish-rostrate; auricle indistinct, claw ca. 10 mm long. Staminal-tube obliquely cut. Ovary sessile, white-hairy; style hairy only in basal part. Legums sessile, obliquely elliptic, 10–13 mm long, 5–7 mm high, 5–6 mm wide, carinate ventrally, flat to slightly and widely depressed dorsally, at the apex subabruptly narrowed into the slender beak 5–8 mm long, fully bilocular; valves tough, straw-colored, thinly transversely rugose, loosely covered with appressed to nearly spreading, slender white hairs up to 1 mm long.

Other specimens seen:

**India. Uttar-Pradesh:** Kumaon, Distr. Almora, near Rilkote, Upper Johar, 11500–12000 ft., 5.10.1950, *Awashti 1842* (M) – Kumaon, Jola, 3500 m, *Strachey & Winterbottom* (P).

*Astragalus nepalensis* Podlech, spec. nov. e sect. *Aegacantha*

Holotype: Nepal, Kali Gandaki, trail above Tukech, 8500 ft., 1.5.1967, *A. Nicolson 82a* (US).

Fruticulus spinosus ad 30 cm altus. Caulis erectus, ad 5 mm crassus, ramosus, pilosus. Rami laterales in parte basali caulis remoti, ad 8 cm longi, internodiis ad 5 mm longis, partim iterum ramosi, in parte apicali approximati, breviores, internodiis quam stipulae brevioribus. Incrementum annuale ad 1 cm longum. Stipulae triangulares, 2–4 mm longae, petiolo per 1 mm adnatae, pilosae. Folia paripinnata, 3–4-juga. Rachides foliorum adultorum 2–4 cm longae, erecto-patentes, pungentes, laxae pilosae, foliolis delapsis. Folia juvenilia 1–2.5 cm longa, rachide flexibile. Foliola crassiuscula, elliptica vel obovata, 2–4 × 1–2 mm apice obtusa vel brevissime apiculata, supra sparse ad laxae subtus densiore subappresse pilosa, fere semper complicata. Pedunculi subnulli, 2–4 flori. Bractea ca. 2 mm longae. Calyx 9–10 mm longus, tubulosus, dense albi-nigrescenti-villosus, dentibus 2–3 mm longis. Petala flava, in siccis purpurascens, glabra. Vexillum 18–19 × 7–8 mm, obovatum, apice incisum. Alae 17 mm longum, auricula 1–1.5 mm longa. Carina 16–17 mm longa. Legumina sessilia, ovata, 8–10 mm longa, ca. 4 mm alta et 5 mm lata, rostro 2–3 mm longo, subbiloculare, valvis tenacibus stramineis, laxae pilis ad 1 mm longis subappressis ad ascendentibus albis et nigris obtectis.

Plants fruticose, spiny, up to 30 cm tall. Stem erect, up to 5 mm in diameter, branched, slightly sulcate, with blackish bark, covered with persistent, appressed, dirty whitish or

greyish hairs. Lateral branches in lower part of the stem remote, up to 8 cm long, partly branched again, in upper part of the stem crowded, shorter, with stem internodes shorter than the stipules; growth rate of the year up to 1 cm long. Stipules triangular, 2–4 mm long, adnate to the petiole for 1 mm, otherwise free, loosely to densely appressed white-hairy. Leaves paripinnate; rachis 2–4 cm long, obliquely erect, slender but pungent, the petiole as long or shorter than the leaflets-bearing part, the spiny end shorter than the uppermost leaflets; young leaves mostly shorter, 1–2.5 cm long, with flexible rachis. Leaflets thickish, elliptic to obovate, 2–4 × 1–2 mm; at the apex obtuse to minutely apiculate, on upper side sparsely to loosely, on underside more densely appressed hairy, nearly always folded. Peduncles nearly absent, raceme 2–4-flowered. Bracts whitish-membranous, ca. 2 mm long, ovate-acute, white or greyish-hairy. Pedicels 2 mm long, black-hairy. Calyx 9–10 mm long, tubular, densely villous with white and black hairs; teeth narrowly triangular, 2–3 mm long, on innerside densely black-hairy. Petals yellow, in dry state purplish, glabrous. Standard 18–19 mm long, obovate, 7–8 mm wide, at the apex incised, at the base gradually narrowed into the claw. Wings 17 mm long; blades narrowly oblong, obtuse at the apex, 6.5–7 × 2–2.5 mm; auricle 1–1.5 mm long, claw 10–11 mm long. Keel 16–17 mm long; blades obliquely elliptic, with widely rectangularly curved lower edge and nearly straight to slightly concave upper edge, acutish at the apex, 6 × 3–3.5 mm; auricle short, claw 10–11 mm long. Staminal-tube slightly obliquely cut. Ovary sessile, oblong, white-hairy; style glabrous. Legumes sessile, ovate, 8–10 mm long, ca. 4 mm high and 5 mm wide, carinate ventrally, widely flat dorsally, therefore triangular in cross-section, at the apex abruptly narrowed into a straight beak 2–3 mm long, nearly fully bilocular; valves tough, straw-colored, loosely covered with subappressed to ascending white and black hairs up to 1 mm long. Seeds 4 in each locule, 2.5–3 × 2 mm, olive-brownish.

Other specimen seen:

Nepal. Muktinath Trek, Marpha, 8700 m, 13.4.1978, *Clifford G. Rice 19-78* (US).

*Astragalus diyarbakirensis* Podlech, spec. nov. e sect. *Astragalus*

Holotype: Turkey, Prov. Diyarbakir, 12 km W Diyarbakir on road to Siverek, ± 600 m, 11.5.1988, *P.J. Cribb* (K).

Differt ab *A. columnaris* Boiss. planta graciliore, caule ad 4 (nec 8–12) mm crasso, stipulis margine ciliatis (nec glaberrimis), foliis 11–15 (nec 19–25) jugis, bracteis ca. 3 (nec 5–7) mm longis, ciliatis (nec glabris), calyce 7–8 (nec 11–12) mm longo, dentibus 1–1,5 (nec 5–6,5) mm longis, vexillo ca. 18 (nec 22–26) mm longo.

Plants herbaceous, ca. 60 cm tall, very sparsely furnished with white hairs 0.4–1 mm long. Stem rather slender, ca. 4 mm thick, finely striate-sulcate, glabrous or with scattered spreading hairs. Stipules greenish, 5–10 mm long, those of lower leaves narrowly triangular, those of upper leaves subulate, all shortly adnate to the petiole, ciliate at the margins. Leaves 15–20 cm long; petiole 1–3 cm long, like the rachis slender, very sparsely furnished with spreading hairs. Leaflets in 11–15 pairs, remote, elliptic, rounded to slightly retuse at the apex, 8–12 × 4–6 mm, on upper side glabrous, on underside sparsely covered with appressed to subappressed hairs. Racemes sessile, loosely 2–5-flowered. Bracts whitish-membranous, linear-acute, ca. 3 mm long, ciliate. Pedicels 1–2 mm long. Calyx 7–8 mm long, only shortly ciliate at the upper margin and the teeth; teeth subulate, slightly unequal, 1–1.5 mm long. Pe-



tals yellow. Standard ca. 18 mm long; blade ca. 12 mm long, suborbicular, widely emarginate at the apex, at the base subabruptly narrowed into the short claw. Wings 16 mm long; blades narrowly oblong, obtuse at the apex,  $10 \times 2.5$  mm; auricle ca. 2 mm long, claw 6 mm long. Keel 14 mm long; blades obliquely oblong-elliptic, with gibbously curved lower edge and slightly concave upper edge, obtuse at the apex,  $8 \times 4$  mm; auricle 1.5 mm long, claw 6 mm long. Staminate tube obliquely cut. Ovary sessile, oblong, glabrous. Legumes unknown.

This species resembles *A. columnaris* in being nearly glabrous, especially in the glabrous tube of calyx and ovary. Beside of the given differences *A. columnaris* is endemic in southwestern Turkey, while *A. diyarbakirensis* is from eastern Turkey.

*Astragalus nigrocalycinus* Podlech, spec. nov. e sect. *Astragalus*

Holotype: Türkei, A9 Erzurum; zwischen Oltu und Sihsor, 2 km nach der Abzweigung, 1450 m, 23.5.1990, *M. Nydegger 45513* (MSB; Iso: BASBG).

Plantae 40 cm altae vel altiores, pilis albis nigrisque 1–2 mm longis obiectae. Caules validi, pilosi. Stipulae 8–12 mm longae, a petiolo liberae, ciliatae. Folia 10–13 cm longa; petiolo 1–2 cm longo sicut rachis albipiloso. Foliola 10–13 paria, ovata vel elliptica, supra glabra, subtus patule albipilosa. Racemi subsessiles, laxe 2–5-flori, axi nigripiloso. Bractae lineares, 6–10 mm longae, imprimis nigripilosae. Calyx 14–16 mm long, tubulosus, nigripilosus dentibus 5–6 mm longis. Petala albida vel pallide flava. Vexillum ca. 30 mm longum, obovatum. Alae 26–27 mm longae. Carina 22 mm longa. Legumina sessilia, elliptica, 20–25 mm longa, dense patule albipilosa.

Plants at least 40 cm tall, covered with spreading white and black hairs 1–2 mm long. Basal parts missing. Stem angular-sulcate, somewhat flexuose, in middle part ca. 8 mm thick, hollow, loosely covered with white, below the nodes also with black hairs. Stipules greenish, narrowly triangular, ± long acuminate, 8–12 mm long, free from petiole, white and black-ciliate. Leaves 10–13 cm long; petiole 1–2 cm long, like the rachis striate-sulcate, loosely white-hairy. Leaflets in 10–13 pairs, ovate to elliptic, at the apex widely rounded to truncate or slightly retuse, the terminal leaflet often emarginate, on upper side glabrous, on underside loosely ± spreading white-hairy. Racemes subsessile, along at least the upper half of the stem, loosely 2–5-flowered; axis 0.5–1 cm long, black-hairy. Bracts greenish, linear-acute, 6–10 mm long, predominantly black-hairy. Pedicels 3–4 mm long, black-hairy. Calyx 14–16 mm long, tubular, straw-colored, loosely to rather densely spreadingly black hairy; teeth from triangular base subulate, 5–6 mm long, on innerside black-hairy. Petals whitish to pale yellow. Standard ca. 30 mm long; blade obovate, 11 mm wide, widely rounded and emarginate at the apex, at the base subabruptly narrowed into the short claw. Wings 26–27 mm long; blades narrowly oblong, rounded to truncate at the apex,  $12\text{--}13 \times 3.5$  mm; auricle 2 mm long, claw 13–14 mm long. Keel 22 mm long; blades obliquely oblong-curved, with in the middle gibbously curved lower edge and concave upper edge, obtuse at the apex,  $9 \times 4$  mm; auricle 1 mm long, claw 13 mm long. Staminal tube straightly cut. Ovary sessile, oblong, densely white-hairy; style glabrous. Legumes sessile, elliptic seen from the side, 20–25 mm long, 9–12 mm high and 5 mm wide, distinctly laterally compressed, carinate ventrally and dorsally by the thickish nerv, obtuse at the apex with a narrowly triangular beak ca 3 mm long, fully bilocular; valves dark brownish,

lethery, finely rugulose, loosely to rather densely covered with fine, spreading white hairs. Seeds 4–5 in each locule.

The only black-hairy species of the section in Turkey beside of *A. caraganae*, which is aberrant and isolated by its  $\pm$  long pedunculated racemes.

*Astragalus bowes-lyonii* Podlech, spec. nov. e sect. *Brachycarpus*

Holotype: Pakistan, Chitral, Shandur, 36°04' N 72°30' E, 12200 ft, 23.7.1958, *Bowes Lyon* 92 (E).

Differt ab *A. densifloro* plantis acaulibus, pilis brevissimis 0,03–0,2 mm longis obtectis, stipulis brevioribus, foliis longioribus foliolis remotis, complicatis, racemis tempore fructificationis distincte elongatis, calyce imprimis albipiloso, dentibus ejus anguste triangularibus nec subulatis, corolla rosea nec violacea, auriculis alarum ca. 1 mm nec 0,5 mm longis, seminibus 4 nec 2.

Plants caespitose, ca. 30 cm tall, acaulescent to subacaulescent, covered with very short, somewhat flattened, appressed hairs 0.03–0.2 mm long. Caudex with a pluricipital root-crown, branches short, diffusely branched. Stems, if present, very short, densely white hairy. Stipules greenish, 2–2.5 mm long, triangular or widely triangular, ciliate and white hairy, adnate to the petiole for ca. 0.5 mm, otherwise free or sometimes shortly connate behind the stem. Leaves 7–13 cm long; petiole 2.5–4 cm long, like the rachis slender, loosely subappressed white hairy. Leaflets in 5–6 pairs, remote, narrowly elliptic, 5–12  $\times$  1.5–3 mm, acute, on upper side glabrous, on underside loosely to rather densely appressed white hairy, always folded. Peduncles 12–24 cm long, slender, loosely covered with very short white but also with fewer black hairs. Racemes ovoid, densely many flowered,  $\pm$  strongly elongated in fruit. Bracts whitish-greenish, 2–3.5 mm long, linear to narrowly ovate, white hairy. Flowers nearly sessile. Calyx ca. 4 mm long, campanulate, loosely to rather densely appressed white and black hairy but mostly predominantly white hairy; teeth narrowly triangular,  $\pm$  as long as the tube. Petals pink. Standard 6–7 mm long; blade elliptic, 3–3.2 mm wide, widely incised at the apex, at the base gradually narrowed into the short claw. Wings 5.5–6 mm long; blades narrowly oblong, rounded at the apex, ca. 3.5  $\times$  1 mm; auricle ca. 1 mm long, claw 2–2.5 mm long. Keel ca. 5 mm long; blades nearly triangular with widely rectangularly curved lower edge and nearly straight upper edge, round-tipped, ca. 2.5  $\times$  1.8 mm; auricle ca. 0.5 mm long, claw 2.5 mm long. Staminal tube straightly cut. Ovary sessile, globose to ovoid, white hairy; style glabrous. Legumes sessile, ovoid, somewhat flattened dorsy-ventrally, 4–4.5 mm long, ca. 2 mm high and 3 mm wide, rounded at base and top, flattened ventrally, deeply and widely grooved dorsally, bilocular; valves thin, smooth,  $\pm$  densely covered with subappressed to ascending white and black hairs. Seeds two in each locule.

*Astragalus thomsonii* Podlech, spec. nov. e sect. *Brachycarpus*

Holotype: Tibet occ., reg. alpina, 12–15000 ft., *Thomson* (sub *A. densifloro*) (MSB; Iso: K, M, W).

Differt ab *A. melanostachys* Benth. et *A. schugnanicus* B.Fedtsch. quibus ob caules evolutos similis foliolis anguste ellipticis apice rotundatis (nec latioribus apice distincte retusa

vel emarginate), leguminibus obtriangularibus apice latissimis truncatis latioribus quam longis (nec apice acuminatis vel rostratis, distincte longioribus quam latis).

Plants up to 35 cm tall, covered with hairs 0.2–0.5 mm long. Caudex branched in upper part. Stems mostly several, erect, sulcate, loosely covered with subappressed to ascending white hairs, more densely hairy in young parts, glabrescent in old parts. Stipules 3–4 mm long, ovate to triangular, ± free from petiole, the lower ones highly up connate behind the stem, the upper ones only shortly connate or free, glabrous. Leaves 2.5–6 cm long, the upper ones often sessile, petiole of lower leaves 1–3 cm long, like the rachis slender, sparsely covered with subappressed white hairs. Leaflets in 5–6 pairs, narrowly elliptic, 6–16 × 2–3 mm, narrowly rounded so subacute at the apex, on upper side glabrous, on underside in the youth densely appressed white hairy, later on loosely hairy. Peduncles 5–10 cm long, sparsely to loosely appressed white hairy, toward the raceme increasingly with ascending black hairs. Racemes ovoid, densely many-flowered, later on somewhat elongated, axis white and black hairy. Bracts whitish, linear, 2–3 mm long, white and black hairy. Flowers nearly sessile. Calyx 3–3.5 mm long, campanulate, with obliquely truncate orifice, densely appressed white and black hairy; teeth narrowly triangular, 1–1.5 mm long, white hairy on inner side. Petals color unknown. Standard 6–8 mm long; blade widely elliptic, 4–5 mm wide, widely emarginate at the apex, at the base abruptly narrowed into the short claw. Wings 5–6 mm long; blades narrowly oblong, somewhat dilated toward the truncate to widely rounded apex, 3–4 × 1.3–2 mm; auricle 0.3–0.5 mm long, claw 2 mm long. Keel 4–4.5 mm long; blades obovate-oblong to obliquely obovate, with in upper third rectangularly curved lower edge and slightly convex upper edge, subacute at the apex, 2.5–2.8 × 1.5 mm; auricle minute, claw 2 mm long. Staminal tube straightly cut. Ovary very shortly stipitate, glabrous. Legumes nearly sessile, ca. 3.5 mm long, ca. 2 mm high, 5 mm broad, obtriangular, cuneate at the base, widely truncate at the apex with persistent style, widely flattened ventrally, narrowly and deeply grooved dorsally, with conspicuous transverse ridges, fully bilocular; valves thin, braun, with subappressed white and predominant black hairs. Seeds singular in each locule, 2.5 × 2 mm, brown, dull.

Other specimens seen:

**India.** Kashmir: Ladakh, Sassar, near border of Nubra, 1852, *Thomson* (K) – Tibet occ., Sassar pass, 15000', 13.8.1848, *Thomson* (K) – Zanskar, 14000', 1852, *Thomson* (K) – Zanskar, 12000', 28.6.1848, *Thomson* (K). – Himachal-Pradesh: Lahul, *Jaeschke* 39 of 2nd collection (K).

*Astragalus villosulus* Podlech, spec. nov. e sect. *Brachycarpus*

Holotype: Afghanistan, Prov. Bamian, Koh-i-Baba, Kotal-i-Shatut zwischen Band-i-Amir und Panjao, Passhöhe, 3300 m, 10.7.1969, *S.W.Breckle* 2483 (MSB).

Differt ab *A. miserifloro* Sirj. & Rech.f. cui habitu similis tota planta pilis rigidis patentibus (nec apressis) obtecta, lamina alarum apicem truncatum vel emarginatum versus distincte dilatata (nec anguste oblonga apice rotundata).

Plants acaulescent, 8–14 cm tall, nearly all parts covered with 0.2–0.4 mm long, stiff, ± spreading hairs. Caudex shortly branched. Stipules brownish, triangular, ca. 2 mm long, nearly free from petiole, shortly connate behind the stem, ciliate at the margin or also hairy at the apex. Leaves 3–6 cm long; petiole as long or longer than the rachis, like the rachis loosely to rather densely white hairy. Leaflets in 4–5 pairs, remote, linear, 5–12 × 0.8–2 mm, on upper

side hairy only along the margins, on underside densely covered with spreading to ascending hairs, folded. Peduncles 5–12 cm long, slender, loosely to rather densely white, towards the top increasingly black hairy. Bracts whitish, narrowly triangular, 1–1.5 mm long, white or white and black hairy. Pedicels 0.3–0.5 mm long, hairy. Calyx 3 mm long, shortly campanulate-tubular, covered with mostly basifixed white and black hairs up to 0.7 mm long; teeth narrowly triangular, ca. 1 mm long. Petals pale violet. Standard ca. 6 mm long, obovate, incised at the apex, gradually narrowed at the base, without distinct claw. Wings 4.5 mm long; blades spatulate, widened toward the truncate or slightly emarginate apex,  $2.5 \times 1.8$  mm; auricle ca. 0.7 mm long, claw 2 mm long. Keel 4 mm long; blades  $\pm$  triangular, with widely curved lower edge and  $\pm$  straight upper edge,  $2.5 \times 1.7$  mm; claw 1.5 mm long. Staminal tube  $\pm$  straightly cut. Ovary sessile, ovoid, hairy; style glabrous. Pod (unripe) sessile, 3 mm long, long white hairy.

*Astragalus akhanii* Podlech, spec. nov. e sect. *Caprini*

Holotype: Iran, prov. Ilam, 18 km SW of Salehabad, 17 km after Konjancham towards Shoor-Shirin, gypsum hills along Iran/Iraq frontier, 500–550 m, 1.5.1992, *H. Akhani 8207* (MSB).

Differt ab *A. leporino* Boiss. & Noë indumento e pilis patentibus ad 1 mm longis (nec ad 3 mm longis) consistente, stipulis petiole brevissime tantum adnatis ceterum liberis, leguminibus longioribus latoribusque, ab *A. gypsicola* Maassoumi stipulis petiolo brevissime adnatis ceterum liberis, foliis brevioribus foliolis minoribus acutis (nec rotundatis ad truncatis), racemis 2–3-floris (nec 6–8-floris), leguminibus 1–25 (nec 30–40) mm longis.

Plants acaulescent, with short, spreading, white hairs. Caudex up to 10 mm thick, at the apex shortly branched. Stipules whitish-membranous, ovate, longitudinally nerved, 10–12 mm long, the lower ones obtuse, the upper ones acute, adnate to the petiole for 2 mm, in upper part shortly ciliate at the margins, otherwise glabrous. Leaves 15–23 cm long; petiole 4–6 cm long, like the rachis striate-sulcate, rather densely covered with spreading hairs 0.3–1 mm long. Leaflets in 7–9 pairs, elliptic to widely elliptic,  $10\text{--}22 \times 8\text{--}17$  mm, at the apex acutish or very shortly acuminate-mucronulate, on upper side loosely, on underside densely covered with ascendent to nearly spreading hairs 0.3–0.6 mm long. Peduncle 3–6 cm long, shortly spreadingly hairy. Racemes remotely 2–3-flowered. Bracts whitish-hyaline, 6–8 mm long, very narrowly triangular, hairy. Pedicels 5–8 mm long, spreadingly hairy. Calyx ca. 17 mm long, tubular, at the base slightly gibbous, at the orifice slightly obliquely truncate, straw-colored, rather densely covered with very thin, confusely spreading hairs up to 0.7 mm long; teeth subulate, (3–)4–6 mm long. Petals yellow. Standard 26–27 mm long; blade obovate, ca. 8 mm wide, at the apex retuse, at the base subangularly narrowed into the long claw. Wings ca. 25 mm long; blade narrowly oblong, slightly narrowed toward the obtusish apex,  $10 \times 2.3$  mm; auricle ca. 1 mm long, claw 15 mm long. Keel 23 mm long; blade obliquely elliptic, with slightly but widely curved lower edge and nearly straight to slightly concave upper edge, at the apex obtuse,  $9 \times 4$  mm; auricle 0.5 mm long, claw 15 mm long. Staminal-tube very obliquely cut. Ovary with a stipe ca. 5 mm long, elliptic, white-hairy; style glabrous. Legumen on a stipe 4–5 mm long, elliptic, 16–25 mm long, 6–7 mm high and 13–15 mm wide, subcarinate ventrally, flattened to widely impressed, at the apex with a beak 3–4 mm long, incompletely



bilocular; valves coriaceous, pale brownish, densely covered with confusely spreading hairs 0.3–1 mm long. Seeds  $4 \times 3$  mm, pale brown, shiny.

This new species belongs clearly to the *A. caprinus*-group (see PODLECH 1988). It differs from *A. leporinus* Boiss. & Noë by the short spreading hairs up to 1 mm (not up to 3 mm) long, by stipules which are only very shortly adnate to the petiole and otherwise free and by longer and wider fruits. From *A. gypsicola* (wrongly *gypsicolus*) Maassoumi, from which I have seen no material it differs according to the description by stipules which are only shortly adnate to the petiole, by shorter leaves and smaller leaflets which are  $\pm$  acute (not rounded or truncate) at the apex, by shorter peduncles of the only 2–3 (not 6–8)-flowered racems, the longer bracts, the standard which is retuse (not bilobed) at the apex and the distinctly shorter legumes.

*Astragalus antalyensis* A.Duran & Podlech, spec. nov. e sect. *Caprini*

Holotype: Turkey, [C3] Antalya, Akseki, Gukurköy yaylasi, Yumrudikmeni mevki, 2200 m, 16.7.1995, *A. Duran 2792* (GAZI; Iso: MSB).

Habitu, glabrietate et stylo piloso sub stigmatе *A. aegobromo* Boiss. & Hohen. similis sed differt stipulis non connatis, bracteis albidis angustis et leguminibus a latere compressis valvis tenuibus.

Plantae subacaules, complete glabrae. Caules ad 4 cm longi. Stipulae albiae, 9–15 mm longae, anguste ovatae, petiolo epr 3–7 mm adnatae. Folia 11–27 cm longa. Foliola 7–15-paria, ovata ad elliptica, 5–11  $\times$  3–7 mm. Racemi laxi, pedunculo 1–2 cm longo suffulti. Bractee 2–5 mm longae. Pedicelli 7–10 mm longi. Calyx breviter tubulosus, ca. 10 mm longus, dentibus 2–3 mm longis. Petala flava. Vexillum 20 mm longum, obovatum. Ovarium subsessile, stylo sub stigmatе linea e pilis brevibus consistente proviso. Legumina subsessilie, oblique elliptica, 10–15 mm longa, 5–5,5 mm alta, a latere compressa, ventro acute carinata, dorso leviter sulcata, fere complete bilocularia, valvis tenuibus.

Plants ca. 30 cm tall, subacaulescent, completely glabrous. Caudex strongly divided, with many short, subterranean branches. Stems up to 4 cm long, angular-sulcate. Stipules whitish, 9–15 mm long, narrowly ovate, acutish, adnate to the petiole for 3–7 mm. Leaves 11–27 cm long; petiole 3–9 cm long, like the rachis finely striate. Leaflets in 7–15 pairs, ovate to elliptic, widely rounded and minutely mucronulate at the apex, 5–11  $\times$  3–7 mm. Peduncles 1–2 cm long. Racemes loosely several-flowered. Bracts whitish, narrowly triangular to linear-acute, 2–5 mm long. Pedicels 7–10 mm long, often tortuous. Calyx shortly tubular, ca. 10 mm long; teeth subulate, 2–3 mm long. Petals yellow. Standard 20 mm long; blades obovate, ca. 9 mm wide, widely emarginate at the apex, at the base gradually narrowed into the cuneate claw. Wings 18 mm long; blades narrowly oblong, rounded at the apex, 9  $\times$  3 mm; auricle ca. 1 mm long, claw 9 mm long. Keel 14 mm long; blades triangular, with rectangularly curved lower edge and nearly straight upper edge, subobtuse at the apex, 6  $\times$  4 mm; auricle short, claw 8 mm long. Staminal-tube straightly cut. Ovary subsessile, elliptic; style below the stigma with a line of short spreading hairlets. Pods subsessile, obliquely elliptic seen from the side, 10–15 mm long, 5–5.5 mm high and ca. 3 mm wide, strongly carinate ventrally, slightly grooved dorsally, attenuate at the apex into beak 2–3 mm long; valves straw-colored, thin. Fruits nearly completely bilocular with 3–4 seeds in each locule.

In habit, bareness and the pilose style below the stigma near to *A. aegobromus* Boiss. & Hohen., but differing strongly by the stipules not connate one to another, the whitish, narrow bracts and the laterally compressed, thin-walled fruits.



Fig. 1: Habit of *Astragalus antalyensis* (holotype). Scale bar: 3 cm.

*Astragalus avajensis* Podlech, spec. nov. e sect. *Caprini*

Holotype: Iran, prov. Hamadan, 10 km from Razan to Avaj, on the neck, 2200–2300 m, 10.7.1994, *Chehregani & S. Zarre 17893* (MSB).

Differt ab *A. kirpicznikovii* Grossh. indumento e pilis 0,1–1,5 mm longo (nec 1–4 mm longo) consistente, pedicellis ca. 1 mm (nec 4–6 mm) longis, calycis tubo aequaliter piloso (nec basi glabro vel sparsissime, apicem versus densiuscule piloso), legumine angustiore, ca. 5 mm alto latoque (nec 6–10 mm alto et 8–10 mm lato), dorso distincte sulcato (nec late applanato).

Plants 12–20 cm tall, subcaulescent, covered with thin, spreading white hairs 0.1–1.5 mm long. Caudex divided, with many short, subterranean branches. Stems if present up to 4 cm long, angular-sulcate, glabrous. Stipules whitish-membranous, ovate-triangular, 6–15 mm long, very shortly adnate to the petiole, glabrous or sparsely ciliate at the margins. Leaves 10–17 cm long; petiole 2–4 cm long, like the rachis loosely spreadingly hairy. Leaflets in 14–20 pairs, narrowly elliptic, rounded to truncate and minutely mucronulate at the apex, 8–15 × 3–6 mm, glabrous on upper side, on lower side sparsely to loosely covered with short, flexuose, ascending to spreading hairs. Peduncles 1–2 cm long, rather densely covered with hairs up to 1.5 mm long. Racemes densely 4–6-flowered. Bracts whitish-membranous, elliptic, 5–8 mm long, white-ciliate. Pedicels ca. 1 mm long. Calyx straw-colored, tubular, ca. 15 mm long, loosely to rather densely covered with spreading, soft white hairs up to 1.5 mm long; teeth narrowly triangular, ca. 6 mm long. Petals yellow. Standard 25–26 mm long; blades obovate, ca. 9 mm wide, widely emarginate at the apex, at the base subabruptly narrowed into the cuneate claw. Wings 16–17 mm long; blades narrowly oblong, slightly spatulate-dilated towards the rounded apex, 9 × 3–3.5 mm; auricle ca. 1 mm long, claw 7 mm long. Keel 14–15 mm long; blades elliptic, with curved lower and upper edge, straight, acute at the apex, 6–7 × 3.5–4 mm; auricle short, claw 8 mm long. Staminal-tube slightly obliquely cut. Pods with a stipe 1–2 mm long, obliquely oblong, with straight dorsal line and slightly curved ventral line, ca. 17 mm long, 5–6 mm high and ca. 5 mm wide, strongly carinate ventrally, deeply grooved dorsally, attenuate at the apex into a curved beak ca. 1 mm long; valves straw-colored, thin, loosely covered with fine, flexuose, tousled, ± spreading hairs. Fruits semibilocular with 2–3 seeds in each locule, opening at the ventral suture. Seeds 5 × 4 mm, olive-green, smooth.

*Astragalus diversipilosus* Podlech, spec. nov. e sect. *Caprini* subsect. *Purpurascentes*

Holotype: Iran, Kurdistan, ad versuras 33 km NW Divandarreh versus Saqqez, 2100 m, 29.6.1974, *Rechinger 48610b* (M).

Plantae acaules, albipilosae. Stipulae ca. 10 mm longae, per 2–3 mm petiolo adnatae, inferiores glabrae, superiores ciliatae. Folia 7–11 cm longa; petiolo 1,5–2,5 cm longo, sicut rachis pilis patentibus 0,5–1,5 mm longis obtecto. Foliola 19–25 paria, subcontigua, supra laxe ad densiuscule pilis brevissimis obtecta, interdum glabrescentia, margine et subtus dense pilis brevissimis et laxe pilis ad 1 mm longis subpatentibus obtecta, saepissime complicata, anguste rubri-marginata. Racemi pedunculo 0,5–1 cm longo suffulti, 1–2 flori. Bracteae ca. 2 mm longae, ciliatae. Pedicelli 5–6 mm longi. Calyx 12–14 mm longus, patentipilosus, dentibus triangularibus ca 3 mm longis. Corolla glabra, flava. Vexillum ca. 25 × 9 mm, lamina, triangulari-obovata, apice late retusi-rotundata, incisa, basi in unguem lamina ± aequilongum angustata. Alae ca. 23 mm longae; lamina triangulari-obovata, apice latissima. Carina 23–24 mm longa;

lamina in margine superiore dentibus minutis proviso. Legumen stipite 8–10 mm longo glabro suffultum, ellipsoideum, 13–18 mm longum, 7–8 mm altum et 3–4 mm latum, semibiloculare; valvis laxe pilis brevissimis et distincte longioribus ad 1,5 mm longis obtectum.

Plants acaulescent, white hairy. Caudex with a pluricipital root-crown, branches short, densely covered with remnants of old stipules. Stipules whitish-membranous, ovate or triangular, ca. 10 mm long, adnate to the petiole for 2–3 mm, otherwise free, the lower ones glabrous, the upper ones ± densely shortly ciliate. Leaves 7–11 cm long; petiole 1.5–2.5 cm long, like the rachis loosely to rather densely covered with thin but subrigid, spreading hairs 0.3–1.5 mm long. Leaflets in 19–25 pairs, mostly close together, 5–7 × 2–4 mm, on upper side loosely to rather densely covered with very short spreading hairs, sometimes glabrescent, on underside and at the margins loosely to rather densely covered with spreading very short hairs and loosely with hairs up to 1 mm long, narrowly reddish-margined, mostly folded. Peduncles 0.5–1 cm long, spreadingly hairy. Racemes 1–2 flowered. Bracts whitish-membranous, ovate to narrowly triangular, ca. 2 mm long, ciliate. Pedicels 5–6 mm long, spreadingly hairy. Calyx 12–14 mm long, tubular, loosely covered with thin, spreading hairs; teeth narrowly triangular to triangular, ca. 3 mm long. Petals glabrous, yellow. Standard ca. 25 mm long; blade triangular-obovate, ca. 9 mm wide, at the apex widely retuse to rounded, slightly emarginate, at the base cuneately narrowed into the long claw. Wings ca. 23 mm long; blades triangular-obovate, widest at the retuse apex, 8 × 3.5 mm, above the auricle strongly constricted; auricle ca. 2 mm long, claw ca. 15 mm long. Keel 23–24 mm long; blades obliquely elliptic with in the middle gibbously curved lower edge and sigmoid-curved upper edge provided with minute teeth, toward the obtuse apex slightly narrowed, 10 × 4.5 mm; auricle short, claw 13–14 mm long. Staminal-tube straightly cut. Legumes on a glabrous stipe 8–10 mm long, elliptic, 13–18 mm long, 7–8 mm high and 3–4 mm wide, carinate ventrally, narrowly rounded dorsally, at the apex contracted into the beak 2–3 mm long, semibiloculare; valves thin, straw-colored, loosely covered with very short and with distinctly longer, spreading hairs up to 1.5 mm long.

*Astragalus glaberrimus* Podlech, spec. nov. e sect. *Caprini*

Holotype: Iran, Prov. Kerman, hills W of Deh Bakri, 2000–2500 m, 30.4.1975, B.S. Parris 75.215 (K).

Differt ab *A. zagrosicus* Boiss. & Hausskn. foliolis latis, 4–8 × 3,5–8 (nec 8–18 × 4–11) mm, calyce 15–17 (nec 9–12) mm longo, vexillo 23–26 (nec 19–21) mm longo, ovario dense et longe albipiloso (nec glabro).

Plants 15–17 cm tall, nearly acaulescent, with exception of the ovary completely glabrous. Stipules whitish-membranous, oblong, obtuse, 6–10 mm long, adnate to the petiole for ca. 2 mm. Leaves 10–20 cm long; petiole 3–10 cm long, like the rachis slightly striate-sulcate. Leaflets in 11–16 pairs, widely elliptic to widely obovate, at the apex rounded to distinctly retuse, 4–8 × 3.5–8 mm. Peduncle up to 1.5 cm long. Raceme 1–4-flowered. Bracts whitish-membranous, 5–7 mm long, linear-acute. Pedicels 4.6 mm long. Calyx 15–17 mm long, tubular, straw-colored; teeth narrowly triangular, 4–5 mm long. Petals yellow. Standard 23–26 mm long; blade oblong, ca. 6 mm wide, at the apex emarginate, at the base long narrowed. Wings 20–23 mm long; blades narrowly oblong, obtuse at the apex, 8–9 × 2 mm; auricle oblong, ca. 1.5 mm long. Keel 19–22 mm long; blades obovate-triangular, with widely curved lower edge



and sigmoid-concave upper edge, at the apex subobtuse,  $6-7 \times 3.5$  mm; auricle wide, 0.3 mm long. Ovary with a stipe ca. 1 mm long, narrowly elliptic, densely white-hairy; style glabrous under the stigma. Legumes unknown.

*Astragalus malatyaensis* Podlech, spec. nov. e sect. *Caprini*

Holotype: Türkei, Prov. Malatya, 8 km E Darende gegen Malatya, 1080 m, Gipsboden, 4.6.1987, *M. Nydegger 42617* (MSB; Iso: BASBG).

Differt ab *A. ovino* Boiss. stipulis petiolo brevissime, per 1–2 (nec 5–7) mm adnatae, foliis 6–9 (nec 10–12–16)-jugis, lamina vexilli leviter oblongi-pandurata (nec obovata), auricula alarum ca. 3 mm (nec 1 mm) longa, ovario legumineque distincte stipitato (nec sessile).

Plants glabrous, acaulescent or nearly so, only at the base of the leaflet, the petioles and the margins of the stipules with few minute, globose hairs. Stipules whitish-membranous, obliquely inserted at the stem, the lower ones oblong, obtuse, 10–12 mm long, the upper ones narrowly triangular, 15–20 mm long, all adnate to the petiole for 1–2 mm. Leaves 13–20 cm long; petiole 3–6 cm long, like the rachis slightly striate-sulcate, at the base up to 2 mm thick. Leaflets in 6–9 pairs, elliptic,  $10-28 \times 5-15$  mm, at the apex rounded to acutish. Peduncle 1–5 cm long. Racemes 3–4-flowered. Bracts 7–12 mm long, whitish-membranous or greenish at the apex, linear-acute. Pedicels 5–7 mm long. Calyx 15–17 mm long, tubulose, slightly obliquely cut at the orifice, straw-colored, toward the apex greenish; teeth narrowly triangular, 3.5–4 mm long. Petals yellow. Standard 25–28 mm long; blade recurved in the middle, slightly oblong-pandurate, ca. 10 mm wide, at the apex emarginate, at the base shortly cuneately narrowed. Wings 24–27 mm long; blades narrowly oblong, at the apex acutish,  $9-10 \times 3$  mm; auricle oblong-subacute, ca. 3 mm long, claw 15–17 mm long. Keel 22–24 mm long; blades obovate-triangular, with widely rectangularly curved lower edge and sigmoid-concave upper edge, at the apex obtusish,  $7-8 \times 4$  mm; auricle 1.5 mm long. Ovary with a stipe 2–3 mm long, style below the stigma glabrous. Legumes with a short, narrowly cuneate stipe, narrowly elliptic, ca. 40 mm long, 13–15 mm high and 9–10 mm wide, narrowly rounded with thickish nerve ventrally and dorsally, at the apex shortly acuminate, incompletely bilocular; valves thick-coriaceous, strongly rugose. Seeds reniform,  $6 \times 5$  mm, smooth.

*Astragalus neyshaburensis* Podlech, spec. nov. e sect. *Cytisodes*

Holotype: Iran, prov. Khorasan, on road from Neyshabur to Kashmar, 1100 m, 14.5.1977, *Dini & Arazm 33163* (W; Iso: MSB).

Differt ab *A. pseudorhacodes* Gontsch. (sect. *Macrocystodes*), cui ob folias 2-jugas similis, pedunculo et rachide racemae pilis semipatulis (nec appressis), calyce brevior in fructo non inflato, leguminibus longioribus fere unilocularibus (nec bilocularibus) apice rostro ad 15 (nec 2–3) mm longo provisus.

Plants 20–25 cm tall, suffruticose, hairy. Stem branched at the base, 8–10 cm long, densely covered with symmetrically medifixed, appressed white, at the base of stipules also black hairs 0.6–0.8 mm long. Stipules whitish-membranous, from wide base triangularly acuminate, 4–6 mm long, adnate to the petiole for 1–2 mm, behind the stem shortly vaginate-connate, densely appressed hairy. Leaves (4–)10–12 cm long; petiole 2–5 cm long, like the rachis rigid,

hairy like the stem. Leaflets in 2 pairs, elliptic to obovate, (15–)20–30 × (8–)12–23 mm, at the apex shortly acuminate to widely rounded, on both sides loosely to rather densely covered with appressed, mostly symmetrically medifixed white hairs 0.5–1.2 mm long. Peduncles rigid, 3–4 cm long, angular, loosely covered with ascending, often flexuose, predominantly black hairs 0.2–0.6 mm long. Raceme (in fruiting time) up to 8 cm long, with 8–12 fruits; axis with ascending, predominantly black hairs. Bracts whitish-membranous, narrowly triangular, 4–5 mm long, mainly black hairy. Pedicels (in fruit) thick, ca. 3 mm long, black hairy. Calyx 10–12 mm long, tubular, rather densely covered with confusely ascending, asymmetrically to symmetrically bifurcate, flexuose, predominantly black hairs 0.1–0.6 mm long; teeth subulate, 3–5 mm long. Petals unknown. Legumes obliquely erect to spreading, linear, slightly upcurved, 40–50 mm long, 4 mm high and 3 mm wide, substipitately narrowed at the base, long acuminate at the apex into a slender beak 10–15 mm long, carinate ventrally, rounded to slightly grooved dorsally, nearly unilocular, with a septum up to 0.3 mm wide; valves rather densely covered with short, confusely ascending, flexuose black hairs up to 0.5 mm long and with ascending, strongly asymmetrically, straight, white hairs up to 1 mm long.

This new species resembles *A. pseudorhacodes* Gontsch. from sect. *Macrocystodes* in having only 2 pairs of leaflets. It is different from the latter species by peduncles and rachis of the raceme covered with ascending (not appressed) hairs, by the shorter calyx not inflated in fruit, by the much longer and narrower fruit with white and black hairs (not villous with long stiff white hairs) and with a beak up to 15 (not 2–3) mm long and which is nearly unilocular (not bilocular). Most probably it is the same what MAASSOUMI (1998) has reported as *A. pseudorhacodes*.

*Astragalus fallacinus* Podlech, spec. nov. e sect. *Dissitiflori*

Holotype: Türkei, A4 Cankiri, Kalecik - Cankiri, E Hisarcikkay, 850 m, Gipshügel, 5.6. 1993, *M. Nydegger 47400* (MSB; Iso: BASBG).

Differt ab *A. aucheri* Boiss. racemis tempore fructificationis elongatis, calyce laxe pilis albis subappressis et nigris brevioribus appressis obtecto (nec dense albivilloso), leguminibus brevioribus subcurvatis, ab *A. nigrifructo* Podlech & Ayaç leguminibus 16–20 (nec 40–50) mm longis fere mere albigilosis.

Plants suffruticose, 15–20 cm tall. Stems of the year 8–10 cm long, densely covered with appressed white hairs 0.4–0.6 mm long. Stipules triangular, ca. 3 mm long, adnate to the petiole for ca. 1 mm, densely white-hairy, sometimes also with some black hairs. Leaves 4–7 cm long; petiole 0.5–2.5 cm long, like the rachis rather densely hairy. Leaflets in 3–4 pairs, linear, 8–18 × 1.5–2 mm, at the apex obtuse or acutish, on upper side loosely to rather densely, on underside more densely covered with white hairs ca. 1 mm long. Peduncles 6–12 cm long, covered with white, toward the raceme also with black hairs. Racemes at first densely, later on loosely 4–7–14-flowered. Bracts 2–3 mm long, narrowly triangular, white and black hairy. Pedicels 1–2 mm long. Calyx 11–12(–14) mm long, tubular, at the base slightly gibbous, obliquely cut at the orifice, loosely covered with short, appressed, ± symmetrically medifixed black hairs and with subappressed to ascending, strongly asymmetrically medifixed white hairs ca. 1 mm long; teeth subulate, 1–2(–4) mm long. Petals yellow. Standard 20–22 mm long; blade obovate, ca. 8 mm wide, at the apex slightly emarginate, at the base subangularly narrowed into the cuneate claw. Wings 20–21 mm long; blades obovate, at

the apex rounded, 6–7 × 3 mm; auricle curved, ca. 0,5 mm long, claw 13–14 mm long. Keel ca. 16 mm long, blades obliquely obovate, with in upper part widely rectangularly curved lower edge and nearly straight upper edge, acutish at the apex, 5 × 3 mm; auricle 0,5 mm long, acute, claw ca. 11 mm long. Staminal-tube straightly cut. Ovary sessile, linear, style long, glabrous. Legumes sessile, linear, 16–20 mm long, ca. 2 mm in diameter, slightly but distinctly curved, obtusely carinate ventrally, grooved dorsally, at the apex long acuminate-curved, with the persistent style, fully bilocular; valves covered with appressed white, sometimes also with few black hairs.

Other specimen seen:

**Türkei.** A5 Sinop: Boyabat - Kastemonu, 21 km W Boyabat, 280 m, Serpentin, 30.6.1987, Nydegger 42984 (MSB).

*Astragalus cedreticola* A.Duran & Podlech, spec. nov. e sect. *Hypoglottidei*

Holotype: Turkey. C3 Antalya, Akseki, Pinarbasi köyü, Çukurköy yaylası, Yumrudikmeni mevki, 2200 m, 4.7.1996, *A.Duran 4071* (GAZI; Iso: MSB).

Differt ab *A. ovato* DC. pilis (fructu excepto) ad 1 mm (nec 1,5–3,5 mm) longis obtectus, stipulis a petiolo liberis (nec per 1–3 mm adnatis), bracteis 5–7 mm (nec 8–15 mm) longis, calyce 11–13 mm longo dentibus 3,5–4 mm longis (nec 13–15 mm longo dentibus 5–7 mm longis), petalis caerulei-violaceis (nec flavis), vexillo ca. 18 × 7 mm, rhomboidei-elliptico (nec 20–23 × 7–8 mm, oblongo), legumine pilis tenuibus flexuosis ad 3 mm longis et insuper pilis brevissimis obtecto (nec pilis longis tantum, in tuberculis insidentibus obtecto).

Plants 20–30 cm tall, branched at the base, covered with thin soft, tousled, spreading hairs up to 1 mm long. Stems prostrate or ascending at the base or erect, rather densely covered with very short and up to 1 mm long white, below the nodes also black hairs. Stipules green, 4–8 mm long, ovate, acute to shortly acuminate, free from the petiole, the lower ones vaginateconnate behind the stem often high up, the upper ones sometimes nearly free, all loosely covered with white and black hairs. Leaves 5–6 cm long; upper leaves with short petiole to sessile, petiole of lower leaves 1.5–2.5 cm long, like the rachis sulcate at upper side, rather densely furnished with white hairs up to 0.5 mm long. Leaflets in 10–14 pairs, elliptic to obovate, 4–9 × 2–4 mm, widely retuse to widely emarginate at the apex, on upper side covered loosely to rather densely, on underside more densely with nearly spreading white hairs. Peduncles 4–10 cm long, finely striate, hairy like the stem. Racemes capitate to ovoid, densely 6–10-flowered, in fruit slightly elongated. Bracts green, narrowly triangular, 5–7 mm long, white and black hairy. Pedicels 0.5–1 mm long, hairy. Calyx 11–13 mm long, tubular to slightly inflated after anthesis, covered on the upper (adaxial) side predominantly with white, on the lower (abaxial) side with black spreading hairs; teeth subulate to linear-acute, 3.5–4 mm long, nearly glabrous on inner side. Petals bluish-violet. Standard 18 mm long; blade ca. 7 mm wide, rhombic-elliptic, widely emarginate at the apex, gradually narrowed into the cuneate claw at the base. Wings 14 mm long; blades nearly oblong, slightly gradually dilated toward the obliquely retuse apex, 7 × 2.5 mm; auricle wide, 0.5 mm long, claw 7 mm long. Keel 12 mm long; blades obliquely obovate, with in upper part widely curved lower edge and slightly curved upper edge, obtuse at the apex, 5 × 3 mm; auricle short, claw 7 mm long. Staminal-tube straightly cut. Ovary very shortly stipitate, elliptic, white-villous; style glabrous. Pods

sessile, obliquely elliptic, with nearly straight ventral (upper) edge and widely curved dorsal (lower) edge, 10–12 mm long, 3.5 mm high, 2.5 mm wide, carinate ventrally, deeply grooved dorsally, attenuate at the apex into a short beak; valves thin, densely lanate, with  $\pm$  spreading, thin, soft, tousled white hairs up to 3 mm long and with very short hairs. Fruit nearly fully biloculare, with ca. 5 seeds in each locule.

Other specimens seen:

**Turkey.** C3 Antalya: Akseki, Pinarbasi köyü, Softalar yaylasi, 1800 m, *Cedrus libani* forest, 4.6.1996, *A. Duran 3900* (GAZI, MSB) – Akseki, Pinarbasi köyü, Çataloluk mevki, 1400 m, 11.6.1995, *A. Duran 2712* (GAZI, MSB).



Fig. 2: *Astragalus cedreticola* (holotype). Scale bar: 2 cm.



*Astragalus brevidentatus* Podlech, spec. nov. e sect. *Incani*

Holotype: Türkiye, B4 Ankara, zwischen Ankara und Aksaray, 10 km N Sereflikoçhisar, 970 m, steiniger Abhang, 1.4.1986, *M. Nydegger 41023* (MSB; Iso: BASBG).

Plantae ca. 5 cm altae, acaules, pilis 0.4–0.7 mm longis appressis obtectae. Stipulae 3–4 mm longae, pilosae. Folia 1.5–3.5 cm longa, petiolo 0.5–1 cm longo, sicut rachis dense piloso. Foliola 4–7 paria, anguste elliptica, acutiuscula, 2–6 × 0.4–1.6 mm, utrimque densiuscule pilosa. Racemi pedunculo ad 1.5 cm longo albipiloso suffulti, 2–5-flori. Bracteae 1.5–2 mm longae. Bracteolae minutae. Calyx ca. 12 mm longus, tubulosus, laxe vel apicem versus dense nigripilosus, dentibus subulatis 0.5–2 mm longis. Vexillum ca. 25 mm longum, lamina rhomboidei-obovata, ca. 10 mm lata. Alae ca. 21 mm longae. Carina ca. 20 mm longa. Ovarium stipite 1–2 mm longo suffultum, brevissime albipilosum, stylo glabro. Legumen ignotum.

Plants ca. 5 cm tall, acaulescent, covered with ± symmetrically medifixed, appressed, in vegetative parts merely white hairs 0.4–0.7 mm long. Caudex strongly branched. Stipules straw-colored, 3–4 mm long, ovate, acute, shortly adnate to the petiole, hairy. Leaves 1.5–3.5 cm long, petiole 0.5–1 cm long, like the rachis densely hairy. Leaflets in 4–7 pairs, narrowly elliptic, acutish at the apex, 2–6 × 0.4–1.6 mm, on both sides rather densely hairy. Peduncle up to 1.5 cm long, densely white hairy. Raceme 2–5-flowered. Bracts whitish, 1.5–2 mm long, narrowly ovate, at the margins black ciliate. Pedicels 0.5 mm long. Bracteoles minute, linear, at the base of calyx. Calyx ca. 12 mm long, tubular, loosely or toward the teeth densely black hairy; teeth subulate, 0.5–2 mm long. Petals lilac? Standard ca. 25 mm long; blade rhombic-obovate, ca. 10 mm wide, at the apex narrowly rounded, at the base widely cuneately narrowed. Wings ca. 21 mm long; blades narrowly oblong, slightly curved, at the apex acutish and sometimes slightly obliquely emarginate, 9 × 2.5 mm; auricle ca. 1 mm long, claw ca. 12 mm long. Keel ca. 20 mm long; blades obliquely obovate, with widely curved lower edge and slightly concave upper edge, at the apex obtusish, 8 × 3 mm; auricle short, claw ca. 12 mm long. Staminal-tube irregularly cut. Ovary with a stipe 1–2 mm long, very shortly white hairy; style glabrous. Legumes unknown.

*Astragalus longisubulatus* Podlech, spec. nov. e sect. *Incani*

Holotype: Türkiye, B7 Ercincan, 8 km S Kemaliye gegen Arabkir, bewaldetes Tal, 1040 m, 22.6.1992, *Nydegger 46374* (MSB; Iso: BASBG).

Differt ab *A. pendulo* DC. calyce 16–18 mm (nec 9–11 mm) longo, dentibus ejus 7–8.5 mm (nec 1–5 mm) longis, corolla calyce vix superante (nec ca. duplo longiore), legumine curvato 20–22 mm longo (nec ± stricto, 12–18 mm longo).

Plantae ad 45 cm altae, pilis 0.5–0.8 mm longis, ± symmetrice medifixis appressis obtectae. Stipulae 8–9 mm longae, basi per 3–4 mm petiolo adnatae, pilosae. Folia 18–22 cm longa. Foliola 7–10 paria, elliptica, 10–22 × 6–12 mm, utrimque pilosa. Racemi pedunculo 20–28 cm longo suffulti, dense multiflori, demum valde elongati. Bracteae 3–4 mm longae. Bracteolae minutae. Calyx 16–18 mm longus, tubulosus, albi- et nigri-pilosus, dentibus subulatis 7–8.5 mm longis. Corolla calyce vix superans. Vexillum 18–20 mm longum, ellipticum, 6–7 mm latum. Alae 16–17 mm longae. Carina ca. 15 mm longa. Ovarium subsessile, albipilosum. Legu-

men pendulum, sessile, lineare, curvatum, 20–22 mm longum, ca. 3 mm altum et 2,5 mm latum, apice rostro recto ca. 2 mm longo, densiuscule appresse pilosum.

Plants up to 45 cm tall, acaulescent, covered with appressed,  $\pm$  symmetrically medifixed, in vegetative parts merely white hairs 0.5–0.8 mm long. Stipules 8–9 mm long, triangular, adnate to the petiole for 3–4 mm,  $\pm$  densely hairy. Leaves 18–22 cm long; petiole 3–9 cm long, like the rachis densely hairy. Leaflets in 7–10 pairs, flat, elliptic, 10–22  $\times$  6–12 mm, at the apex acutish or rarely obtuse, on both sides loosely to densely hairy. Peduncle 20–28 cm long, erect, slightly sulcate, loosely white hairy. Raceme at first densely many-flowered, later on elongated and up to 18 cm long, axis sulcate, sparsely white hairy. Bracts whitish-membranous, 3–4 mm long, linear-acuminate, white and black hairy. Flowers at first erect, later nearly spreading. Pedicels 1–2 mm long, hairy. Bracteoles minute, scarcely 1 mm long, at the base of calyx. Calyx 16–18 mm long, tubular, straw-colored, with 5 darker nerves, densely covered with white and also sparsely with black hairs; teeth subulate, 7–8.5 mm long. Petals pale violet?, scarcely longer than the calyx. Standard 18–20 mm long, in upper part distinctly recurved; blade elliptic, 6–7 mm wide, at the apex narrowly rounded, at the base subangularly narrowed into the cuneate claw. Wings 16–17 mm long; blades linear, at the apex rounded, ca. 7  $\times$  1.5 mm; auricle up to 1 mm long, claw 9–10 mm long. Keel ca. 15 mm long; blades oblong-curved, with widely curved lower edge and concave upper edge, at the apex acutish, ca. 6  $\times$  2 mm; auricle acute, scarcely 1 mm long, claw ca. 9 mm long. Staminal-tube straightly cut. Ovary nearly sessile, narrowly elliptic, densely white hairy; style glabrous. Legumes pendulous, sessile, linear, curved, 20–22 mm long, ca. 3 mm high and 2.5 mm wide, carinate ventrally, slightly sulcate dorsally, at the apex with a straight beak ca. 2 mm long, rather densely appressed hairy.

*A. mercklinii* Boiss. & Buhse subsp. *farsicus* Podlech, subspec. nov. (sect. *Incani*)

Holotype: Iran, Prov. Fars, inter Chiras et Persépolis, 800–1000 m, 2.5.1956, *F. Schmid* 5514 (M; Iso: W).

Differt ab subspeciei *mercklinii* indumento e pilis longioribus (0,6–1 mm versus 0,3–0,5 mm longis), caudice saepissime simplice, irramoso, indistincte foliolis in (2–)4–6(–10) nec in (2–) 5–8(–12) paribus, ovatis, apice acutis et saepissime distincte acuminatis (nec ellipticis, ovatis vel late ovatis, apice late obtusis vel raro vix acutiusculis), bracteolis deficientibus vel raro evolutis, minutissimis, ad 0,5 mm longis, leguminibus longioribus ad 45 mm longis (nec ad 30 mm longis).

Differs from subsp. *mercklinii* by the indumentum of hairs 0.6–1 mm (not 0.3–0.5 mm) long, by fewer leaflets which are ovate, at the apex acute and mostly distinctly acuminate (not elliptic, at the apex widely obtuse), by the bracteoles absent or if rarely present, than minute, up to 0.5 mm long, and by the longer legumes up to 45 mm long (not up to 30 mm long).

Other specimens seen:

**Iran.** Lorestan: Azna, Shuhturun-kuh foothills, 1830 m, 6.5.2962, *Furse* 1775 (W). – Fars: Niris, 28.3.1940, *Koelz* 14689 (US, W); 58 km W of Shiraz, 1600 m, 16.4.1964, *Grant* 15611 (W); SE Schiraz, 1520 m, 30.5.1961, *Pabot* 12446-E (W).

*Astragalus nevshahiricus* Podlech, spec. nov. e sect. *Incani*

Holotype: Türkei, B5 Nev'ehir, 2 km E Nev'ehir gegen Ürgüp, 1310 m, Hohlweg in einer Baumkultur, 7.6.1992, M. Nydegger 46186 (MSB; Iso: BASBG).

Differt ab *A. clavato* DC. foliolis 3–5 (nec ca. 8) paribus, corolla violacea (nec viridiusculiflava), legumine lineari, distincte curvato, piloso (nec lineari-clavato, subrecto, glabro).

Plantae ca. 25 cm altae, pilis 0,3–0,6 mm longis obtectae. Stipulae 7–9 mm longae, basi per 2 mm petiolo adnatae, laxe pilosae. Folia 7–16 cm longa, petiolo 3,5–8 cm longo. Foliola 3–5 paria, remota, elliptica ad obovata, 10–22 × 6–12 mm, utrimque pilosa. Racemi laxe multiflori, tempore fructificationis valde elongati, pedunculo erecto 7–9 cm longo suffulti. Bracteae 2–3 mm longae. Flores erecti. Bracteolae minutae. Calyx 9–12 mm longus, tubulosus, laxe nigripilosus, dentibus 2,5–4 mm longis. Corolla violacea. Vexillum 15–17 mm longum, 6–7 mm lata, elliptica, apicem versus lingulatim contracta. Alae 13–14 mm longae. Carina 12–13 mm longa. Legumina erecta vel subpatentia, stipite 2–3 mm longo suffulta, linearia, distincte ad semicirculariter curvata, 22–25 mm longa et ca. 2 mm diametro, apice longe acuminate, dense appresse albipilosa.

Plants ca. 25 cm tall, acaulescent, covered with appressed, ± symmetrically medifixed, in vegetative parts merely white hairs 0.3–0.6 mm long. Stipules 7–9 mm long, narrowly oblong-triangular, obtuse, adnate to the petiole for 2 mm, loosely hairy. Leaves 7–16 cm long; petiole 3.5–8 cm long, like the rachis slender, loosely hairy. Leaflets in 3–5 pairs, elliptic to obovate, 10–22 × 6–12 mm, at the apex acute to acutish or rarely rounded and minutely mucronulate, at both sides loosely to rather densely hairy. Peduncle erect, 7–9 cm long, sparsely to loosely covered with white, toward the raceme also with black hairs. Raceme loosely many-flowered, at fruiting time strongly elongated and up to 15 cm long. Bracts whitish-membranous, 2–3 mm long, narrowly triangular, sparsely black hairy. Flowers erect. Pedicels 2–4 mm long, black hairy. Bracteoles whitish, minute, scarcely 0.5 mm long, at the base of calyx. Calyx 9–12 mm long, tubular, loosely black hairy; teeth linear to subulate, 2.5–4 mm long. Petals violet. Standard 15–17 mm long; blade 6–7 mm wide, elliptic, toward the apex subabruptly narrowed into a wide, tongue-like appendix, slightly emarginate, at the base widely cuneately narrowed. Wings 13–14 mm long; blades narrowly oblong, at the apex acutish, obliquely incised, in upper margin distinctly gibbous above the auricle, 6–7 × 2 mm; auricle ca. 1 mm long, claw 6–7 mm long. Keel 12–13 mm long; blades obliquely obovate, with widely curved lower edge and nearly straight upper edge, at the apex obtusish, ca. 5 × 2 mm; auricle wide, very short, claw 7–8 mm long. Staminal-tube straightly cut. Ovary nearly sessile, sparsely white hairy; style glabrous. Legumes erect or ascending, with a stipe 2–3 mm long, linear, distinctly up to semicircularly curved, 22–25 mm long and ca. 2 mm in diameter, carinate ventrally, sulcate dorsally, at the apex long acuminate, densely appressed white hairy.

*Astragalus polhillii* Podlech, spec. nov e sect. *Incani*

Holotype: Turkey, B9 Van: 18 km from Van to Erçek, 2000 m, 5.6.1966, P. Davis 44366 (K).

Plantae 17–40 cm altae, pilis subappressis ad semipatentibus, saepe confuse flexuosis 0,2–1 mm longis obtectae. Stipulae 8–12 mm longae, petiolo adnatae per 5 mm, basi pilosae. Folia

10–24 cm longa, petiolo 2,5–9 cm longo sicut rachis laxe piloso. Foliola 6–12 paria, lineari-elliptica, 15–35 × 2–4 mm, apice acuminata, supra glabra vel sparse pilosa, subtus pilis confuse semipatenter ad 1 mm longis obtecta. Racemi longi, laxe multi-flori, pedunculo 12–20 cm longo suffulti. Bracteae 4–5 mm longae. Flores erecti. Bracteolae ca. 1 mm longae. Calyx 10–11 mm longus, tubulosus, albi-nigri-pilosus, dentibus 1–3 mm longis. Corolla dilute sulfurea. Vexillum 20–21 mm longum, ellipticum, ca. 9 mm latum. Alae ca. 19 mm longae. Carina 16 mm longa. Ovarium stipite ca. 2 mm longo suffultum, lineare, albi-pilosum. Legumina ignota.

Plants 17–40 cm tall, covered with subappressed to ascending, symmetrically to slightly asymmetrically bifurcate white, in the inflorescence also black hairs. Caudex in upper part densely covered with blackish remnants of old stipules. Stipules 8–12 mm long, sometimes reddish-suffused, triangular (the lower) to narrowly triangular (the upper), adnate to the petiole for ca. 5 mm, at the base rather densely covered with appressed hairs, the free tips nearly glabrous. Leaves 10–24 cm long; petiole 2.5–9 cm long, loosely covered with subappressed to ascending, symmetrically to asymmetrically bifurcate, tousled hairs 0.2–1 mm long. Leaflets in 6–12 pairs, linear-elliptic to more rarely narrowly elliptic, 15–35 × 2–4 mm, acuminate to acuminate-mucronulate at the apex, on upper side glabrous or very sparsely to loosely hairy, minutely red-dotted, covered on underside with subappressed to confusely ascending hairs up to 1 mm long. Peduncle 12–20 cm long, finely striate-sulcate, loosely hairy like the rachis. Raceme loosely many flowered, 5–18 cm long, at fruiting time perhaps longer; axis with few black hairs. Bracts whitish-membranous, narrowly triangular, 4–5 mm long, sparsely black and white-hairy, at the margin ciliate with basifixed white hairs, in lower half with minute, subsessile, ovoid, glandlike trichomes. Pedicels ca. 1 mm long, black-hairy, erect, flowers erect. Bracteoles whitish, ca. 1 mm long, narrowly triangular, at the base of calyx. Calyx 10–11 mm long, tubular, obliquely inserted at the base, obliquely cut at the orifice, loosely covered with black and white, subappressed to slightly ascending, ± symmetrically medifixed hairs up to 0.8 mm long; teeth slightly unequal, narrowly triangular, 1–3 mm long. Petals pale sulphur-yellow. Standard 20–21 mm long; blade elliptic, ca. 9 mm wide, at the apex very shortly narrowed, rounded to slightly retuse, ± abruptly narrowed into the short claw. Wings ca. 19 mm long; blades narrowly oblong, rounded at the apex, 9 × 2.5 mm; auricle 2 mm long, claw 10 mm long. Keel 16 mm long; blades obliquely oblong-curved, with widely curved lower edge and concave upper edge, obtuse at the apex, 7 × 3 mm; auricle ca. 1 mm long, claw 9 mm long. Staminaltube straightly cut. Ovary with a stipe ca. 2 mm long, linear, loosely confusely white-hairy. Legume unknown.

Within the few species of the section with very narrow leaflets distinct by plants covered with subappressed to ascending, often tousled hairs, leaflets in 6–12 pairs, glabrous or very sparsely hairy on upper side, pale sulphur-yellow petals and shortly stipitate ovary.

*Astragalus gigantostegius* Podlech, spec. nov. e sect. *Laxiflori*

Holotype: Türkei, C4 Prov. Konya, S-Seite Krater Gölü E Karapinar, 1050 m, 30.5.1993, M. Nydegger 47338 (MSB; Iso: BASBG).

Differt ab *A. dictyolobus* Bunge plantis validioribus ultra 60 cm altae (nec 15–40 cm altae), stipulis 18–22 (nec 7–15 mm) longis, foliolis 15–20 paribus (nec 17–28 paribus), anguste el-



lipticis vel anguste obovatis, 15–32 × 4–10 mm (nec ovatis ad ellipticis, 5–15 × 3–9 mm), racemis 5–6 cm longis, 8–10-floribus (nec 7–13 cm longis, 15–30–45-floribus).

Plants more than 60 cm tall, covered with thin, mostly spreading white hairs 2–5 mm long. Stem 60 cm long or more, erect, somewhat flexuose, up to 7 mm in diameter, hollow, finely striate-sulcate, loosely to rather densely hairy. Stipules green, narrowly triangular, long acuminate-subulate, 18–22 mm long, free from the petiole, long ciliate at the margins. Leaves 14–22 cm long; petiole very short, 1–2 cm long, like the rachis deeply sulcate, loosely covered with spreading hairs up to 5 mm long. Leaflets in 15–20 pairs, narrowly elliptic to narrowly ovate, rounded and shortly mucronulate to acute at the apex, 15–32 × 4–10 mm, on upper side glabrous, on underside loosely covered with ascending hairs up to 2.5 mm long. Racemes along most parts of the stem, subsessile, ovoid to oblong, 5–6 cm long, loosely 8–10-flowered; axis loosely spreadingly-hairy. Bracts green, filiform, 8–15 mm long, hairy. Pedicels 1–2 mm long, hairy. Calyx 13–16 mm long, shortly tubular at the beginning of anthesis, soon inflated and ovoid in fruit, straw-colored, rather densely covered with spreading hairs 4–5 mm long; teeth green, linear-acute to subulate, 5–10 mm long. Petals pale yellow. Standard 24 mm long; blade oblong-elliptic, slightly constricted below the middle, ca. 11 mm wide, widely rounded to truncate at the apex, abruptly and angularly constricted into the short, narrow claw. Wings ca. 20 mm long; blades narrowly oblong, obliquely truncate and laterally subacute at the apex, 12 × 4 mm; auricle 1 mm long, claw 8 mm long. Keel 16 mm long; blades obliquely elliptic, with in the middle moderately gibbously curved lower edge and nearly straight upper edge, obtuse at the apex, 7 × 4 mm; auricle ca. 1 mm long, claw 9 mm long. Staminaltube straightly cut. Ovary sessile, elliptic, hairy; style glabrous. Legumes sessile, included in the calyx, elliptic seen from the side, ca. 10 mm long, 6 mm high and 3 mm wide, carinate ventrally and dorsally, abruptly narrowed at the apex into a recurved, subulate beak ca. 3 mm long, fully bilocular; valves pale brownish, thin but tough, somewhat rugulose, loosely covered with thin, white hairs 2–3 mm long.

*Astragalus karasarensis* Podlech, spec. nov. e sect. *Laxiflori*

Holotype: Anatolia, Prov. Sivas, B7 5 km E Karasar Geçidi zwischen Kangal und Divriği, 1550 m, 15.6.1992, *M. Nydegger 46284* (MSB; Iso: BASBG).

Differt ab *A. phlomoides* Boiss. foliolis 12–15 paribus (nec 15–32 paribus), 9–14 mm longis (nec 4–10 mm longis), subtus sparse ad laxe pilosis (nec subglabris), calyce 11–13 mm (nec 15–17 mm) longo, dentibus ejus 2,5–5 mm (nec 6–8 mm) longis, vexillo 19–20 mm (nec 26–28 mm) longo.

Plants 15–25 cm tall, covered with white hairs. Caudex ca. 5 mm in diameter, divided, with short branches. Stem 4–13 cm long, erect, somewhat flexuose, 2–3 mm in diameter, finely striate-sulcate, loosely to rather densely covered with subappressed hairs 0.3–1 mm long and with subappressed to nearly spreading hairs up to 2(–3) mm long. Stipules green, narrowly triangular to linear, long acuminate, 8–12 mm long, nearly free from the petiole, short hairy. Leaves 8–15 cm long; petiole short, 1–3 cm long, like the rachis sulcate, loosely hairy like the stem. Leaflets in 12–15 pairs, narrowly elliptic to narrowly ovate or elliptic to ovate, at the apex rounded to narrowly truncate, sometimes minutely mucronulate, 9–14 × 4–8 mm, glabrous on upper side, covered on underside sparsely to loosely, especially at the margins

and midvein with ascending hairs up to 0.5 mm long. Racemes 2–3 along the stem, subsessile, globular to shortly ovoid, 3–4 × 3 cm, rather densely many-flowered; axis sparsely hairy. Bracts green, filiform to linear-acute, 8–12 mm long, ciliate. Pedicels ca. 1 mm long, hairy. Calyx 11–13 mm long, shortly tubular at the beginning of anthesis, soon inflated and ovoid in fruit, straw-colored, rather densely covered with ascending to spreading hairs up to 2 mm long; teeth green, narrowly triangular to linear-acute, 2.5–5 mm long. Petals yellow. Standard 19–20 mm long; blade obovate, scarcely constricted at the middle, ca. 10 mm wide, widely emarginate at the apex, at the base subangularly narrowed into the widely cuneate claw. Wings 18 mm long; blades narrowly elliptic, rounded at the apex, 8 × 3.5 mm; auricle 1.2–1.5 mm long, claw 10 mm long. Keel 17–18 mm long; blades obliquely oblong-curved, with in the middle gibbously curved lower edge and concave upper edge, rounded at the apex, 7 × 4 mm; auricle 1 mm long, claw 10 mm long. Staminal-tube slightly obliquely cut. Ovary sessile, ovoid, white hairy; style glabrous. Legumes sessile, included in the calyx, obliquely elliptic seen from the side, with slightly curved dorsal line and strongly curved ventral line, rounded at the apex, ca. 6 mm long, 4 mm high and 2 mm wide, subcarinate by the thickish nerve ventrally and dorsally, with a subulate straight beak ca. 2 mm long, fully bilocular; valves dirty straw-colored, thin but tough, loosely covered with subappressed hairs 0.5–1 mm long.

Other specimens seen:

**Türkei.** Sivas: B6 N Tödürge Gölü, zwischen Zara und Hafik, 1350 m, 4.6.1990, *Nydegger 45640* (BASBG, MSB).

*Astragalus kentrophyllus* Podlech, spec. nov. e sect. *Leucocercis*

Holotype: Iran, Prov. Khuzestan: 25 km N of Haftgel towards Izeh, 550 m, 25.5.1973, *M. Iranshahr & M. Moussavi 15593-E* (W).

Differt ab *A. ovoideo* Sirj. & Rech.f. foliolis apice mucronula ad 0,5(–1) (nec 1–3) mm longis, racema breviter pedunculata, legumine elliptica, primo pilis longioribus ad 0,8 (nec ad 2) mm longa, ab *A. mucronifolio* Boiss. foliolis 4–7 × 2–3 (nec 6–10 × 2–7) mm, apice mucronula ad 0,5(–1) (nec 1,5–3) mm longa provisis, pilis symmetrice medifixis 0,3–0,5 mm longis (nec arcte asymmetrice medifixis ad 1 mm longis) obtectis, legumine a dorso compressa, 8 mm lata (nec a latere compressa, 3,5–5 mm lata).

Plants spinose, cushion-like shrublets up to 15 cm tall, in most parts densely covered with appressed, ± symmetrically medifixed, merely white hairs. Caudex up to 10 mm in diameter, with short, dark brown branches, in upper part covered with remnants of old leaves. Stems of the year 1–3 cm long, the dense indumentum of fine, basifixed white hairs up to 1 mm long is not visible because of the very dense cover of leaves with their stipules. Stipules pale yellowish, 5–8 mm long, triangular-acuminate, shortly spiny, distinctly reticulately nerved, adnate to the petiole for 3–5 mm, sparsely ciliate at the margins with basifixed hairs up to 0.3 mm long, otherwise glabrous. Leaves 5–12 cm long, in the lower half to two third without leaflets; petiole and rachis up to 1 mm thick, rigid, pungent, densely covered with appressed hairs 0.2–0.6 mm long. Leaflets in 4–5 pairs, thickish-leathery, elliptic to obovate, 4–7 × 2–3 mm, at the apex abruptly acuminate into a minute spine up to 0.5(–1) mm long, on upperside densely, on underside loosely to rather densely covered with appressed, symmetrically medifixed hairs 0.3–0.5 mm long. Peduncles 1–1.5 cm long, curved, hairy like the rachis. Racemes loosely 3-flowered. Bracts whitish-hyalin, narrowly triangular, 2 mm long, ciliate. Pedicels at

fruiting time thickish, 3–4 mm long, rather densely hairy. Bracteoles 0.5–1.5 mm long, linear, in the upper part of the pedicel. Calyx campanulate, ca. 7 mm long, obliquely cut at the orifice, rather densely covered with short,  $\pm$  symmetrically medifixed hairs, at the upper margins and teeth with basifixed cilia; teeth narrowly triangular, 3–3.5 mm long, acuminate but not pungent, with elevated midnerv. Standard 13 mm long; blade upcurved above the claw, suborbicular, 7 mm wide, emarginate at the apex, subabruptly narrowed into the wide claw. Wings 11–12 mm long, slightly curved; blades oblong-obovate, rounded at the apex,  $6 \times 3$ –3.8 mm; auricle ca. 1 mm long, claw curved, 5–6 mm long. Keel 11–12 mm long; blades strongly obliquely elliptic-curved, with very widely rectangularly curved lower edge and concave upper edge, acute at the apex,  $5$ – $6 \times 3$ –3.8 mm; auricle 0.5 mm long, claw 6 mm long. Staminaltube straightly to slightly obliquely cut. Pods sessile, elliptic, straight, 12–15 mm long, 6 mm high and 8 mm wide, flat ventrally, widely rounded dorsally, at the apex very shortly acuminate, unilocular; valves pale brownish, thick, slightly rugulose, covered with appressed, very short,  $\pm$  symmetrically medifixed hairs and with distinctly longer, strongly asymmetrically medifixed hairs up to 0.8 mm long, soon glabrescent and nearly glabrous in age. Seeds 3, nearly globular,  $5 \times 4 \times 3$  mm, pale brownish, smooth.

Other specimens seen:

**Iran.** **Ilam:** 10 km S. of Zarrin-Abad, Anaran Mountain, 1200–1300 m, 6.8.1989, *Akhani 5540* (MSB). – **Khuzestan:** 11 km W Haft-Kel, 300 m, 13.3.1959, *Pabot 315* (G); 8 km W Behbahan, 15.4.1959, *Pabot 12435-E* (W) & *621* (G); Zeydoun, 65 km SE Soveyreh, road from Mahshahr to Genaveh, 350 m, 29.2.1972, *Iranshahr & Termeh 14957-E* (W); Anhal, 47 km from Masdjed-Suleiman to Lali, 16.3.1978, *Iranshahr & Termeh 14964-E* (W). – **Fars:** 4 km S Fahlian, 900 m, 10.5.1959, *Pabot s.n.* (G); bei Kaserun, 8.5.1885, *Stapf 1068* (WU); Kotal Komarech, 4.5.1885, *Stapf 1143* (WU).

*Astragalus bakirdaghensis* Podlech, spec. nov. e sect. *Malacothrix*

Holotype: Türkei, B5 Kayseri, 8 km E Bakirdaghi gegen Tufanbeyli, 1330 m, 12.6.1987, *M. Nydegger 42753* (MSB; Iso: BASBG).

Plantae acaules ad subacaules, 20–25 cm altae, praecipue subappresse pilosae. Stipulae anguste triangulares ad lineares, 7–10 mm longae, petiolo adnatae per ca. 3 mm, breviter vaginanti-connatae, albi- et nigri-pilosae. Folia 10–17 cm longa, petiolo 3–5 cm longo, sicut rachis pilis appressis 0,05–0,4 mm longis et insuper pilis subappressis ad semipatentibus ad 0,8 mm longis obtecto. Foliola 14–18 paria,  $5$ – $12 \times 1,5$ –3 mm, utrimque subappresse pilosa. Racemi pedunculo 13–18 cm longo subappresse piloso suffulti, densiuscule multiflori, 5–9 cm longi. Bractee angustae, 5–9 mm longae, nigri-pilosae. Calyx ca. 14 mm longus, tubulosus vel leviter inflatus, densiuscule pilis semipatentibus ad patentibus albis nigrisque obtectus, dentibus 4–5 mm longis. Corolla dilute flava. Vexillum  $25 \times 9$  mm longum, lamina trullata, apicem versus late lingulatum attenuata. Alae 18 mm longae. Carina 17 mm longa. Legumina (immatura) sessilia, oblique elliptica, ca. 8 mm longa, pilosa, apice tenuiter rostrata.

Plants acaulescent to nearly acaulescent, 20–25 cm tall, loosely to rather densely, mostly subappressed hairy. Stem, if present, up to 2 cm long, angularly-sulcate, densely appressed white hairy. Stipules whitish to greenish, narrowly triangular to linear-acute, 7–10 mm long, adnate to the petiole for ca. 3 mm, shortly connate behind the stem, glabrous at the base, with ciliate margins, in upper part rather densely covered with subappressed black and white hairs.



Leaves 10–17 cm long; petiole 3–5 cm long, like the rachis grooved at upper side, loosely covered with appressed white and sometimes few black hairs 0.05–0.4 mm long and sparsely with subappressed to ascending white hairs up to 0.8 mm long. Leaflets in 14–18 pairs, narrowly elliptic to narrowly obovate, 5–12 × 1.5–3 mm, obtuse to acute at the apex, loosely to densely covered at both sides with subappressed white hairs 0.5–1 mm long. Peduncle 13–18 cm long, striate-sulcate, loosely to rather densely covered with appressed to subappressed hairs 0.1–0.5 mm long and with much fewer hairs up to 1.5 mm long, in lower parts predominantly with white, toward the raceme with increasing black hairs. Racemes rather densely many-flowered, cylindric, 5–9 cm long, scarcely elongating at fruiting time. Bracts narrowly triangular-linear, acute, 5–9 mm long, black hairy. Pedicels 0.5–1 mm long, white-hairy. Calyx ca. 14 mm long, tubular to slightly inflated, obliquely cut at the orifice, rather densely covered with ascending to nearly spreading hairs 0.5–1.2 mm long, at the ventral (upper) side predominantly white, at the dorsal (lower) side predominately black-hairy; teeth slightly unequal, the upper two narrowly triangular-subulate, ca. 4 mm long, the lower three subulate, ca. 5 mm long, glabrous on inner side. Petals pale yellow. Standard 25 mm long; blade trullate, 9 mm wide, widest in lower third, long and widely ligulately-narrowed upwards, scarcely emarginate at the apex, at the base abruptly narrowed into the long, cuneate claw. Wings 18 mm long; blades narrowly oblong, obtuse at the apex, 9 × 2.5 mm; auricle 1 mm long, claw 9 mm long. Keel 17 mm long; blades obliquely obovate, with in upper part widely curved lower edge and slightly concave upper edge, obtuse at the apex, 7 × 2.5 mm; auricle rounded, 0.5 mm long, claw 10 mm long. Staminal tube straightly cut. Ovary sessile, elliptic, white hairy; style long, sparsely hairy in lower part. Legumes (immature) sessile, obliquely elliptic seen from the side, ca. 8 mm long, carinate ventrally, deeply grooved dorsally, subabruptly attenuate into a slender hairy beak.

*Astragalus jacobsii* Podlech, spec. nov. e sect. *Malacothrix*

Holotype: Iran, Prov. Azarbaijan Garbi, SW. side Lake Rezaiyeh, 36°56' N 45°52' E, 1300–1400 m, fields and waste land near small salty lake, 21.5.1963, *M. Jacobs 6645* (L; Iso: BG, E, GRO, K, MIN, W).

Differt ab *A. eriopodo* Boiss. foliolis minoribus, 5–12 × 2,5 (nec 10–27 × 4–8) mm, supra glabris (nec sparse ad laxe pilosis), calyce 9–11 mm longo pilis ad 1 mm longis obtecto (nec 11–13 mm longo pilis ad 2 mm longis obtecto), dentibus 2–2,5 (nec 3–6) mm longis, vexillo 12–17 (nec 17–25) mm longo.

Plants 40 cm tall, caulescent, covered with very fine, white, in the inflorescence also black hairs up to 1 mm long. Caudex repeatedly branched with slender, erect subterraneous branches. Stems several, up to 20 cm long, evenly foliate, finely striate, loosely covered with curly to flexuose, tousled hairs 0.1–1 mm long. Stipules whitish to greenish, 7–10 mm long, narrowly triangular, adnate to the petiole for ca. 2 mm, the lower distinctly, the upper indistinctly vaginate-connate behind the stem, all distinctly longitudinally nerved, sparsely to loosely hairy. Leaves 5–9 cm long; petiole 0.5–2.5 cm long, together with the rachis bisulcate at upper side, hairy like the stem. Leaflets in 6–9 pairs, elliptic, 5–12 × 2–5 mm, rounded at the apex, glabrous at upper side, loosely covered with flexuose-spreading hairs at lower side. Peduncles 2–4 in each stem, in the axils of the upper leaves 5–7 cm long, erect, angular-striate, hairy like the stem but with few spreading hairs up to 1.5–2 mm long. Raceme cylindric, at



anthesis rather densely many-flowered, soon elongating and up to more than 15 cm long; axis hairy like the peduncle but with additional very short, spreading black hairs. Bracts whitish-greenish, 3–4 mm long, linear-acute to narrowly triangular, with long white and often with very short black hairs. Pedicels 0.5–1 mm long. Calyx reddish-suffused, 9–10 mm long, tubular, obliquely cut at the orifice, loosely covered with flexuose-spreading white hairs up to 1 mm long and with short black hairs mainly toward the teeth; teeth narrowly triangular to subulate, 2–2.5 mm long, nearly glabrous at inner side. Petals dark salmon-red, fading bluish. Standard 12–17 mm long; blade 6–7 mm wide, rhombic, widest near the middle, in upper part triangularly narrowed toward the slightly emarginate apex, below the middle subabruptly narrowed into the long cuneate claw. Wings 11–15 mm long; blades narrowly oblong, rounded at the apex, 5–6 × 2 mm; auricle ca. 1 mm long, claw 6–9 mm long. Keel 10.5–14 mm long; blades obliquely oblong, with lower edge in upper part widely curved, and straight upper edge, subacute at the apex, 5 × 2.5 mm; auricle ca. 0.8 mm long, claw 7–9 mm long. Staminaltube straightly cut. Ovary with a stipe 1–2 mm long, narrowly elliptic, sparsely hairy; style glabrous. Pod (unripe) on a stipe ca. 3 mm long, narrowly elliptic, attenuate at both ends, densely covered with flexuose-spreading white hairs up to 4 mm long and with very short, spreading black hairs.

*Astragalus kashanensis* Podlech, spec. nov., e sect. *Malacothrix*

Holotype: Iran, Kashan (Mooteh protected region), ad bifurcationem viae publicae versus Muteh (Mooteh) ducentis, ca. 140 km ab Esfahan boreo-occidentem versus, 1950 m, 30.5.1974, K.H. Rechinger 46810 (W).

Plantae subcaules, ca. 20 cm altae, pilis semipatentibus ad patentibus ad 2,5(–4) mm longis, saepe in tuberculis minutis insidentibus obiectae. Caules ad 2 cm longi, pilis subappressis ad 1 mm longis obiecti. Stipulae 13–18 mm longae, per 3–5 mm petiolo adnatae, albi-nigri-pilosae. Folia 12–18 cm longa, petiolo 3,5–6 cm longo, sicut rachis pilis ad 2,5 mm longis obiecto. Foliola 7–8 paria, remota, angusta, 12–20 × 2–3 mm, supra glabra, subtus longe pilosa. Racemi pedunculo 2,5–5 cm longo, sicut rachis piloso suffulti, densiuscule 10–30-flori. Bracteae angustae, 6–10 mm longae, albi-pilosae. Calyx 18–23 mm longus, tubulosus vel leviter ventricosus, pilis subpatentibus ad 4 mm longis obiectus, dentibus subulatis, 5–6 mm longis. Vexillum 23 mm longum, lamina rhomboidei-elliptica, ca. 8 mm lata. Alae 21 mm longae. Carina alis aequilonga. Legumina subsessilia, elliptica, ca. 10 mm longa, pilis albis, oblique patentibus ad 6 mm longis saepissime in tuberculis minutis insidentibus obiecta.

Plants shortly caulescent, ca. 20 cm tall, loosely furnished with rigid, ascending to spreading hairs mostly up to 2.5 mm long, often inserted onto little tubercles. Caudex slightly branched. Stems up to 2 cm long, sulcate, densely covered with subappressed white hairs up to 1 mm long. Stipules greenish, linear-acute to narrowly triangular, 13–18 mm long, adnate to the petiole for 3–5 mm, otherwise free from each other, loosely to rather densely white, at the base also black-hairy. Leaves 12–18 cm long; petiole 3.5–6 cm long, like the rachis loosely furnished with ascending to spreading white hairs up to 2.5 mm long. Leaflets in 7–8 pairs, remote, linear to narrowly ovate, often curved, folded, 12–20 × 2–3 mm, on upper side glabrous, on underside loosely to sometimes rather densely covered with subappressed to spreading white hairs up to 2.5 mm long. Peduncle one or more rarely two in each stem, 2.5–5 cm long, rather thick, sulcate, straight, white-hairy like the rachis. Raceme ovoid to shortly

cylindric, rather densely 10–30-flowered; axis with long, nearly spreading white and few black hairs. Bracts linear-acute, 6–10 mm long, with long white, sometimes also with few black hairs. Pedicels ca. 1 mm long, white-hairy. Calyx 18–23 mm long, whitish-membranous, tubular to slightly ventricose, obliquely cut at the orifice, loosely furnished with nearly spreading white hairs up to 4 mm long; teeth subulate, 5–6 mm long, white-hairy also at the inner side. Petals colour unknown, in dry state dirty brownish. Standard ca. 23 mm long; blade ca. 8 mm wide, rhombic-elliptic, rounded at the apex, subabruptly narrowed into the long, narrowly cuneate claw. Wings ca. 21 mm long; blades narrowly oblong, rounded at the apex, ca. 8 × 2 mm; auricle ca. 0.5 mm long, claw 13 mm long. Keel ca. 21 mm long; blade obliquely-oblong, with widely curved lower edge and slightly concave upper edge, obtuse at the apex, ca. 7 × 3 mm; auricle ca. 0.5 mm long, claw 14 mm long. Staminal-tube straightly cut. Ovary with a stipe ca. 1 mm long, ovoid, densely white hairy; style glabrous. Legume sessile, elliptic, shortly attenuate at both ends, ca. 10 mm long, 3.5 mm high, compressed laterally, carinate ventrally, deeply grooved dorsally, the apex with a curved beak ca. 3 mm long, with ± persistent style; valves pale brown, densely covered with obliquely spreading white hairs up to 6 mm long, mostly inserted in little tubercles. Fruit completely bilocular, with 1–2 seeds in each locule.

*Astragalus sultan-bulaghensis* Podlech, spec. nov. e sect. *Malacothrix*

Holotype: Iran, Prov. Hamadan, Avadje, Sultan-bulagh mountains, 2000–2400 m, 12.5.1987, *A.A. Maassoumi & Mirhosseini 59388* (MSB; Iso: TARI).

Differt ab *A. spachiano* Boiss. & Buhse caulibus pilis appressis ad 0,4 mm (nec ad 1 mm longis) obtectis, calycis indumento e pilis 0,3–1 mm longis, praecipue nigris consistente (nec e pilis brevissimis albis et insuper e pilis distincte longioribus albis et partim nigris consistente), indumento leguminis e pilis ad 4 mm longis subbasaliter affixis tantum consistente (nec e pilis ad 8 mm longis basaliter affixis et insuper pilis brevissimis consistente).

Plants 7–20 cm tall, erect or prostrate, subcaulescent, furnished with white, in the inflorescence also with grey or blackish hairs. Caudex mostly slender, repeatedly branched, with short to more rarely elongated subterraneous branches. Stems very short, up to 3 cm long, densely covered with appressed white hairs 0.2–0.4 mm long. Stipules greenish, 4–6 mm long, those of lower leaves triangular to rarely ovate, sparsely hairy, those of upper leaves narrowly triangular, reflexed, ± densely subappressed hairy, all shortly (for ca. 1 mm) adnate to the petiole, behind the stem very shortly vaginate-connate. Leaves 2–12 cm long; petiole 1–4 cm long, like the rachis sulcate on upper side, loosely to rather densely covered with soft white hairs 0.1–0.5 mm long, which are in young leaves tangled, subappressed to rather ascending, in older leaves appressed. Leaflets in 11–16 pairs, elliptic, subacute or obtuse to rounded at the apex, 3–6 × 2–4 mm, at both sides densely covered with appressed hairs (0.3–) 0.5–0.8 mm long. Peduncle 4–14 cm long, rather densely covered with appressed white, toward the raceme increasing black hairs. Raceme short, densely 4–11-flowered, slightly elongating in fruit. Bracts 2–4 mm long, narrowly elliptic, predominantly black hairy. Pedicels ca. 1 mm long. Calyx 11–13 mm long, tubular to slightly inflated, obliquely cut at the orifice, rather densely covered with tomented, spreading, predominantly black hairs 0.3–1 mm long, sometimes on the ventral (upper) side with often somewhat longer white hairs; teeth 2–3 mm long, linear, hairy at inner side. Petals drying dark violet. Standard 18–20 mm long; blade

slightly rhombic-elliptic, widest in the middle, ca. 8 mm wide, slightly retuse at the apex, at the base gradually narrowed into the wide, cuneate claw. Wings 15–17 mm long; blades narrowly oblong, rounded at the apex, 7.5–8 × 2.8 mm; auricle rounded, 1.2–1.8 mm long, claw 8–9 mm long. Keel ca. 14 mm long; blades obliquely obovate, with in upper part widely, sometimes rectangularly curved lower edge and slightly concave upper edge, acutish at the apex, 6 × 2.5–3 mm; auricle 0.5–0.9 mm long, claw ca. 8 mm long. Staminal tube ± straightly cut. Ovary subsessile, pilose; style glabrous. Legumes subsessile, narrowly elliptic to spindlelike, attenuate at both ends, ca. 10 mm long, 3 mm high and wide, ventrally keeled, dorsally grooved, at the apex with a slightly recurved beak ca. 2 mm long; valves thin, tough, rather densely covered with spreading white hairs up to 4 mm long, subbasifixed with a short appendix. Fruit completely bilocular.

Other specimen seen:

**Iran.** Hamadan: Ecbatan sad to Yalfan village, 2000 m, 10.5.1987, *Maassoumi 59334* (MSB).

*Astragalus* sect. *Mikrophyton* Podlech, sect. nov

Plantae acaulescentes vel breviter caulescentes, pulvinulos densos minutos formantes, pilis basifixis rigidis vel in foliolis pilis tenuissimis gossypineis obtectae. Stipulae seu petiolo adnate inter se liberae seu a petiolo liberae et ante petiolum alte inter se connatae. Foliola 2–3-paria. Flores singulae vel binae. Legumina sessilia vel subsessilia, parva, a latere compressa, ventro carinata, dorso carinata vel sulcata, incomplete ad complete bilocularia. Semina 1–3 pro loculo. Typus: *A. mikrophyton* Sirj. & Rech.f.

A very isolated section within the basifixed hairy *Astragali*.

*Astragalus mikrophytoides* Podlech, spec. nov. e sect. *Mikrophyton*

Holotype: Afghanistan, Prov. Ghazni, in faucibus Say Khoshkak (Nawar Kotal) inter Okak et Behzud, ca. 33°53' N, 67°50' E, ca. 310 m, 6.7.1962, *K.H. Rechinger 17828* (W; Iso: MSB).

Differt ab *A. mikrophyton* Sirj. & Rech.f. stipulis a petiolo liberis sed ante petiolum alte, saepe fere ad apicem inter se connatis, foliolis 2-paribus, planis, utrumque pilis rigidis ad 0,8 mm longis obtectis, calyce laxo pilis patentibus albis 0,5–2 mm longis et nigris brevioribus obtecto, dentibus filiformibus 5 mm longis, leguminibus dorso distincte sulcatis, densiuscule pilis subappressis ad oblique patentibus brevibus ad 0,5 mm et insuper pilis longis patentibus 3–4 mm longis obtectis, seminibus 3 pro loculo.

Plants small, shortly caulescent, forming dense, small cushions up to 4 cm tall, covered with rigid, basifixed hairs. Caudex slender or up to 5 mm in diameter, with a pluricipital root-crown, with short to somewhat elongated, erect branches, at the apex often covered with slender persistent, erect old petioles. Stems absent or up to 2 cm long, densely covered with spreading white, below the nodes also black hairs 0.2–0.5 mm long. Stipules whitish-hyalin, 3–4 mm long, free from the petiole, in front of the petiole connate nearly to the apex, covered sparsely to loosely, especially toward the margins with spreading white and black hairs 0.1–0.5 mm long. Leaves 1–2 cm long; petiole 0.5–1.2 cm long, slender, covered with rigid, white,

spreading bristles 0.2–0.6 mm long. Leaflets mostly in 2 pairs, obovate, 3–8 × 1.5–3.5 mm, at the apex rounded or more rarely subacute, flat, on both sides rather densely to densely covered with subappressed to ascending white hairs up to 0.8 mm long. Racemes nearly sessile, 1–2-flowered. Bracts whitish-hyaline, ca. 4 mm long, narrowly triangular, sparsely predominantly black-hairy. Pedicel ca. 2 mm long, spreadingly hairy. Bracteoles filiform, ca. 1 mm long, in the middle of pedicel. Calyx ca. 10 mm long, shortly tubular, the tube loosely covered with spreading white hairs 0.5–2 mm long and with much shorter black hairs; teeth filiform, ca. 5 mm long, long spreadingly ciliate. Petals pink. Standard ca. 15 mm long; blade obovate, ca. 6 mm wide, at the apex slightly emarginate, long gradually narrowed at the base. Wings ca. 14 mm long; blades narrowly oblong, rounded at the apex, 9 × 2.2 mm; auricle indistinct, claw ca. 5 mm long. Keel ca. 9 mm long; blades triangular-elliptic, with widely curved lower edge and slightly curved upper edge, obtuse at the apex, 4 × 2.5 mm; auricle indistinct, claw ca. 5 mm long. Staminal-tube slightly obliquely cut. Legumes sessile, elliptic, ca. 9 mm long, 4 mm high and 3 mm wide, carinate ventrally, grooved dorsally, at the apex with a slightly bent, straight beak 2–3 mm long, nearly completely bilocular; valves thin, straw-colored, rather densely covered with subappressed to ascending white and sometimes few black hairs 0.2–0.5 mm long and with ± spreading white hairs 3–4 mm long. Seeds three in each locule, ca. 2.5 mm long.

*Astragalus arakliensis* Podlech, spec. nov. e sect. *Onobrychoidei*

Holotype: Türkei, A7 Trabzon, Arakli - Bayburt, 19 km S Daghbasi, 1900 m, 10.6.1988, M. Nydegger 43284 (MSB).

Differt ab *A. mukusiense* Rech.f. foliis latoribus apice distincte inciso-emarginatis, calyce imprimis nigripiloso dentibus longioribus, ab *A. pineticola* Podlech bracteis brevioribus latoribusque, calyce brevior tempore fructificationis ventricosus, vexillo brevior elliptico nec apice longe lingulatum attenuato.

Planta 20 cm alta, pilis plerumque patentibus 0,3–1 mm longis, subsimplicibus aut in tuberculis minutis aut sublateraliter cicatrice oblongo affixis obtecta. Caules erecti vel subprostrati, ad 15 cm longi, laxe pilis ± patentibus obtecti. Stipulae ad 6 mm longae, inter se alte connati-vaginant, extus laxe pilis nigris obtectae, margine pilis mere albis rigidis in tuberculis distinctis insidentibus ciliatae. Folia 2–6 cm longa, rachide patenter pilosa. Foliola 10–13 paria, anguste elliptica, apice distincte incisi-emarginata, 4–10 × 2–4 mm, supra sparse, subtus laxe subappresse albipilosa. Pedunculi 2–6 cm longi. Racemi breves, 3–8 flori. Bracteae 3–5 mm longae, pilosae. Calyx 9–10 mm longus, tubulosus, tempore fructificationis leviter ventricosus, laxe pilosus, dentibus 2,5–3,5 mm longis. Corolla violacea. Vexillum 18–20 mm longum, anguste ellipticum. Alae ca. 15 mm longae. Carina ca. 13 mm longa. Ovarium sessile, albipilosum. Legumen (immaturum) sessile, anguste ellipsoideum, apice attenuatum, longe albipilosum.

Plants caespitose, ca. 20 cm tall, covered with mostly spreading hairs 0.3–1 mm long, subsifixed, sitting on minute tubercles or with the subbasal, oblong cicatrice affixed to the tubercle. Caudex strongly branched. Stems several or many, erect or nearly prostrate, up to 15 cm long, loosely covered with ± spreading white and especially at the nodes also with black hairs. Stipules greenish, the lower ones up to 3 mm long, the upper ones up to 6 mm long,



triangular, nearly free from the petiole, behind the stem high up connate-vaginate, on outer side loosely covered with black hairs, at the margins ciliate with rigid, merely white hairs sitting on little tubercles. Leaves 2–6 cm long; petiole 0.4–1.5 cm long, loosely covered with spreading, predominantly black hairs, rachis slender, covered with spreading, predominantly white hairs. Leaflets in 10–13 pairs, narrowly elliptic, 4–10 × 2–4 mm, at the apex distinctly emarginate-incised, on upper side sparsely, on underside loosely subappressed white hairy. Peduncles 2–6 cm long, loosely covered with spreading white, toward the raceme increasing black hairs. Racemes short, 3–8-flowered. Bracts whitish, narrowly ovate, 3–5 mm long, covered with nearly spreading black hairs and with white hairs partly sitting on little tubercles, at the margins also with few sessile or shortly stipitate gland-like hairs. Pedicels ca. 1 mm long, black hairy. Calyx 9–10 mm long, tubular, obliquely cut at the orifice, at fruiting time slightly inflated, loosely to rather densely covered with ascending, predominantly black hairs; teeth subulate, 2.5–3.5 mm long, white hairy on innerside. Petals glabrous, violet. Standard 18–20 mm long; blade narrowly elliptic, at the apex distinctly incised, at the base cuneately narrowed. Wings ca. 15 mm long; blades narrowly oblong, at the apex rounded or slightly emarginate, 7 × 2.8 mm; auricle curved, ca. 1 mm long, claw ca. 8 mm long. Keel ca. 13 mm long; blades obliquely elliptic, with widely curved lower edge and sigmoid-concave to nearly straight upper edge, at the apex acutish, ca. 6 mm long; auricle acute, ca. 1 mm long, claw ca. 7 mm long. Staminal-tube straightly cut. Ovary sessile, densely white hairy; style glabrous. Legumen (unripe) sessile, narrowly elliptic, long white hairy.

*Astragalus demirizii* R.Kramer & Podlech, spec. nov. e sect. *Onobrychoidei*

Holotype: Türkei, Ankara, Tuz Gölü, E Ufer, 14 km S Sereflikochisar, 899 m, Halophytenflur, 20.5.1986, *U. Kramer* 52 (BSB-VO; Iso: BSB-VO, MSB).

Plantae 20–50 cm altae, dense albi-pilosae. Caules 10–45 cm longi, dense pilis ca. 1 mm longis obtecti. Stipulae 2–4 mm longae, inter se connatae, pilosae. Folia (2–)6–10 cm longa; petiolo brevissimo, rachide dense pilosa. Foliola 6–9 paria, subsessilia, (5–)7–12 × (2–)3–5.5 mm, elliptica vel obovata ad anguste obovata, utrimque appresse pilosa. Racemi pedunculo 3–7 cm longo, piloso suffulti, 20–50-flori. Bractaeae 1,5–2,5 mm longae, ciliatae. Calyx 6,5–8,5 mm longus, tubulosus, appresse ad patenter pilosus, dentibus triangularibus 1 mm longis. Corolla glabra, incarnata. Vexillum 15–19 mm longum, rotundato-rhombiforme, 6–9 mm latum. Alae 14–18 mm longae. Carina 12–14 mm longa. Ovarium sessile, pilosum. Legumina sessilia, elliptica, 7–10 mm longa, 3 mm alta et 2 mm lata, ventro carinata, dorso rotundata, pilis flexuosis, 2–3 mm longis oblecta, incomplete biloculare.

Plants procumbent to ascending, 20–50 cm tall, densely covered with mostly ± symmetrically medifixed white hairs. Caudex up to 10 mm in diameter. Stems 10–45 cm long, sulcate, equally foliate, densely covered with appressed hairs ca. 1 mm long. Stipules membranous, 2–4 mm long, nearly free from petiole, behind the stem vaginate-connate up to two third, with two triangular tips, sparsely covered with asymmetrically medifixed hairs 0.5–0.8 mm long, glabrescent, ciliate at the margins. Leaves (2–)6–10 cm long; petiole very short, 0.2–0.5 cm long, like the rachis densely covered with appressed, symmetrically medifixed hairs ca. 0.5 mm long. Leaflets in 6–9 pairs, narrowly elliptic to narrowly ovate, (5–)7–12 × (2–)3–5.5 mm at the apex obtusish to acutish, on both sides covered with appressed hairs 0.5–1 mm long. Peduncles 3–7 cm long, sulcate, densely covered with appressed hairs ca. 0.5 mm long.

Racemes densely 20–50-flowered, at fruiting time elongating up to 7 cm. Pedicels ca. 1 mm long. Flowers erect. Bract membranous, 1.5–2.5 mm long, narrowly triangular, sparsely hairy, at the margins ciliate with strongly asymmetrically bifurcate hairs ca. 0.5 mm long. Calyx tubular to slightly inflated, 7.5–9.5 mm long, covered with appressed, symmetrically medifixed white hairs and with much fewer spreading, asymmetrically medifixed hairs 0.5–1 mm long; teeth ca. 1 mm long, triangular, in innerside covered with asymmetrically medifixed and basifixed hairs 0.5 mm long. Petals glabrous, pink, fading dark violet. Standard 13–19 mm long; blade 6–9 mm wide, obtusely rhombic, at the apex emarginate, gradually narrowed at the base. Wings slightly shorter than the standard, 13–18 mm long; blades narrowly oblong, at the apex obliquely emarginate, 6–9 × 1.5–2.5 mm; auricle ca. 1 mm long, claw 7–9 mm long. Keel 12–14 mm long; blades obliquely narrowly ovate, with nearly straight upper edge, at the apex acutish, 4.5–6 × 2–2.5 mm; auricle ca. 0.5 mm long, claw 7.5–9 mm long. Staminal-tube straightly cut. Ovary sessile, covered with somewhat flattened white hairs; style hairy at the base. Legumes with a stipe up to 1 mm long, narrowly elliptic, 7–10 mm long, ca. 3 mm high and 2 mm wide, carinate ventrally, rounded dorsally, with a strongly curved beak ca. 1 mm long, incompletely bilocular; valves straw-colored, densely covered with subbasifixed, straight to flexuose hairs 2–3 mm long. Seeds ca. 3 in each locule, ca. 1 mm long, brown, rugulose.

Other specimen seen:

**Türkei.** Ankara: Tuz Gölü, 14 km S Sereflikochisar, 905 m (Strandwall am Seeufer, Sanddüne) Halophytenflur, 9.6.1986, *Kürschner 2332* (BSB-VO).

*Astragalus eskishehircus* Podlech, spec. nov. e sect. *Onobrychoidei*

Holotype: **Türkei**, B3 Eskishehir, Cifteler - Eskishehir, 1 km S Hamidiye, 930 m, 15.6.1993, *M. Nydegger 47470* (MSB).

Plantae ca. 30 cm altae, indumento e pilis appressis symmetrice ad leviter asymmetrice medifixis, 0,2–0,5 mm longis consistente. Caulis ad 30 cm longus sparse albi-nigri-pilosus. Stipulae 2,5–3 mm longae, triangulares, petiolo vix adnatae, inter se liberae. Folia 7–10 cm longa, subsessilia, rachide sparse ad laxe albi-nigri-piloso. Foliola 10–13 paria, anguste elliptica, apice obtusa, 5–14 × 1,5–3 mm, supra glabra subtus laxe albipilosa. Pedunculi 7–12 cm longi, ut in caule pilosi. Racemus dense 10- ad multiflorus. Bractae 0,5–1,5 mm longae. Calyx 4–5 mm longus, campanulatus, albi-nigripilosus, dentibus subulatis, 1–2 mm longis. Corolla glabra, violacea. Vexillum 14–15 mm longum, lamina ovata, ca. 6 mm lata. Alae 10–11 mm longae. Carina ca. 7 mm longa. Ovarium sessile, albipilosum, stylo glabro. Legumen (immaturum) anguste ovoideum, apice angustatum, dense subappresse albivillosum.

Plants ca. 30 cm tall, covered with appressed, symmetrically to slightly asymmetrically medifixed hairs 0.2–0.5 mm long. Stem up to 30 cm long, erect or at the base ascending, sparsely covered with white and black hairs. Stipules 2.5–3 mm long, triangular, scarcely adnate to the petiole, free from each other, at the margins white and black ciliate. Leaves 7–10 cm long, nearly sessile; rachis sparsely to loosely white and black hairy. Leaflets in 10–13 pairs, narrowly elliptic, 5–14 × 1.5–3 mm, obtuse at the apex, on upper side glabrous, on underside loosely white hairy. Peduncles 7–12 cm long, hairy like the stem. Raceme short or elongated, densely 10-many-flowered. Bracts whitish, ovate, 0.5–1.5 mm long, black ciliate. Pedicels ca. 1 mm long. Calyx 4–5 mm long, campanulate, with slightly obliquely cut orifice, loosely white and black hairy; teeth subulate, unequal, the two upper ca. 1 mm long, the three

lower up to 2 mm long, all white hairy on innerside. Petals glabrous, violet. Standard 14–15 mm long; blade ovate, ca. 6 mm wide, at the apex rounded, at the base shortly cuneately narrowed. Wings 10–11 mm long; blades narrowly oblong, at the apex slightly emarginate,  $7 \times 2$  mm; auricle curved, ca. 0.8 mm long, claw ca. 4 mm long. Keel ca. 7 mm long, blades obliquely elliptic, with widely curved lower edge and nearly straight upper edge, at the apex acutish,  $4 \times 2$  mm; auricle minute. Ovary sessile, white hairy; style glabrous. Legumes (unripe) narrowly ovoid, densely subappressed white hairy.

*Astragalus konyaensis* Podlech, spec. nov. e sect. *Onobrychoidei*

Holotype: Türkei, C4 Konya, Kizilyaka - Hadim e Kaplandi, 1330 m, 22.6.1990, *M. Nydegger 45772* (MSB; Iso: BASBG).

Species inter alia sectionis insignis ob indumentum caulium, rachidium pedunculorumque e pilis appressis  $\pm$  symmetrice medifixis et insuper densiuscule pilis ad triplo longioribus, semi-patentibus ad subappressis, valde asymmetrice medifixis consistentem, ob dentes calycis rigide pectinatim ciliatos et ob petala longa, subcaerulea.

Plants up to 35 cm tall, with a double indumentum of medifixid white, at the base of stipules also with black hairs. Stem up to 30 cm long, ascending to erect, densely covered with appressed,  $\pm$  symmetrically medifixid hairs and rather densely with subappressed to ascending, strongly asymmetrically medifixid hairs three times longer. Stipules 7–12 mm long, narrowly triangular or from a triangular base long acuminate, scarcely adnate to the petiole, behind the stem shortly to high up connate-vaginate, densely white, at the base also black hairy. Leaves 10–15 cm long; petiole 1–5 cm long, together with the rachis hairy like the stem. Leaflets in 5–8 pairs, narrowly elliptic to narrowly obovate,  $6\text{--}23 \times 2.5\text{--}7$  mm, at the apex obtusish to acutish, densely covered with rigid, subappressed to ascending, strongly asymmetrically medifixid to nearly symmetrically medifixid hairs up to 2(–3) mm long, often folded when young. Peduncle strong, 9–19 cm long, hairy like the stem. Raceme nearly globose, densely many-flowered. Bracts narrowly triangular, 8–11 mm long, densely subappressed hairy. Flowers nearly sessile. Calyx 11–15 mm long, campanulate-tubular,  $\pm$  densely subappressed hairy; teeth 6–9 mm long, subulate, densely pectinately covered with rigid, nearly spreading hairs. Petals bluish-violet, glabrous. Standard 18–20 mm long, 8–10 mm wide, trullate to nearly rhombic, at the apex widely rounded and slightly emarginate, at the base shortly cuneately narrowed. Wings 13–15 mm long; blades obliquely narrowly obovate, at the apex rounded,  $7.5\text{--}9 \times 3\text{--}4$  mm; auricle ca. 1 mm long, claw 5–6 mm long. Keel 12–13 mm long; blades obliquely elliptic, with widely curved lower edge and sigmoid-concave to nearly straight upper edge, acutish at the apex,  $6\text{--}7 \times 3\text{--}3.5$  mm; auricle minute, claw ca. 6 mm long. Staminal-tube straightly cut. Ovary sessile, densely white hairy; style glabrous. Legumes unknown.

A very conspicuous species easily recognizable by the double indumentum of stems, rachides and peduncles, the rigidly ciliate calyx teeth and the long, bluish petals.

Other specimens seen:

**Türkei.** C4 Konya: Belören - Hadim, 10 km N Hadim, 1370 m, 28.7.1992, *Nydegger 46879* (BASBG, MSB).

*Astragalus pineticola* Podlech, spec. nov. e sect. *Onobrychoidei*

Holotype: Türkiye, C5 İçel, Arslanköy - Çamlıyayla W Çamlıyayla, 700 m, Föhrenwald [Pinetum], 13.5.1987, M. Nydegger 42329 (MSB; Iso: BASBG).

Differt ab *A. setuloso* Boiss. & Balansa indumento e pilis extremiter asymmetricice medifixis partim tuberculis minutis affixis et simplibus immixtis consistente, calyce longiore, vexillo 23–25 mm longo, apice longe lingulatim attenuato.

Plantae 25–30 cm altae, dense pilis extremiter asymmetricis ad subsimplicibus albis sub nodis insuper nigris, partim appressis partim subappressis ad oblique patentibus 0,3–1 mm longis obtectus. Stipulae 3–6 mm longae, a petiolo liberae, inter se ad dimidium longitudinis connati-vaginant. Folia 7–12 cm longa. Foliola (7–)10–15 paria, elliptica, apice distincte et anguste emarginato-incisa, 5–11 × 2–4 mm, utrinque laxe subappresse albipilosa. Racemus pedunculo 9–10 cm longo suffultus, brevis, dense ca. 10 florus. Bractae lineari-acutae, 6–7(–8) mm longae. Calyx 12–13 mm longus, tubulosus, pilis albis nigrisque oblique patentibus laxe obtectus, dentibus subulatis 4–5 mm longis. Corolla glabra, violacea. Vexillum 23–24 mm longum, lamina medio rhomboidei-dilatata, ca. 8 mm lata, apicem longe lingulatim attenuata. Alae ca. 16 mm longae. Carina ca. 15 mm longa. Ovarium sessile, dense albipilosum.

Plants 25–30 cm tall. Stem ascending, densely covered with extremely asymmetrically medifixed and subbasifixed, partly appressed, partly ascending white hairs 0,3–1 mm long. Stipules greenish, the lower ones 3–4 mm, the upper ones 5–6 mm long, narrowly triangular, free from the petiole, behind the stem connate-vaginate up to the middle, loosely hairy with white hairs which are partly and especially at the margins sitting on little tubercles. Leaves 7–12 cm long, petiole 1,5–2,5 cm long, like the rachis covered with ascending to spreading hairs partly sitting on little tubercles. Leaflets in (7–)10–15 pairs, elliptic, at the apex distinctly et narrowly incised, 5–11 × 2–4 mm, on both sides loosely covered with subappressed hairs. Peduncle 9–10 cm long, hairy like the stem but with increasing black hairs toward the raceme. Raceme short, densely ca. 10-flowered. Bracts whitish, linear-acute, 6–7(–8) mm long, with black and white nearly spreading hairs partly sitting on little tubercles and at the margins with few sessile to shortly stipitate gland-like hairs. Calyx 12–13 mm long, tubular, loosely spreadingly black and white hairy; teeth subulate, 4–5 mm long, with ascending black hairs and especially at the margins with white hairs partly sitting on minute tubercles. Petals glabrous, violet. Standard 23–24 mm long; blade in the middle rhombic-dilated, ca. 8 mm wide, toward the apex long ligulately narrowed, at the base long cuneately narrowed. Wings ca. 16 mm long; blades narrowly oblong, rounded at the apex, 7 × 2 mm; auricle curved, ca. 1 mm long, claw ca. 9 mm long. Keel ca. 15 mm long; blades obliquely elliptic, with widely rounded lower edge and nearly straight upper edge, at the apex minutely acuminate, ca. 6 × 3 mm; auricle straight, acute, ca. 0.5 mm long, claw ca. 9 mm long. Ovary sessile, ovoid, densely white hairy; style hairy in basal part. Legumes unknown.



***Astragalus venulosus* Boiss. subsp. *iraqensis* Podlech, subspec. nov. (Sect. *Rhabdotus*)**

Holotype: Iraq, ad confines Turciae prov. Hakari, in ditione pagi Sharanish, in saxosis cacuminis montis Zawita a Zakho septentrionem versus, 2000 m, 4.–9.7.1957, K.H. Rechinger 10967 (W).

Figure: TOWNSEND & GUEST (1974).

Differt ab subspecie typico indumento e pilis conspicue brevioribus consistente, in caule ad 0,7 (nec ad 2,5) mm longis, in pedunculo pilis 0,3–1 mm longis tantum (nec insuper pilis 1,5–2,5 mm longis), leguminibus altioribus latioribusque (11–13 × 6–8 × 5–6 mm nec 10 × 5 × 3 mm) dorso ventroque obtuse carinatis (nec acute carinatis) et indistincte numero foliolarum, (3–)7–14(–17) paria (nec (6–)12–17 paria).

***Astragalus nigdeanus* Podlech & Ekici, spec. nov. e sect. *Sisyrophorus***

Holotype: Turkey, C4 Prov. Karaman, Koros'in ust kesimleri. 1750 m, 22.6.1998, M.Ekici 2093 (GAZI; Iso: MSB).

Differt ab *A. aydosensi* Pesmen & Erik foliis angustioribus 4–5 (nec 1–2) paribus, ab *A. pelligero* Fenzl foliis angustioribus, ab utraque corolla violacea et pilis longis calycis partim in tuberculis cavis conspicuis insidentibus.

Plants 5–7 cm tall, suffruticulose, branched at the base, with medifixed white, at the stipules and calyx also with black hairs. Stipules 4–5 mm long, adnate to the petiole for 2 mm, behind the stem vaginate-connate nearly up to the top, toward the apex rather densely white and black hairy. Leaves 1.0–2.5 cm long; petiole nearly as long as the blade, like the rachis densely covered with short, somewhat flexuose, subappressed hairs and mostly also with asymmetrically medifixed, straight, spreading hairs up to 2 mm long. Leaflets in 4–5 pairs, 2–8 × 0.5–2 mm, narrowly obovate, at the apex obtuse, the upper ones often close together, all on both sides densely sericeous with subappressed hairs. Racemes with a peduncle 1.5–2.5 cm long and hairy like the rachis, densely globose, many-flowered. Bracts narrowly ovate-acuminate, ca. 6 mm long, loosely white and sometimes also black hairy. Pedicels ca. 1 mm long. Calyx widely campanulate-tubular, 8–10 mm long, densely covered with short, somewhat flexuose, white, toward the teeth predominantly black hairs and with asymmetrically medifixed, spreading white hairs up to 2,5 mm long and partly sitting on distinct, hollow tubercles; teeth subulate, 3–4 mm long. Petals violet, standard and wings hairy. Standard ca. 17 mm long, ca. 7 mm wide, narrowly rhomboid-elliptic, at the apex narrowed into tongue-like obtuse appendix, at the base cuneately narrowed, densely subappressed hairy on the backside. Wings ca. 13 mm long; blades narrowly oblong, rounded at the apex, ca. 7 × 2 mm, on outer side loosely covered with long hairs; auricle 0.5 mm long, claw filiform, 6 mm long. Keel ca. 11 mm long; blades obliquely elliptic, with widely curved lower edge and nearly straight upper edge, acutish at the apex, 5 × 2 mm; auricle minute, claw ca. 5 mm long, connate in upper half. Ovary covered with very long, nearly spreading white hairs; style short, glabrous. Legumes unknown.

Other specimens seen:

**Turkey.** C4 Karaman: Koros' in ust kesimleri. 1750 m, 22.6.1998, *Ekici 2098* (GAZI, MSB). – C5 Nigde: Camardi, von Cukurbag gegen Emlî Bogazi, 1650 m, 15.6.1987, *Nydegger 42802* (BASBG, MSB).

*Astragalus hakkariensis* Podlech, spec. nov. e sect. *Stereothrix*

Holotype: Türkei, C 10 Prov. Hakkari, 5 km W Esendere gegen Yükksekova, 1720 m, 24.7.1983, *M. Nydegger 18427* (MSB; Iso: BASBG).

Differt ab *A. sphaeranthus* Boiss. pilis pro parte, imprimis in calyce tuberculis insidentibus, petalis conspicue longioribus, vexillo 22–25 mm longo, anguste oblongo (nec 16–17 mm longo, elliptico), legumine minore, appresse piloso (nec semipatenter piloso), seminibus 1 pro loculo (nec 2–3 pro loculo).

Plantae 12–20 cm altae, caespitosae, pilis subrigidis ad 1(–2) mm longis obtectae. Caules dense pilis patentibus subflexuosis obtecti. Stipulae 5–9 mm longae, petiolo breviter adnatae, breviter vaginanti-connatae, pilosae. Folia 4–7 cm longa, petiolo 1–2 cm longo, rachide piloso. Foliola 8–11 paria, anguste elliptica, 5–12 × 1,5–5 mm, utrimque dense subappresse pilosa. Racemi pedunculo 1,5–5 cm longo, patule piloso suffulti, globosi, dense multi-flori. Bractae lineares, 8–15 mm longae, pilosae. Calyx 13–16 mm longus, turbinati-tubulosus, in parte basali sparse ad laxe, in parte apicali densiuscule pilis longis in tuberculis insidentibus obtectus, dentibus subulatis, 7–11 mm longis. Petala pallide flava vel lactea. Vexillum 22–25 × 6–7 mm, anguste oblongi-ellipticum. Alae 17–18 mm longae. Carina 14–15 mm longa. Legumina sessilia, elliptica, ca. 8 mm longa, 3 mm alta et 2 mm lata, pilis subappressis 0,2–0,3 mm longis obtecta. Semina una pro loculo.

Plants 12–20 cm tall, caespitose, covered with subrigid white hairs, in vegetative parts up to 1 mm long. Caudex up to 6 mm in diameter, repeatedly branched, with short subterraneous branches. Stems several, 9–12 cm long, often branched, densely covered with spreading, often somewhat tousled hairs 0.3–1 mm long. Stipules membranous with greenish tip or completely greenish, 5–9 mm long, triangular to narrowly triangular, adnate to the petiole for ca. 1 mm, shortly vaginate-connate behind the stem, loosely hairy, the marginal hairs often sitting on little tubercles. Leaves 4–7 cm long; petiole 1–2 cm long, together with the rachis hairy like the stem. Leaflets in 8–11 pairs, narrowly elliptic, 5–12 × 1.5–5 mm, rounded to slightly retuse at the apex, densely covered on both sides with subappressed hairs, flat. Peduncle 1.5–5 cm long, striate-sulcate, densely covered with spreading white hairs 0.3–1.5(–2) mm long. Raceme globose, densely many-flowered, 2.5–4 cm in diameter. Bracts greenish, narrowly triangular-linear, 8–15 mm long, covered with spreading white hairs often sitting on little tubercles. Flowers subsessile. Calyx 13–16 mm long, turbinate-tubular, in lower part of the tube sparsely to loosely, in upper part and at the teeth rather densely covered with long spreading hairs sitting on distinct tubercles; teeth subulate, 7–11 mm long, hairy all around. Petals all pale yellowish or creamy white, upper part of wings and keel sometimes fading pale violet on drying or all whitish, tinged with violet. Standard 22–25 mm long, narrowly oblong-elliptic, 6–7 mm wide, widely rounded or minutely incised at the apex, scarcely narrowed at the base. Wings 17–18 mm long; blades narrowly oblong to slightly dilated toward the rounded apex, 8–9 × 3 mm; auricle ca. 1 mm long, claw ca. 9 mm long. Keel 14–15 mm long; blades obliquely elliptic, with widely curved lower edge and nearly straight upper edge, shortly acuminate at

the apex, 5–6 × 3 mm; auricle minute, claw 8–9 mm long. Staminaltube straightly cut. Ovary sessile, appressed white-hairy; style glabrous. Pod sessile, elliptic, ca. 8 mm long, 3 mm high and 2 mm wide, carinate ventrally, narrowly grooved dorsally, at the apex with a subulate beak ca. 1 mm long, fully bilocular; valves thin, straw-colored, densely covered with subappressed hairs 0.2–0.3 mm long. Seeds only one in each locule, elliptic, 4 × 2 mm.

Other specimens seen:

**Turkey, Hakkari:** 10 km from Bajirge to Yüksekova, 1900 m, 18.6.1966, *Davis 45208* (E) – 21 km from Bajirge to Yüksekova, 2230 m, 18.6.1966, *Davis 45234* (E) – Pass on Bajirge - Yüksekova road, 2500 m, 30.6.1967, *Watson & al. 2962* (E, K) – dto., 2200 m, 30.6.1975, *Rechinger 53839* (M, W).

*Astragalus montis-varvashti* Podlech, spec. nov. e sect. *Stereothrix*

Holotype: Iran, Mazanderan: Elburz, Elika, Varvasht mountain, 3500–4100 m, 4.8.1972, *F. Terme 15240-E* (W).

Differt ab *A. capito* stipulis duplo longioribus, 4–8 mm (nec 2–4 mm) longis, basi pilis partim nigris provisus, pilis pedunculi longioribus ad 2 mm (nec ad 1 mm) longis, bracteis conspicue majoribus, 9–13 mm (nec 4–7 mm) longis, calyce ca. 15 mm longo dentibus 7–9 mm (nec 11–12 mm longo, dentibus 5–7 mm longis), petalis calyce aequalibus (nec longioribus).

Plants dwarf, caespitose, 4–12 cm tall, covered with somewhat rigid, predominantly white hairs up to 2 mm long. Caudex up to 10 mm in diameter, repeatedly branched, with numerous short subterraneous branches. Stems of the year 1–4 cm long, densely covered with subappressed white, near the nodes also with black hairs up to 0.5 mm long. Stipules membranous, pale brownish, 4–8 mm long, adnate to the petiole for up to 1 mm, vaginate-connate behind the stem up to the middle, the free tips 2–4 mm long, linear, acute, appressed white and sometimes also black hairy. Leaves 1.5–5 cm long; petiole 0.5–1.5 cm long, like the rachis rather densely covered with subappressed to spreading white and some black hairs 0.3–1 mm long. Leaflets in 9–12 pairs, elliptic, 4–9 × 1.5–3.5 mm, obtuse to acutish at the apex, densely subappressed white hairy on both sides, often folded. Peduncle 0.5–6 cm long, densely covered with tousled, ± spreading white hairs, toward the raceme also with increasing black hairs 0.2–1 mm long. Raceme ovoid-globose, densely many-flowered. Bracts greenish, narrowly ovate, acuminate, 9–13 mm long, rather densely covered with subappressed to nearly spreading white and black hairs. Flowers nearly sessile. Calyx infundibuliform-tubular, ca. 15 mm long, densely covered with ± spreading white hairs and sometimes with few shorter black hairs; teeth linear-subulate, 7–9 mm long, hairy on inner side. Petals whitish-creamy with lilac keel, in dry state often dirty violet. Standard ca. 15 mm long, not surpassing the calyx; blade elliptic, ca. 7 mm wide, emarginate at the apex, gradually narrowed into the short cuneate claw. Wings ca. 13 mm long; blades narrowly oblong, obliquely emarginate at the apex, 6 × 2 mm; auricle ca. 1 mm long, claw 7 mm long. Keel 11 mm long; blades obliquely obovate, with widely curved lower edge and slightly concave upper edge, acutish at the apex, 5 × 2.2 mm; auricle short, claw 6 mm long. Staminaltube straightly cut. Ovary subsessile, narrowly elliptic, appressed white-hairy; style glabrous. Legumes unknown.

*Astragalus tetuanensis* Podlech, spec. nov. e sect. *Tapinodes*

Holotypus: Morocco, Prov. Tétouan, cerca de Bab Taza, 1000 m, en un pradito de anuales, substrato calizo, 30.5.1981, *Castroviejo, Fdez. Casas, Muñoz Garmendía & Susanna FC 5379* (MA; Iso: MA).

Differt ab *A. froedinii* Murb. indumento e pilis ad 1,5 mm longis (nec 0,1–0,3 mm) consistente, foliolis 4–7 (nec 9–14) paribus, bracteis 2–3 (nec 1–1,5) mm longis, vexillo albido (nec pallide violaceo), ab *A. depresso* L. caulibus pilosis (nec glabris), foliis brevibus subsessilibus (nec ad 22 cm longis petiolo bene evoluto), foliolis 4–7 (nec 5–15) paribus, racemo 4–8-floro (nec 15–25-floro), bracteis 2–3 mm (nec 3–6 mm) longis, ovario glabro (nec piloso).

Plants 6–15 cm tall, caespitose, covered with rather thick but thin-walled, tousled but somewhat rigid, spreading white, only in the inflorescence with few black hairs up to 1.5 mm long, at the base of stipules, bracts and bracteoles also with minute sessile, ovoid, gland-like hairs. Caudex with a pluricipital rootcrown. Stems several, up to 15 cm long, loosely or in upper part rather densely hairy. Stipules greenish-membraneous, 3–4 mm long, obliquely inserted at the stem, adnate to the petiole for ca. 1 mm, ciliate at the margin. Leaves 2–3 cm long, nearly sessile; rachis sparsely to loosely-hairy. Leaflets in 4–7 pairs, elliptic to obovate-triangular, at the apex retuse to distinctly and widely emarginate, 3–5 × 2–3 mm, on upper side glabrous, on underside sparsely and mainly at the midrib and margins appressed hairy. Peduncle 0.5–3 cm long, rather densely spreadingly hairy. Raceme capitate to subumbellate, 4–8-flowered. Bracts whitish-membraneous, 2–3 mm long, narrowly triangular, mainly white-hairy. Pedicels 1–2 mm long, subglabrous. Flowers at anthesis erect, later on spreading and then nodding. Bracteoles rarely present, ca. 1 mm long, laterally at the base of calyx. Calyx pale greenish-membraneous, ca. 5 mm long, campanulate, sparsely covered with appressed white and some black hairs; teeth narrowly triangular, ca. 2 mm long. Petals whitish. Standard ca. 9 mm long; blade obovate, ca. 4 mm wide, at the apex widely incised, at the base cuneately narrowed. Wings 8 mm long; blades obovate, at the apex widely rounded, 5 × 2.5 mm; auricle ca. 1 mm long, narrow, claw ca. 3 mm long. Keel 7 mm long; blades obliquely elliptic-triangular, with in the middle very widely curved lower edge and nearly straight upper edge, acutish at the apex, 4 × 2.5 mm; auricle ca. 0.3 mm long, claw 3 mm long. Staminaltube slightly obliquely cut. Ovary sessile, glabrous. Pods unknown.

*Astragalus longivexillatus* Podlech & Ekici, spec. nov. e sect. *Trachycercis*

Holotype: Türkei, B10 Agri, 5 km N Doghubayazit gegen Iğdir, 1570 m, Brachland, 18.5.1990, *M. Nydegger 45450* (MSB; Iso: BASBG).

Plantae acaules, pilis medifixis 0,3–0,6 mm longis subappressis obtectae. Stipulae 5–10 mm longae, basi petiolo per 1–2 mm adnatae, basi dense apicem versus sparse pilosae. Folia 3,5–10 cm longa, petiolo 1,5–4 cm longo, sicut rachis laxe ad densiuscule piloso. Foliola 3–8-paria, remota, anguste elliptica, 3–12 × 1–5 mm, supra glabra, subtus sparse, interdum in nervo mediano tantum pilosa. Racemi pedunculo 1–1,5 cm longo suffulti, laxiuscule 2–6-flori. Bractee 2–5 mm longae, albi-nigripilosae. Calyx anguste tubulosus, 11–13 mm longus, pilis brevibus imprimis nigris albis immixtis obtectus, dentibus subulatis, 2–3,5 mm longis. Corolla flava. Vexillum 26–29 mm longum, lamina anguste elliptica, 9–10 mm lata. Alae 25–27 mm longae.



Carina 20–22 mm longa. Ovarium stipite ca. 1 mm longo suffultum, albi-pilosum. Legumen ignotum.

Plants acaulescent, with medifixed, subappressed hairs 0.3–0.6 mm long. Caudex branched. Stipules greenish, 5–10 mm long, the lower ones shorter than the upper ones, oblong-acute, adnate to the petiole for 1–2 mm, at the base densely, toward the apex more sparsely hairy. Leaves 3.5–10 cm long; petiole 1.5–4 cm long, like the rachis loosely to rather densely hairy. Leaflets in 3–8 pairs, remote, narrowly elliptic, 3–12 × 1–5 mm, at the apex rounded to obtusish, on upper side glabrous, on underside sparsely hairy or sometimes only hairy at the midvein. Peduncle 1–1.5 cm long, densely white, toward the raceme predominantly black hairy. Raceme loosely 2–6-flowered. Bracts white-membranous, 2–5 mm long, narrowly triangular, white and black hairy. Pedicels 2–3 mm long, black hairy. Calyx narrowly tubular, 11–13 mm long, slightly obliquely cut at the orifice, loosely to rather densely covered with short, predominantly black and some white hairs; teeth subulate, 2–3.5 mm long, with often densely ciliate, revolute margins. Petals yellow. Standard 26–29 mm long; blade narrowly elliptic, 9–10 mm wide, at the apex slightly emarginate, at the base gradually long narrowed. Wings 25–27 mm long; blades narrowly oblong, at the apex acutish, ca. 10 × 2.5–3 mm; auricle 0.5–0.7 mm long, claw 13–15 mm long. Keel 20–22 mm long; blades oblong-curved, with widely curved lower edge and concave to nearly straight upper edge, at the apex acutish, ca. 7 × 2.5–3 mm; auricle short, claw 14–16 mm long. Staminal-tube straightly cut. Ovary with a stipe ca. 1 mm long, white hairy; style glabrous. Legumes unknown.

Other specimen seen:

**Türkei.** B9 Agri: zwischen Agri und Doghubayazit, bei der Abzweigung nach Suluçam, 1780 m, Brachland, 17.5.1990, *Nydegger 45434* (MSB).

***Oxytropis azerbaijanica*** Podlech e sect. *Janthina*

Holotype: Iran, Prov. Azerbaijan orient.: in jugo inter Marand et Sufian, 1600–1750 m, 6.6.1971, *K.H. Rechinger 41162* (M; Iso: W).

Differt ab *A. karjaganii* Grossh. foliolis longioribus, 8–17 (nec 5–10) mm longis, petalis longioribus, mucrone carinae longiore, leguminibus distincte curvatis nec oblongis rectis.

Plant ca. 20 cm tall, acaulescent, covered with thin, mostly spreading white hairs up to 1.5, in fruit up to 2 mm long. Caudex divided, with short branches, densely covered with remnants of old leaves. Stipules whitish-hyaline, from narrowly triangular base long linear-acuminate, 7–10 mm long, adnate to the petiole for ca. 4 mm, rather densely covered with ascending hairs up to 0.6 mm long. Leaves 9–13 cm long; petiole 4–7 cm long, like the rachis with a clearly double indumentum, densely covered with subappressed, confusely curly hairs 0.1–0.4 mm long and with fewer straight, ascending to nearly spreading hairs up to 2 mm long. Leaflets in 7–9 pairs, narrowly ovate to narrowly elliptic, 8–17 × 3–5 mm, acute at the apex, on both sides densely covered with mostly straight, subappressed to slightly ascending hairs up to 2 mm long. Peduncles 9–10 cm long, erect, hairy like the rachis. Racemes (in fruit) rather loosely 8–10-flowered. Bracts whitish, linear-acute, ca. 5 mm long, white and black hairy. Pedicels ca. 2 mm long, white and black hairy. Calyx ca. 10 mm long, campanulate, rather densely covered with mostly spreading white hairs up to 1.5 mm long and with shorter, often curly and more appressed black hairs; teeth linear, acute, 6–7 mm long. Petals colour unknown. Standard 14–

15 mm long; blade widely elliptic, 8–9 mm wide, at the apex widely retuse to emarginate, at the base subabruptly and shortly narrowed. Wings 8–9 mm long; blades narrowly oblong, slightly dilated toward the obliquely emarginate apex, 10–11 × 4 mm; auricle wide, ca. 1 mm long, claw 3.5–4 mm long. Keel ca. 13 mm long; blades oblong-obovate, with in upper part slightly curved lower edge and slightly concave upper edge, 6 (without beak) × 3 mm, at the apex obliquely obtuse with a slightly curved beak ca. 2 mm long; auricle ca. 1 mm long, claw 4–5 mm long. Staminal-tube obliquely cut. Ovary shortly stipitate, long white hairy. Legumes on a stipe ca. 2 mm long, erect to spreading, oblong, distinctly curved, 15–18 mm long, ca. 5 mm high and wide, carinate ventrally, very deeply grooved dorsally, at the base nearly rounded, at the apex gradually narrowed into a straight beak 1–2 mm long, unilocular; valves thin but tough, straw-colored, densely covered with thin, mostly flexuose, ± spreading white hairs up to 2 mm long.

## 2. New combinations and new names within *Astragalus*

*Astragalus andreji-sytinii* Podlech, nom. nov. – Based on *Astragalus eugenii* Grossh. in Fl. URSS 12: 884. 1946, nom. illeg., non *A. eugeniae* B.Fedtsch., Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 8: 166. 1940.

*Astragalus austroiranicus* Podlech, nom. nov. – Based on *Astragalus minutissimus* Freyn & Bornm., Bull. Herb. Boiss. 5: 588. 1897, nom. illeg., non Weddell, Chlor. Andina 2: 257. 1861.

*Astragalus belangeri* (Kuntze) comb. nov. – Basionym: *Tragacantha belangeri* Kuntze, Revis. Gen. 2: 940. 1891 ≡ *A. kuntzei* Sheld., Minnesota Bot. Stud. 1: 123. 1894 ≡ *A. tenellus* Bunge 1868, Mém. Acad. Imp. Sci. Saint Pétersbourg 11(16): 120 et l.c. 15(1): 206. 1869, nom. illeg., non Pursh, Fl. Amer. Sept. 2: 473. 1814.

*Astragalus shahbazanicus* Podlech, nom. nov. – Based on *Astragalus drepanophorus* Bornm., Repert. Spec. Nov. Regni Veg. 50: 174. 1941, nom. illeg., non Griseb., Abh. K. Ges. Wiss. Goettingen 24: 102. 1879.

*Astragalus kirilovii* Podlech, nom. nov. – Based on *Astragalus intermedius* Kar. & Kir., Bull. Soc. Imp. Naturalistes Moscou 15: 340. 1842, nom. illeg., non Host, Fl. Austr. 2: 361. 1831.

*Astragalus mongholicus* Bunge var. *dahuricus* (DC.) Podlech, comb. nov. – Basionym: *Phaca alpina* L. var. *dahurica* DC., Prodr. 2: 273. 1825 ≡ *A. membranaceus* Bunge 1869, Mém. Acad. Imp. Sci. Saint Pétersbourg 15(1): 30. 1869, nom. illeg., non Moench, Meth.: 167. 1794.

*A. membranaceus*, which is either accepted as a species or treated as a synonym of *A. penduliflorus* Lam, is in fact only a variant of *A. mongholicus* with sparsely hairy ovaries and pods. Because of its widely sympatric distribution it is not possible to accept the two variants as subspecies.

The following two combinations are made to adapt the nomenclature of New Worlds species to the subspecies-concept used by most taxonomists in the Old World:

*Astragalus laxmannii* Jacq. subsp. **robustior** (Hook.) Podlech, comb. nov. – Basionym: *A. adsurgens* Pall. var. *robustior* Hook., Fl. Bor.-Amer. 1: 149. 1831 ≡ *A. adsurgens* Pall. subsp. *robustior* (Hook.) Welsh, Iowa State Coll. J. Sci. 37: 357. 1963.

*Astragalus laxmannii* Jacq. subsp. **viciifolius** (Welsh) Podlech, comb. nov. – Basionym: *A. adsurgens* subsp. *viciifolius* Welsh, Iowa State Coll. J. Sci. 37: 357. 1963 ≡ *A. viciifolius* Hultén, Ark. Bot. 33(B): 1. 1947, nom. illeg. [non *A. viciaefolius* DC.].

*Astragalus juratzkanus* is a widespread species of Sect. *Dissitiflori* in the Kopet Dagh range and in northeastern Iran. When describing this species Freyn & Sintenis have separated within all the cited collections of Sintenis without any sense several specimens as the basis for new taxa. So they have described 16 different taxa of this somewhat polymorphic species. After examination of all the type material only one species and one slightly different subspecies can be recognized.

To validate the name *A. juratzkanus* Freyn & Sint. for the species I add all synonyms:

*Astragalus juratzkanus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 567. 1905

= *A. neilreichianus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 571. 1905

= *A. variifolius* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 784. 1905

= *A. variifolius* var. *homoiophyllus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 786. 1905

= *A. xanthoxiphidium* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 788. 1905 ≡ *A. xanthoxiphidium* subsp. *accrescens* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 796. 1905 ≡ *A. xanthoxiphidium* subsp. *latifoliolatus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 1012. 1905

= *A. xanthoxiphidium* subsp. *accrescens* var. *latilobus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 797. 1905

= *A. xanthoxiphidium* subsp. *campylopus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 797. 1905

= *A. xanthoxiphidium* subsp. *curvicaulis* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 1014. 1905

= *A. xanthoxiphidium* subsp. *holoxanthus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 1013. 1905

= *A. xanthoxiphidium* subsp. *obscurus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 799. 1905

= *A. xanthoxiphidium* subsp. *rectus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 797. 1905

= *A. xanthoxiphidium* subsp. *rectus* var. *elongatus* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 798. 1905

= *A. xiphidioides* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 786. 1905

= *A. transhyrcanus* Popov, Bot. Mater. Gerb. Bot. Inst. Komarova Akad. Nauk SSSR 10: 10. 1947

The following subspecies differs from the type subspecies only by the legumes densely covered with asymmetrically medifixed white hairs up to 1.2 mm long, with the longer point straight to curved or even hooked and with much fewer distinctly shorter, ± symmetrically medifixed black hairs. In all other characters it falls within the variability of the species.

*A. juratzkanus* subsp. **brotherusii** (Freyn & Sint.) Podlech, comb. nov. – Basion.: *A. xanthoxiphidium* Freyn & Sint. subsp. *brotherusii* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 1015. 1905

= *A. ufraensis* Freyn & Sint., Bull. Herb. Boiss., sér. 2, 5: 568. 1905

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Autor(en)/Author(s): Podlech D.

Artikel/Article: [New Astragali and Oxytropis from North Africa and Asia, including some new combinations and remarks on some species 135-174](#)