

## New species of *Astragalus* L. (Leguminosae), mainly from Iran

D. Podlech\*

### Abstract

During the work on *Astragalus* for "Flora Iranica" and the neighbouring countries 34 new species of *Astragalus* could be discovered among the rich material collected in recent times. They belong to the following sections: Sect. *Brachylobium*: *A. abditus*, *A. aestivorum*, *A. bojnurdensis*; Sect. *Caprini*: *A. attarae*; Sect. *Dissitiflori*: *A. aestimabilis*, *A. submontanus*; Sect. *Erioceras*: *A. nubicola*; Sect. *Hymenostegis*: *A. austrokhoreasanicus*, *A. vernaculus*; Sect. *Hypoglottidei*: *A. dengolanensis*; Sect. *Incani*: *A. alavaanus*, *A. caespititius*, *A. divandarrehensis*, *A. diversus*, *A. dopolanicus*, *A. gulul-saranii*, *A. kuhidashtensis*, *A. nalandicus*, *A. paucifoliolatus*; Sect. *Malacothrix*: *A. angustistipulatus*, *A. bajgiranensis*, *A. brevitomentosus*, *A. heterophyllus*, *A. marandicus*, *A. mutuus*, *A. roessleri*, *A. sarikamishensis*, *A. shuturunkuensis*; Sect. *Mesocarpon*: *A. pseudoquisqualis*; Sect. *Onobrychoidei*: *A. sufianicus*; Sect. *Plagiophaca*: *A. turgidus*; Sect. *Polycladus*: *A. pseudobagramiensis*; Sect. *Stereothrix*: *A. pseudocapito*; Sect. *Trachycercis*: *A. pseudo-shebarensis*. *A. pseudopendulina* KAMELIN is renamed because of illegitimacy: *A. neplii*.

**Keywords:** Leguminosae, *Astragalus*; Flora of Iran; new species.

### Zusammenfassung

Im Verlauf der Bearbeitung der Gattung *Astragalus* für die "Flora Iranica" und die angrenzenden Gebiete konnten 34 neue Arten der Gattung aufgefunden werden, die hier beschrieben werden. Sie gehören zu folgenden Sektionen: Sect. *Brachylobium*: *A. abditus*, *A. aestivorum*, *A. bojnurdensis*; Sect. *Caprini*: *A. attarae*; Sect. *Dissitiflori*: *A. aestimabilis*, *A. submontanus*; Sect. *Erioceras*: *A. nubicola*; Sect. *Hymenostegis*: *A. austrokhoreasanicus*, *A. vernaculus*; Sect. *Hypoglottidei*: *A. dengolanensis*; Sect. *Incani*: *A. alavaanus*, *A. caespititius*, *A. divandarrehensis*, *A. diversus*, *A. dopolanicus*, *A. gulul-saranii*, *A. kuhidashtensis*, *A. nalandicus*, *A. paucifoliolatus*; Sect. *Malacothrix*: *A. angustistipulatus*, *A. bajgiranensis*, *A. brevitomentosus*, *A. heterophyllus*, *A. marandicus*, *A. mutuus*, *A. roessleri*, *A. sarikamishensis*, *A. shuturunkuensis*; Sect. *Mesocarpon*: *A. pseudoquisqualis*; Sect. *Onobrychoidei*: *A. sufianicus*; Sect. *Plagiophaca*: *A. turgidus*; Sect. *Polycladus*: *A. pseudobagramiensis*; Sect. *Stereothrix*: *A. pseudocapito*; Sect. *Trachycercis*: *A. pseudo-shebarensis*. *A. pseudopendulina* KAMELIN ist illegitim, die Art wird umbenannt in *A. neplii*.

### Introduction

During the revisional work on the genus *Astragalus* from Iran and neighbouring countries, especially for the treatment in Flora Iranica, several new species came to light, which are described here.

### Material and methods

Most of the new species were found among the rich material of the Iranian herbaria at the Tehran University [TUH], the Research Institute of Forest and Rangelands [TARI]

\* Prof. Dr. Dietrich PODLECH, Department Biologie I, Faculty of Science, Ludwig-Maximilians-Universität München, Menzingerstraße 67, D-80638 München, Germany.

and the Plant Pest & Diseases Research Institute, Evin [IRAN] but also among hitherto unnamed material in the herbaria of the Botanische Staatssammlung München [M], the Institute of Systematic Botany, University of München [MSB], the Naturhistorisches Museum Wien [W], the Botanischer Garten Berlin [B], the Royal Botanic Garden Edinburgh [E], the Conservatoire Botanique Genève [G], the Royal Botanic Gardens Kew [K], the Komarov Botanical Institute RAS, Petersburg [LE] and Akad. Nauk Pruhonice [PR]. All abbreviations follow HOLMGREN & HOLMGREN (2003).

***Astragalus abditus* PODLECH, sp.n. (Sect. *Brachylobium*)**

Holotype: Iran, Prov. Esfahan, Bakhtiari country, Chehel Dokhtaran Kuh, northern side, 3100 m, 32°55' N, 50°36' E, 2.6.1959, P. Wendelbo 1769 [BG; iso MSB].

Differt ab *A. zerdanus* BOISS. planta breviter caulescens (nec acaulescens), caule 1–3 cm longo, stipulis liberis, dense pilosis (nec distincte vaginato-connatis, glabris vel margine ciliatis), foliis 6–8 cm (nec 1–3 cm) longis, 5–10- (nec 5–7-) jugis et foliolis 3–8 × 1–3 mm (nec 1–3 × 0.5–1.5 mm).

Plants 12–15 cm tall, shortly caulescent, covered with appressed to subappressed white, in the inflorescence also black hairs 0.2–0.3 mm long. Rootstock repeatedly divided with short to elongated blackish branches. Stems 1–3 cm long, densely hairy. Stipules 2–3 mm long, narrowly triangular to triangular, adnate to the petiole up to 1 mm, otherwise free from each other, densely hairy. Leaves 6–8 cm long; petiole 3–4 cm long, like the rachis very slender, flexuose-curved, loosely to rather densely hairy. Leaflets in 7–10 pairs, narrowly elliptic, 3–8 × 1–3 mm, obtuse-tipped to slightly emarginate, on both sides loosely to rather densely covered with appressed to subappressed hairs, often folded. Peduncles 7–9 cm long, ascending, very slender, hairy like the rachis, toward the raceme with some black hairs. Raceme short, densely 6–10-flowered. Bracts whitish-membranous, narrowly triangular, ca. 1 mm long, with white or white and black hairs. Pedicels very short, mostly black hairy. Calyx campanulate, ca. 3 mm long, rather densely to densely covered with subappressed to ascending dark brown to blackish hairs; teeth narrowly triangular, ca. 1 mm long. Petals probably lilac, dirty yellow when dry. Standard 6–7 mm long; limb widely elliptic to orbicular, ca. 4 mm wide, slightly emarginate, subabruptly passing into the short, cuneate claw. Wings 6–7 mm long; limbs narrowly elliptic to obovate, round-tipped, 3.5–4.5 × 1.5–2 mm; auricle minute, ca. 0.3 mm long, claw 2–2.5 mm long. Keel 5–6 mm long; limbs obliquely elliptic-triangular, with widely curved lower edge and slightly concave upper edge, subacute-tipped, 3–3.5 × 2 mm; auricle minute, claw 2–2.5 mm long. Stamen-tube truncate at the mouth. Ovary sessile, white hairy at the ventral side, otherwise glabrous. Ovules 6–8. Legumes unknown.

Additional specimens seen: Iran. Yazd: W. of Yazd, Tezerjan, Barf-Khaneh, 3350 m, 23.6.1975, Foroughi & Assadi 18019 [E, TARI].

***Astragalus aestivorum* PODLECH, sp.n. (Sect. *Brachylobium*).**

Holotype: Iran, Prov. Mazandaran, Nezva Kuh, at the western top, northern side, 3300 m, 35°59' N, 53°10' E, 8.7.1959, P. Wendelbo 1284 [W].

Differt ab *A. bashmensis* MAASSOUMI planta acaulescens, stipulis brevissime connatis vel liberis (nec alte connatis), dense pilosis (nec glabris vel margine tantum ciliatis),

foliis 3–6 cm longis, petiolo 2–3 cm longo suffultis (nec 2–3 cm longis pedunculo brevissimo suffultis), foliolis anguste ellipticis, 3–6 × 1–1,8 mm (nec ellipticis vel ovatis, 2–5 × 1–3 mm) et pedunculis 6–10 cm (nec 1–3,5 cm) longis.

Plants 8–10 cm tall, acaulescent, caespitose, covered with appressed to subappressed white, in the inflorescence also black hairs. Rootstock strongly branched, with short to elongated stolons. Stipules ca. 2 mm long, triangular to ovate, shortly adnate to the petiole and very shortly connate behind the stem, the upper ones up to 3 mm long, narrowly triangular, free from each other, all densely covered with subappressed hairs. Leaves 3–6 cm long; petiole 2–3 cm long, like the rachis slender, loosely covered with appressed white hairs 0.1–0.2 (–0.3) mm long. Leaflets in 6–7 pairs, narrowly elliptic, 3–6 × 1–1.8 mm, obtuse to slightly emarginate at the tip, covered on the upper side sparsely to loosely with subappressed to ascending hairs, on the underside loosely to rather densely with appressed to subappressed hairs ca. 0.3 mm long. Peduncles 6–10 cm long, slender, ascending, sparsely to loosely covered with appressed white hairs 0.1–0.2 mm long, in the upper part with some black hairs mixed in. Raceme capitate to ovoid, densely 4–8-flowered. Bracts whitish-membranous, 1–1.5 mm long, narrowly ovate, acute, with black and white hairs to nearly glabrous. Calyx ca. 4 mm long, campanulate, rather densely covered with subappressed to slightly ascending white and black hairs 0.2–0.3 mm long; teeth narrowly triangular, ca. 1.5 mm long. Petals lilac, dirty yellow when dry. Standard ca. 8 mm long; limb elliptic, ca. 4 mm wide, retuse at the tip, with distinct, short claw. Wings ca. 7 mm long; limbs narrowly elliptic, round-tipped, 4.5 × 1.5 mm; auricle minute, ca. 0.3 mm long, claw 3 mm long. Keel ca. 7 mm long; limbs obliquely obovate, with in upper part widely rectangular-curved lower edge and slightly concave upper edge, acute-tipped, 4 × 2 mm; auricle minute, claw 3 mm long. Stamen-tube slightly obliquely cut at the mouth. Ovary sessile, hairy; style glabrous. Legumens unknown.

***Astragalus bojnurdensis*, PODLECH, sp.n. (Sect. *Brachylobium*)**

Holotype: Iran, Prov. Khorasan, mountains N. of Bojnurd, III.1968 (pers. calendar), Gazeri & Sheikh 738 [TARI].

Differt ab *A. minutulus* MAASSOUMI caulibus rhachidibusque pilis patentibus (nec appressis) obtectis, calyce ca. 10 mm longo, dentibus ca. 5 mm longis (nec 5–6 mm longo, dentibus 2 mm longis) et vexillo 10 mm longo, apicem versus lingulatim attenuato (nec ca. 7 mm longo, elliptico).

Plants ca. 6 cm tall, shortly caulescent. Stems ca. 1.5 cm long, rather densely covered with stiff, spreading, white hairs 0.2–0.5 mm long. Stipules green, 2–2.5 mm long, triangular, very shortly adnate to the petiole, vaginate-connate up to the middle, rather densely covered with ascending hairs. Leaves 2–3 cm long; petiole 0.8–1 cm long, like the rachis slender, loosely hairy like the stem. Leaflets in 7–8 pairs, elliptic, 1.5–4 × 0.7–2 mm, subobtuse to subacute, on both sides loosely to rather densely covered with subappressed to ascending, straight hairs 0.4–0.8 mm long. Peduncles 2.5–3.5 cm long. Racemes shortly ovoid, densely many-flowered. Calyx ca. 10 mm long, campanulate, nearly hyaline with 5 nerves, loosely covered with ± spreading white hairs up to 1 mm long; teeth subulate, ca. 5 mm long, as long as the tube. Petals violet. Standard ca. 10 mm long; limb ca. 3.5 mm wide, ovate, slightly tongue-like narrowed above the

middle, emarginate, cuneately narrowed at the base. Wings 8 mm long; limbs narrowly oblong, slightly dilated toward the deeply incised tip,  $4 \times 1$  mm; auricle ca. 0.5 mm long, claw 4 mm long. Keel 7 mm long; limbs oblique-elliptic, with in the middle slightly gibbous lower edge and convex upper edge, acute-tipped; auricle 0.3 mm long. Ovary sessile, hairy; style very slender, glabrous. Legumes unknown.

Additional specimen seen: Iran. Khorasan: mountains N. of Bojnurd, iii.1968 (pers. calendar), Gazeri & Sheikh 738 [TARI]; Bojnurd, Shaghan, 1900 m, 26.5.1967 (pers. calendar), Borani & Ramasani 383 [TARI].

***Astragalus attarae* Podlech, sp.n. (Sect. *Caprini*)**

Holotype: Iran, Prov. Khorasan: 10 km from Mashhad toward Kalat-e Naderi, 1500 m, 9.5.2001, A. Ghahreman, F. Attar & al. 27520 [TUH; iso MSB].

Named after Mrs. Farideh Attar, Tehran University, specialist of the genus *Cousinia* in Iran.

Inter speciebus glaberrimis subsectionis *Purpurascentes* insignis propter foliis tantum (4-) 6-8-jugis, foliolis orbicularibus et ovariis leguminibusque longe stipitatis.

Plants 12-15 cm tall, acaulescent, completely glabrous. Rootstock with short branches, covered in upper part with remnants of old stipules and petioles. Stipules membranous, 5-6 mm long, triangular. Leaves 12-15 cm long; petiole 3-4 cm long. Leaflets in (4-) 6-8 pairs, remote, orbicular to cuneate-orbicular,  $7-12 \times 7-12$  mm, rounded to slightly retuse at the tip. Peduncles 2-3 cm long. Raceme loosely 5-6-flowered. Bracts whitish-membranous, linear-acute, 5-8 mm long. Pedicels 3-4 mm long. Calyx greenish, 12-13 mm long, tubular; teeth narrowly triangular, unequal, 2-4 mm long. Petals yellow. Standard ca. 19 mm long, distinctly recurved in the middle; limb ca. 8 mm wide, elliptic, slightly emarginate, gradually narrowed at the base. Wings ca. 18 mm long; limbs narrowly oblong, round-tipped,  $8 \times 2.5$  mm; auricle ca. 2.5 mm long, claw 10 mm long. Keel 16 mm long; limbs obliquely obovate, with in upper part nearly rectangularly curved lower edge and slightly concave upper edge, furnished with minute, unicellular teethlets,  $7 \times 3.5$  mm; auricle indistinct, claw ca. 9 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 5 mm long. Legumes with a stipe 5-7 mm long, narrowly ellipsoid, 25-30 mm long, 7-10 mm high and 7-8 mm wide, carinate ventrally,  $\pm$  flattened dorsally, with a narrowly triangular, bent beak 3-4 mm long, incompletely bilocular (septum 1/3 of the fruit's height).

Additional specimen seen: Iran. Khorasan: Kashmar, mt. Bezgh, 1600 m, 9.5.2001, Ghahreman, Attar & al. 27429 [TUH].

***Astragalus neplii* PODLECH, nom.n. (Sect. *Caprini*)**

Based on *Astragalus pseudopendulina* KAMELIN, Bot. Dzhurn. 59: 1753 (1974) (non *A. pseudopendulinus* SIRJ. & RECH.f., 1953). Holotype: Tadzhikistan austr., Gardani-ushti, 2200 m, 4.5.1949, Nepli [LE; iso LE].

***Astragalus aestimabilis* PODLECH, sp.n. (Sect. *Dissitiflori*)**

Holotype: Iran, Prov. Kordestan, ca. 100 km n Kermanshah by the last pass before Sanandaj,  $35^{\circ}05' N$ ,  $46^{\circ}55' E$ , 1700 m, 12.6.1959, P. Wendelbo 1939 [BG; iso W].

Differt ab *A. nitidissimus* GREUTER & BURDET foliis 4–6-jugis (nec 2–4-jugis), foliolis remotissimis, calyce 12–14 (nec 10–12) mm longo, pilis albis ascendentibus usque ad 1 mm longis (nec partim patentibus usque ad 1,5 mm longis) et nigris subappressis 0,05–0,3 mm (nec 0,2–0,5 mm) longis obecto, alis carinaque viridiusculis (nec petalis omnino pallide violaceis) et leguminibus 15–17 mm longis, ca. 8 mm altis et 6 mm latis (nec 12–20 mm longis, 4–5 mm altis, 3–4 mm latis, pilis flexuosis albis ca. 2 mm longis et insuper pilis subappressis nigris 0,2–0,5 mm longis obectis (nec pilis albis ca. 3 mm longis tantum obectis).

Plants suffrutescens, 15–35 cm tall, covered in vegetative parts with  $\pm$  medifixed, appressed hairs. Stems at the base ligneous, branched, covered with grey-brown bark, stems of the current year 2–7 cm long, branched with short, non-flowering side-branches, very densely covered with white hairs 0.4–0.8 mm long, at the nodes with few black hairs mixed in. Stipules narrowly triangular to triangular, ca. 3 mm long, very shortly adnate to the petiole, densely white hairy with some black hairs mixed in. Leaves 4–7 cm long, in non-flowering side-branches ca. 3 cm long; petiole 0.6–1 cm long, including the rachis densely hairy like the stem. Leaflets in 4–6 pairs, linear, 10–20  $\times$  1–2.5 mm, obtuse to subacute at the tip, on both sides rather densely covered with white hairs 0.8–1 mm long. Peduncles 9–14 cm long, rather densely to densely white hairy like the stem, glabrescent with age. Racemes (in fruit) remotely 8–10-fruited; axis covered with short, appressed white and black hairs. Bracts whitish-membranous, 1.5–2 mm long, white and black hairy, at the margins also with basifixed hairs. Pedicels 1–2 mm long, white and black hairy. Calyx 12–14 mm long, tubular, slightly obliquely gibbous at the base, obliquely cut at the mouth, densely covered with ascending, subbasifixed to basifixed white hairs ca. 1 mm long and with short, subappressed black hairs 0.05–0.3 mm long; teeth narrowly triangular, ca. 2 mm long, densely white hairy on the inner side. Petals different in colour, standard bluish-violet, wings greenish-white, keel greenish. Standard ca. 20 mm long. Wings ca. 19 mm long. Keel ca. 18 mm long. Legumes sessile, erect, ellipsoid-oblong, 15–17 mm long, 8 mm high, 6 mm wide, rounded ventrally and dorsally, subabruptly attenuate into a straight beak ca. 2 mm long, bilocular; valves coriaceous, very densely villous with ascending, subbasifixed to basifixed, flexuose, curly white hairs up to 2 mm long and with subappressed black hairs 0.2–0.5 mm long.

***Astragalus submontanus* PODLECH, sp.n. (Sect. *Dissitiflora*)**

Holotype: Afghanistan, Prov. Jawz Jan, Darrah-e-Anguschte Schah, 15 km S Sangcharak, 1800–1900 m, 2.8.1969, H. Freitag 6573 [MSB; iso KAS].

Differt ab *A. kudrjaschovii* KOROL. foliolis anguste obovatis usque ad oblongis, 4–8  $\times$  2–3 mm (nec linearibus, 4–12  $\times$  0,3–1 mm), pedunculis omnino pilis appressis obectis (nec racemum versus pilis ascendentibus ad patentibus obectis), dentibus calycis 3–4 mm (nec 2–2,5 mm) longis, et leguminibus pilis basifixis vel subbasifixis albis obectis, rostro uncinato ca. 4 mm longo (nec pilis asymmetrice bifurcatis albis obectis, pilis nigris brevibus immixtis, rostro stricto vel leviter curvato 10–5 mm longo).

Plants at least 30 cm tall (only upper part known), covered with  $\pm$  medifixed, appressed hairs with the exception of the inflorescence. Stem very densely covered with white, at the nodes also black hairs 0.6–0.8 mm long. Stipules ca. 3 mm long, from a wide base

narrowly triangular-acuminate, adnate to the petiole for ca. 1 mm, Additionalwise free, loosely white and black hairy. Leaves 4–6 cm long. sessile; rachis slender, densely hairy like the stem. Leaflets in 6–8 pairs, narrowly obovate to oblong,  $4-8 \times 2-3$  mm, round-tipped, on the upper side sparsely to loosely, on the underside densely covered with hairs 0.8–1 mm long. Peduncles 10–12 cm long, white hairy like the stem but below the raceme also with some black hairs mixed in. Racemes 6–11 cm long, loosely many-flowered; axis densely covered with basifixed to subbasifixed, spreading white hairs ca. 1 mm long and with  $\pm$  medifixed, appressed black hairs 0.2–0.3 mm long. Bracts ovate to narrowly triangular, 2–3 mm long, with  $\pm$  spreading white and black hairs. Pedicels very short, flowers pendulous. Calyx tubular, 15–16 mm long, densely covered with basifixed white hairs 1–2 mm long and with subappressed to ascending, basifixed black hairs 0.2–0.4 mm long; teeth subulate, 3–4 mm long, densely white hairy on innerside. Petals yellow. Standard ca. 21 mm long; limb ca. 9 mm wide, slightly rhombic-ovate, emarginate, at the base subabruptly contracted into the rather long claw. Wings ca. 21 mm long; limbs strongly spathulate-obovate, widely round-tipped,  $7 \times 4$  mm; auricle ca. 0.3 mm long, claw ca. 14 mm long, very slender. Keel ca. 19 mm long; limb oblique-obovate to semicircular, with widely rectangular-curved lower edge and  $\pm$  straight upper edge, subobtuse-tipped,  $5.5 \times 3.5$  mm; auricle ca. 0.5 mm long, claw ca. 14 mm long. Stamen-tube truncate at the mouth. Legumes (very immature) sessile, at least 11 mm long et 3 mm high, with a hooked beak ca. 4 mm long, densely covered with basifixed or subbasifixed, tangled white hairs 0.8–1.2 mm long.

***Astragalus nubicola* PODLECH, sp.n. (Sect. *Erioceras*)**

Holotype: Iran, Prov. Mazanderan: Shahpasand to Sharud above summit of pass, 2000–3200 m, on limestone wet from occasional rain and daily clouds, 11.5.1966, P. Furse 7207 [K].

Differt ab *A. harsukhianus* RECH.f. foliis 1–3 (nec 3–6) cm longis, pedunculis 0,5–1,5 (nec 1,5–5,5) cm longis, dense appresse (nec sparse usque ad laxe oblique usque ad horizontaliter) pilosis, calyce pilis albis nigrisque basifixis (nec albis subbasifixis et nigris medifixis) oblecto et vexillo ca. 20 mm longo et 8–9 mm lato apice rotundato (nec 23–24 mm longo et 7 mm lato, apice emarginato).

Plants 5–8 cm tall, acaulescent to subacaulescent, densely caespitose. Rootstock shortly branched. Stems several, branched at the base, ascending to erect if well developed, up to 3 cm long, angular-sulcate, very densely covered with medifixed, appressed white hairs 0.6–1 mm long. Stipules ca. 3 mm long, adnate to the petiole for 1–1.5 mm, the free tips narrowly triangular to triangular, densely covered with appressed white hairs. Leaves 1–3 cm long; petiole 0.5–1.5 cm long, like the rachis sulcate adaxially, densely to very densely hairy like the stem. Leaflets in 3–4 pairs, narrowly elliptic to narrowly cuneate-obovate,  $4-12 \times 1-2$  mm, subobtuse to subacute at the tip, slightly cucullate-folded in upper part, on both sides densely to very densely covered with medifixed, appressed to subappressed hairs ca. 1 mm long. Peduncles 0.5–1.5 cm long, densely hairy like the stem, below the raceme sometimes with few black hairs mixed in. Racemes short, rather densely 8–15-flowered. Bracts whitish-membranous, 2–3 mm long, narrowly triangular to ovate, white and black hairy. Pedicels c, 1 mm long, hairy. Calyx 13–15 mm long, tubular, obliquely cut at the mouth, rather densely covered, with  $\pm$  spreading, basifixed white hairs 1–2 mm long and with somewhat shorter black hairs;

teeth subulate, 2.5–4 mm long, white hairy on inner side. Petals cream to pink, fading yellowish. Standard 23–24 mm long; limb 8–9 mm wide narrowly obovate, slightly constricted at the middle, round-tipped, subabruptly constricted at the base into the short claw. Wings 18–20 mm long; limbs elliptic, round-tipped, ca.  $6 \times 3$  mm; auricle ca. 1 mm long, claw 12–14 mm long. Keel 17–18 mm long; limbs obliquely obovate, with widely curved lower edge and slightly sigmoid upper edge, subacute,  $5 \times 2.5$  mm; auricle short, claw 12–14 mm long. Stamen-tube truncate at the mouth. Ovary subsessile, narrowly ellipsoid, white hairy; style glabrous. Legumes unknown.

***Astragalus austrokhorasanicus* PODLECH, sp.n. (Sect. *Hymenostegis*)**

Holotype: Iran, Prov. Khorasan, Chehel-dokhtar, Beh-sefid towards Dasht-abeh (protected region), steppe, 1550 m, 23.7.1975, M. Moussavi & Karagar 33601-E [W].

Differt ab *A. straussii* BORNH. stipulis 10–12 (nec 12–23) mm longis, rhachide pilis subappressis ad patentibus 0,3–1 mm longis et insuper paucis usque ad 2 mm longis (nec pilis 0,3–0,5 mm et insuper paucis usque ad 1 mm longis) oblecto, pedunculo dense tomentoso, pilis crispatis 0,3–0,6 mm longis et insuper  $\pm$  rectis usque ad 3 mm longis oblecto (nec pilis subappressis usque ad ascendentes vel partim patentibus  $\pm$  rectis 0,2–0,8 mm longis et paucioribus usque ad 2,5 mm longis oblecto), racemis breviter cylindratis, ca.  $7 \times 4$  cm (nec  $3-5 \times 2-3$  cm); bracteis florigeris in linea media et apicem versus pilosis (nec glabris vel margine sparse ciliatis) et vexillo oblongo, apice subobtusum, non constrictum (nec panduriforme, medio constrictum).

Plants suffruticose, ca. 20 cm tall, spiny. Stems ca. 10 cm long, the older parts ligneous, densely covered with blackish remnants of old leaves, branched, parts of the current year 1–2 cm long. Stipules hyaline-membranous, with netlike nerves in lower part, therefore netlike disintegrating with age, 10–12 mm long, adnate to the petiole for 5–6 mm, shortly connate behind the stem, ciliate at the margins with hairs 0.5–1 mm long. Leaves 4–9 cm long; petiole 1.5–3 cm long, like the rachis densely covered with tangled, appressed to spreading hairs 0.3–1 mm long and with much fewer hairs up to 2 mm long, pungent. Leaflets in 5–7 pairs, narrowly elliptic, (6–)  $10-20 \times 2-5$  mm, acuminate, with a pungent cusp 1–2 mm long, on the upper side strongly nerved, on both sides densely covered with subappressed to ascending hairs 0.5–1.2 mm long, the shorter ones often curly and tangled. Peduncles 6–11 cm long,  $\pm$  as long as leaves, densely tomentose, with subappressed to spreading curly, tousled hairs 0.2–0.6 mm long and with fewer,  $\pm$  straight hairs up to 3 mm long. Racemes shortly cylindrical, ca. 7 cm long, 4 cm wide, densely many-flowered. Bracts mostly persistent, subglumaceous, 8–15 mm long, 4–8 mm wide, ovate-acuminate, with a non-pungent cusp 2–3 mm long, hairy along the midline and toward the tip. Calyx ovoid-inflated, 16–17 mm long, 5–6 mm in diameter, pale yellowish with partly purple teeth, loosely covered with tangled spreading hairs 0.2–0.5 mm long and with ascending to spreading straight hairs 1.5–4 mm long; teeth subulate, 6–8 mm long. Petals with limbs pink to red or pale purple, the claws pale yellowish. Standard ca. 20 mm long; limb ovate, ca. 7 mm wide in upper part and 10 mm wide near the base, subobtusum, at the base widely and sharply angular-hastate, abruptly contracted into the short claw. Wings ca. 18 mm long; limbs narrowly elliptic, obtuse-tipped,  $7 \times 2$  mm; auricle ca. 0.5 mm long, claw 10–11 mm long. Keel ca. 15 mm long; limbs obliquely obovate, with in upper part widely curved lower edge and slightly convex upper edge, subacute-tipped, ca.  $5 \times 2.5$  mm; auricle minute, claw

ca. 10 mm long. Ovary sessile, densely hairy; style glabrous. Stamen-tube slightly obliquely cut at the mouth. Legumes 7–8 mm long, 1.5–2 mm high and 3–4 mm wide, densely covered with subappressed hairs. Seed one, 3.5–4.5 × 2.5–2.8 mm, brown, pitted.

***Astragalus vernaculus* PODLECH, sp.n. (Sect. *Hymenostegis*)**

Holotype: Iran, prov. Esfahan, bei Najafabad, zwischen Esfahan und Khorramabad, 30.5.1977, Manuchehri 1010 [MSB].

Differt ab *A. chrysostachys* Boiss. stipulis bracteisque chartaceo-glumaceis (nec hyalino-membranaceis), rhachide pilis oblique patentibus (nec appressis usque ad subappressis) obtecto, foliolis pilis confuse subappressis usque ad oblique patentibus (nec appressis) obtectis, pedunculis pilis subappressis usque ad patentibus (nec appressis) obtectis et vexillo ovato ad elliptico, non vel vix constricto, basi obtuso vel vix angulato (nec oblongo-panduriforme, distincte constricto, basi arcte angulati-auriculato).

Plants suffruticose, caespitose, spiny, 7–30 cm tall. Stems 3–12 cm long, the lower parts ligneous, covered with dark brownish bark and remnants of old leaves, branched, parts of the current year 1.5–3 cm long, nearly glabrous, completely covered by stipules. Stipules membranous, hyaline towards the tip, 13–15 mm long, adnate to the petiole for 5–8 mm, connate behind the stem for 1–4 mm, the free tips narrowly triangular-acuminate, glabrous or ciliate at the margins with hairs 0.7–1.2 mm long. Leaves 3–5.5 (–8) cm long; petiole 1–2.5 cm long, like the rachis rather densely to very densely covered with ascending hairs 0.3–0.8 (–1) mm long, pungent. Leaflets in 5–8 (–10) pairs, narrowly elliptic, 6–15 × 1.5–3.5 mm, acuminate, with a pungent cusp 0.5–1 mm long, on both sides rather densely to densely covered with subappressed to ascending, tangled hairs 0.3–0.6 mm long. Peduncles 1.5–6 (–14) cm long, ± erect, densely covered with subappressed to spreading, often tangled hairs 0.3–1 mm and mostly also with much fewer hairs up to 2 mm long. Racemes ovoid to cylindric, 3–8 cm long and 2–2.5 cm in diameter, rather densely to densely many-flowered. Bracts pale brownish, chartaceous to thinly glumaceous, 10–17 mm long and 4–7 mm wide, narrowly ovate-acuminate, glabrous. Calyx 13–17 mm long, at first tubular, 2.5–3 mm wide, later on inflated and 4–5 mm wide, pale yellowish or creamy, rather densely covered with ± spreading hairs 3–4.5 mm long; teeth subulate, 6–7 mm long. Petals creamy to pale yellow. Standard 18–21 mm long; limb 5–7 mm wide, ovate to elliptic, rounded to emarginate, not or scarcely constricted in the lower part, at the base obtusely to slightly angularly passing into the short cuneate claw. Wings 15–19 mm long; limbs narrowly oblong to narrowly elliptic, subacute-tipped, 5–8 × 1.6–3 mm; auricle minute, ca. 0.3 mm long, claw 9–11 mm long. Keel 12–16 mm long; limbs obliquely obovate; with widely curved lower edge and slightly convex upper edge, subacute-tipped, 4–5 × 2.5 mm; auricle minute, claw 8–11 mm long. Stamen-tube truncate at the mouth. Ovary ca. 5 mm long, ellipsoid, very densely ascendingly hairy; style hairy in the lower third. Legumes subsessile, ellipsoid, ca. 5 mm long, 1.5 mm high, carinate ventrally, flattened dorsally, unilocular; valves densely covered with appressed hairs ca. 0.5 mm long. Seed only one, 3 × 2 mm.

Additional specimens seen: Turkey. Erzurum: oberhalb Orman Evi, 21 km NW Oltu, 2000 m, 8.7.1992, Nydegger 46632 [MSB]. – Dutlu Dağı NW Oltu, 16.7.1989, Nydegger 44454 [MSB]. – 26 km from Tortum to Oltu, W. side of pass, 2200 m, 29.7.1966, Davis 47545 [M].



Iran. Azarbaijan Garbi: inter Oshnoviyeh et Naqadeh, 1500 m, 8.7.1974, Rechinger 49023 [M]. – Kordestan; in mt. Avroman, vi.1867, Haussknecht [M]. – 47 km W Bijar versus Divandarreh, 2000 m, 2.7.1971, Rechinger 42649 [M]. – Lorestan: Oshtoran Kuh, Saravand, 20 km SE Dow Rud, 2000–2200 m, 16.6.1974, Rechinger 48029 [M]. – Not exactly to locate: in provincia Aderbidjan, Aucher 4403 (MSB, OXF, W).

***Astragalus dengolanensis* PODLECH, sp.n. (Sect. *Hypoglottidei*)**

Holotype: Iran, Kordestan, Dengolan, ca. 50 km east of Sanandaj, 28.6.1965, G.F. Ledingham, D. Zohary & al. 4249 [W].

Differt ab *A. pseudofragrans* C.C.Towns. caule e stolone debile ascendente usque ad 10 cm longo (nec erecto, 2–3 cm longo), foliis 3–6 cm (nec 2–3,5 cm) longis, bracteis florigeris anguste triangularibus vel ovato-acuminatis 1–1,5 mm longis (nec subulatis, 2–3 mm longis), calyce 3–4 mm (nec ca. 7 mm) longo, albo-nigro-piloso (nec mere nigro-hirsuto), vexillo ca. 7 mm longo apice obtuso (nec ca. 10,5 mm longo apice distincte emarginato, leguminibus ca. 5 mm longis rostro ca. 1 mm longo (nec 8 mm longis rostro 3–4 mm longo).

Plants 10–15 cm tall. Rootstock with long, slender stolones. Stems ascending, 8–10 cm long, rather densely covered with appressed white hairs 0.2–0.3 mm long, at the nodes with few black hairs mixed in. Stipules membranous to slightly greenish, 3–6 mm long, nearly free from the petiole, behind the stem vaginate-connate up to the middle, with narrowly triangular free tips, sparsely white hairy, sometimes with few black hairs mixed in. Leaves 3–6 cm long; petiole 1–1.5 cm long, including the rachis hairy like the stem. Leaflets in 5–8 pairs, narrowly elliptic, 5–9 × 2–4 mm, subobtuse to subacute at the tip, on both sides rather densely covered with subappressed hairs ca. 0.3 mm long. Peduncles 1.5–3 cm long, rather densely covered with white, toward the raceme increasingly with black hairs 0.2–0.3 mm long. Racemes short, densely 6–10-flowered. Bracts whitish-membranous, 1–1.5 mm long, narrowly triangular to ovate-acuminate, white and black hairy. Pedicels ca. 1 mm long, white and black hairy. Calyx 3–4 mm long, campanulate, loosely covered with appressed to subappressed white and black hairs ca. 0.3 mm long; teeth subulate, 1–1.5 mm long. Petals yellowish, at least when dry. Standard ca. 7 mm long; limb 3 mm wide, slightly rhombic-obovate, obtuse-tipped. at the base gradually narrowed into a short claw. Wings ca. 6–6.5 mm long; limbs narrowly oblong, obtuse-tipped, 3–3.5 × ca. 1 mm; auricle minute, ca. 0.3 mm long, claw 3 mm long. Keel 5–5.5 mm long; limbs obliquely elliptic, with widely curved lower edge and ± straight upper edge, subacute-tipped, ca. 2.5 × 1 mm; auricle indistinct, claw 3 mm long. Stamen-tube ± truncate at the mouth. Ovary with a stipe ca. 0.5 mm long, densely hairy; style glabrous. Legumes sessile, ellipsoid, ca. 5 mm long, 2 mm high and 3 mm wide, obtusely carinate ventrally, widely grooved dorsally, with a beak ca. 1 mm long, nearly fully bilocular; valves with densely covered with subappressed white hairs ca. 0.5 mm long.

***Astragalus alavaanus* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Prov. Zanjan, hills above the village of Dashti on the lower slopes of Qeydar mountain, about 35 km from Sultanieh, 2200–2600 m, 3.7.1974, R. Alava 14263 [TUR]; iso F. Termeh & M. Moussavi 16485-E [IRAN, MSB, W].

Plantae in partibus vegetativis subglabris, pilis medifixis, appressis albis 0,2–0,3 mm longis. Stipulis 5–6 mm longis. Folia 10–15-juga rhachide glabra. Foliola elliptica

6–9 × 4–7 mm, glabra vel subtus sparsissime pilosa. Pedunculi 8–11 cm longi. Bracteae florigeræ ca. 1 mm longæ. Calyx ca. 9 mm longus, appresse nigro-pilosus. Vexillum ca. 20 mm longum et 7 mm latum. Ovarium sessile, anguste oblongum, albo-pilosum.

Plants ca. 15 cm tall, acaulescent, in vegetative parts subglabrous, with ± medifixed, appressed white hairs 0.2–0.3 mm long, in the inflorescence with black hairs. Stipules whitish-membranous, 5–6 mm long, adnate to the petiole for ca. 3 mm, glabrous or with few hairs especially towards the margins and tips. Leaves 6–15 cm long; petiole 2–4 cm long, like the rachis glabrous or with few scattered hairs. Leaflets in (5–) 10–15 pairs, ± elliptic, 6–9 × 4–7 mm, ± round-tipped, on the upper side glabrous, on the underside glabrous or sparsely hairy at the midvein. Peduncles 8–11 cm long, erect, sparsely covered with white, towards the raceme increasingly with black hairs. Racemes loosely 6–10-flowered. Bracts whitish-hyalin, triangular, ca. 1 mm long, subglabrous. Pedicels ca. 1 mm long, sparsely black hairy. Flowers obliquely erect. Bracteoles absent or inconspicuous, whitish, 0.3–0.5 mm long, at the base of calyx. Calyx ca. 9 mm long, tubular, slightly obliquely cut at the mouth, loosely covered with appressed black hairs; teeth slightly unequal, linear-acute, 1.5–2.5 mm long. Petals yellowish, fading violet. Standard ca. 20 mm long; limb oblong-elliptic, 7 mm wide, towards the ± rounded tip with a slightly narrowed tongue-like appendix 3–4 mm wide, in the lower part scarcely constricted, at the base subabruptly narrowed into the short claw. Wings ca. 16 mm long; limbs narrowly oblong, round-tipped, 8 × 2.5 mm; auricle ca. 1 mm long, claw 8 mm long. Keel 13 mm long; limbs obliquely oblong, with in upper part widely and nearly rectangularly curved lower edge and slightly concave upper edge, acute-tipped, 6 × 2.5 mm; auricle ca. 0.4 mm long, claw 7 mm long. Stamen-tube truncate at the mouth. Ovary nearly sessile, narrowly oblong, white hairy; style glabrous. Legumes unknown.

***Astragalus caespititius* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Prov. Kerman, between Darband & Kerman, 30°43' N, 57°02' E, ca. 2500 m, 28.4.1975, B.S. Parris 75.175 [E].

Differt ab *A. mercklinii* BOISS. & BUHSE foliolis 2–5 × 0,5–1,5 mm, apice subacutis, saepe cucullatim complicatis, supra non purpureo-punctatis (nec 3–14 × 2,5–9 mm, nec rotundatis, planis, supra purpureo-punctatis), bracteis florigeris 1,5 mm longis, bracteolis nullis (nec bracteis 2–4 mm longis, bracteolis 1–2 mm longis) et dentibus calycis 1 mm (nec 2–6 mm) longis.

Plants mat-forming, 2–4 cm tall, in vegetative parts with appressed, medifixed white hairs 0.6–0.8 mm long. Rootstock up to 10 mm in diameter, with very short to slightly elongated branches. Stipules narrowly triangular, ca. 2 mm long, adnate to the petiole for ca. 0.5 mm, densely hairy. Leaves 1–2.5 cm long; petiole 0.5–1 cm long, like the rachis slender, rather densely hairy. Leaflets in 3–4 pairs, narrowly obovate, 2–5 × 0.5–1.5 mm, acute to subacute, often boat-shaped with cucullate tip, on both sides loosely to rather densely hairy. Peduncles 0.5–1.5 cm long, prostrate, rather densely covered with white, towards the raceme also with black hairs. Raceme short, loosely 1–3-flowered. Bracts reddish-brown, narrowly triangular, ca. 1.5 mm long, white and black hairy. Pedicels ca. 2 mm long, white and black hairy. Bracteoles absent. Calyx 11–12 mm long, tubular, obliquely inserted at the base, strongly obliquely cut at the

mouth, rather densely covered with partly asymmetrically bifurcate, subappressed to spreading, tangled white and black hairs; teeth narrowly triangular, ca. 1 mm long. Corolla pinkish-purple. Standard 20 mm long; limb slightly curved upward, 7 mm wide, obovate, round-tipped, slightly constricted in the lower part, subangularly narrowed into the cuneate claw. Wings 20 mm long; limbs narrowly oblong, round-tipped,  $7 \times 2$  mm; auricle ca. 0.5 mm long, claw 13 mm long. Keel 18 mm long; limbs obliquely elliptic, with widely curved lower edge and  $\pm$  straight upper edge, subacute-tipped,  $6 \times 3$  mm; auricle very short, claw 12 mm long. Stamen-tube  $\pm$  truncate at the mouth. Ovary sessile, narrowly ellipsoid, white hairy; style glabrous. Legume unknown.

***Astragalus divandarrehensis* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Prov. Kordestan, 18 km from Divandarreh on the road to Sanandaj, ca. 8 km after Kowleh, 1941 m, 8.6.2002, A.A. Maassoumi & Safavi 82595 [TARI; iso MSB].

Plantae 30–60 cm altae, acaulescentes. Stipulae 4–6 mm longae. Folia 9–22 cm longa, (2–) 4–6-juga. Foliola 6–22  $\times$  6–14 mm, late elliptica usque ad late obovata, apice rotundato-truncata usque ad emarginata, utrimque pilosa. Pedunculi 14–25 cm long, basin versus laxe ad dense, ceterum sparse albo-pilosi vel glabrescentes. Racemi laxe 18–30-flori, in fructu usque ad 30 cm longi, Bracteae florigerae 3–4 mm longae, bracteolae 1–1,5 mm longae. Calyx 9–10 mm longus, nervis 5 prominentibus in dentibus transeuntibus persursus, glaber vel sparsissime pilosus, dentibus 2–4 mm longis. Petala violacea. Vexillum ca. 22 mm longum et 9 mm latum, ellipticum, emarginatum. Legumina subsessilia vel stipite usque ad 5 mm longo suffultum, linearia, teretia, 20–25 mm longa et 3–4 mm diametro, rostro 3–4 mm longo, dense subappresse pilosa.

Plants 30–60 cm tall, acaulescent, in vegetative parts with  $\pm$  medifixed, appressed white hairs 0.4–0.6 mm long. Rootstock up to 10 mm in diameter, with short branches, in upper part densely covered with remnants of old petioles. Stipules 4–6 mm long, narrowly triangular, sometimes reddish-suffused adnate to the petiole for 1–2 mm, loosely to densely covered with appressed hairs, glabrescent with age. Leaves 9–22 cm long; petiole 4–15 cm long, rather densely to densely hairy like the rachis. Leaflets in (2–) 4–6 pairs, widely elliptic to widely obovate, 6–22  $\times$  6–14 mm, at the tip widely rounded-truncate to emarginate or shortly acuminate, sometimes minutely apiculate, on both sides densely hairy or sometimes on the upper side loosely to rather densely hairy, the upper side mostly indistinctly to distinctly spotted with minute purplish dots. Peduncles 14–25 cm long, erect, angular-sulcate, at the base loosely to densely, in the upper part glabrescent and sparsely to loosely white hairy. Racemes loosely 18–30-flowered, elongating in fruit and up to 30 cm long. Bracts whitish or reddish-suffused, from a wider base narrowly triangular, 3–4 (–5) mm long, sparsely white and black hairy, partly with basifixed white hairs. Pedicels 2–3 mm, in fruit 3–4 mm long, sparsely predominantly black hairy. Bracteoles whitish, linear, 1–1.5 mm long, at the pedicel just below the calyx. Calyx 9–10 mm long, tubular, with 5 prominent, elevated main nerves, protruding into the teeth, glabrous or with few scattered white and black hairs; teeth slightly unequal, narrowly triangular to subulate, 2–4 mm long. Petals violet, distinctly unequal. Standard ca. 22 mm long; limb elliptic, ca. 9 mm wide, slightly emarginate at the tip, at the base gradually narrowed into the short, cuneate claw. Wings 17 mm long, limbs narrowly oblong, round-tipped, laterally slightly

incised,  $9 \times 3$  mm; auricle short, claw 8 mm long. Keel 14 mm long; limbs slightly obliquely obovate, with in the upper third widely, nearly rectangularly curved lower edge, with slightly sigmoid upper edge, subacute-tipped,  $6 \times 3$  mm; auricle acute, minute, claw 8 mm long. Stamen-tube truncate at the mouth. Legumes spreading to pendulous, subsessile or with a stipe up to 5 mm long, linear, slightly to distinctly curved upward, 20–25 mm long, terete, 3–4 mm in diameter, rounded with a prominent vein ventrally, slightly narrowly grooved dorsally, with a  $\pm$  straight beak 3–4 mm long long, bilocular; valves greyish straw-colored, pale reddish brownish mootled, densely covered with subappressed, tangled, symmetrically to asymmetrically bifurcate white hairs up to 0.5 mm long. Seeds nearly quadrangular to rhombic, ca. 3 mm long, chestnut brown, rugose-pitted.

Additional specimens seen: Iran. Kordestan: Saqqez, Khorkhoreh to Chapan vill., 1500 m, 27.5.2002, Kaffash, Fany & Maroofi [hb. Kurdistan]. – Divandarreh, Sarab, 2150 m, 4.7.1968, Iranshahr 13272-E [IRAN, W]. – 10 km from Divandarreh on the road to Sanandaj, 1 km after Kowleh, 1840 m, 8.6.2002, Maassoumi & Safavi 82594 [MSB, TARI]. – 18 km from Divandarreh on the road to Sanandaj, ca. 8 km after Kowleh, 1941 m, 8.6.2002, Maassoumi & Safavi 82595 [MSB, TARI]. – Kowleh, 65 km N Sanandaj versus Divandarreh, 1950 m, 29.6.1974, Rechinger 48518 [M; W]. – ca. 65 km from Sanandaj on the road to Divandarreh, 2100 m, 13.6.2000, Maassoumi & Nikchehreh 80199 [MSB, TARI]. – 70 km from Sanandaj on road to Divandarreh, 2100 m, 1.6.1988, Maroofi 2516 [herb. Kurdistan]. – 75 km N Sanandaj on road to Divandarreh, 2100 m, 14.5.1986, Khaledian & Sabzee 1205 [herb. Kurdistan]. – ca. 100 km N Kermanshah by the last pass before Sanandaj,  $35^{\circ}05' \text{ N}$ ,  $46^{\circ}55' \text{ E}$ , 1700 m, 12.6.1959, Wendelbo 1985 [BG]. – 18 km N. of Sanandaj, 1500 m, 10.6.1959, Wendelbo 1855 [BG].

***Astragalus diversus* PODLECH & MAASSOUMI, sp.n. (Sect. *Incani*)**

Holotype: Azarbayejan, ca. 16 km from Tabriz on the road to Spiran, 1540 m,  $38^{\circ}13'50'' \text{ N}$ ,  $46^{\circ}18'21'' \text{ E}$ , 5.6.2002, A.A. Maassoumi, Safavi & Ghahremani 82523 [MSB; iso TARI].

Differt ab *A. punctatus* BUNGE plantis 25–35 cm altis (nec 10–22 cm altis), racemi 12–30- (nec 6–12-) floris, calyce 12–13 mm (nec 7–9 mm) longo, petalis viridi-flavis (nec violaceis), laminis alarum obovato-spathulatis (nec anguste oblongis), leguminibus stipite ca. 3 mm (nec 8–12 mm) longo suffultis, linearibus, 30–35 mm longis (nec anguste oblongis, 10–7 mm longis).

Plants 25–35 cm tall, acaulescent, covered with medifixed, appressed, in vegetative parts merely white hairs. Rootstock up to 10 mm in diameter, with short to elongated branches, in upper part densely covered with remnants of old stipules and sometimes with the often indurated petioles. Stipules triangular, 3–5 mm long, adnate to the petiole for 1–2 mm, densely hairy. Leaves 10–15 cm long; petiole 3–5 cm long, rather densely to densely covered with hairs 0.4–0.8 mm long like the rachis. Leaflets in 4–6 pairs, elliptic to obovate,  $7\text{--}15 \times 4\text{--}10$  mm, acute or shortly acuminate at the tip, on both sides densely covered with hairs 0.4–0.8 mm long. Peduncles 7–12 cm long, slightly angular-sulcate, rather densely to densely white hairy like the rachis. Raceme loosely 12–30-flowered, 8–18 cm long; axis loosely white hairy. Bracts narrowly triangular, whitish, 2–3 mm long, white hairy, rarely with few black hairs mixed in. Pedicels 1–1.5 mm long, predominantly white hairy; flowers ascending to spreading. Bracteoles narrow, 1.5–2 mm long, at the base of calyx. Calyx 12–13 mm long, tubular, slightly gibbous at the base, obliquely cut at the mouth, loosely to rather densely covered with white hairs 0.3–0.5 mm long, with some black hairs mixed in; teeth narrowly triangular,

0.5–1.5 mm long, hairy on inner side. Petals greenish-yellow. Standard 20–22 mm long; limb slightly curved upward at the middle, 7–8 mm wide, rhombic-elliptic, obtuse-tipped, subangularly narrowed into the cuneate, short claw. Wings ca. 17 mm long; limbs narrowly obovate-spathulate, widest below the rounded tip,  $7 \times 3.5$  mm; auricle ca. 1 mm long, claw ca. 10 mm long. Keel ca. 16 mm long; limbs narrowly obliquely obovate, with in the upper part widely curved lower edge and concave upper edge, shortly acuminate at the tip,  $6 \times 3$  mm; auricle short, claw ca. 10 mm long. Stamen-tube truncate at the mouth. Ovary shortly stipitate, linear, sparsely white hairy; style glabrous. Legume (unripe) spreading to pendulous, with a stipe ca. 3 mm long, linear, straight to slightly curved upward, 30–35 mm long ca. 2.5 mm high, narrowly rounded ventrally and dorsally, with a straight beak 1–2 mm long; valves yellowish-brownish, indistinctly brownish-red spotted, loosely to rather densely covered with appressed to subappressed,  $\pm$  medifixed white hairs 0.3–0.5 mm long.

Additional specimen seen: Iran. Azarbaijan Sharqi: 20 km from Ahar to Tehran - Tabriz road, 1450 m, 31.5.1978, Wendelbo & Assadi 28014 [MSB: fragm., TARI].

***Astragalus dopolanicus* PODLECH, sp.n. (Sect. *Incani*).**

Holotype: Iran, Prov. Bakhtiari, Dopolan to Cyandomkar, 1600–2000 m, 8.6.1973, M. Iranshahr & M. Moussavi 15517-E [W; iso IRAN].

Differt ab *A. chaetopodus* BUNGE foliolis late ellipticis,  $9\text{--}24 \times 7\text{--}20$  mm (nec anguste ellipticis,  $8\text{--}24 \times 3\text{--}10$  mm), pedunculis sparse pilosis vel subglabris (nec dense pilosis), bracteis florigeris 1–1.5 mm (nec 4–7 mm) longis et leguminibus stipite 3–4 mm longo suffultis, 20–28 mm longis (nec stipite 10–12 mm longo suffultis, 45–50 mm longis).

Plants ca. 30 cm tall, acaulescent, with appressed, medifixed, in vegetative parts merely white hairs 0.6–0.8 mm long. Stipules reddish-suffused, narrowly triangular to triangular, 6–8 mm long, adnate to the petiole for ca. 2 mm, densely hairy. Leaves 13–18 cm long; petiole 7–8 cm long, grooved adaxially like the rachis, densely hairy. Leaflets in (2–) 3 (–4) pairs, remote, elliptic to widely elliptic,  $9\text{--}24 \times 7\text{--}20$  mm, rounded to subacute at the tip, on both sides sparsely to loosely hairy and spotted with minute dark reddish dots. Peduncles erect, ca. 16 cm long, densely white hairy. Racemes many (up to 30) -flowered, in fruit up to 18 cm long. Bracts reddish, triangular, 1–1.5 mm long, sparsely white and black hairy. Pedicels 2–3 mm long, black hairy. Bracteoles whitish, linear, 0.5–1 mm long, inserted below the calyx. Calyx 7–9 mm long, tubular, obliquely cut at the mouth, loosely covered with black and especially towards the upper margin also with some white hairs; teeth 1–3 mm long. Corolla unknown. Stamens ca. 15 mm long. Legumes erect or obliquely erect, at the base narrowed into a stipe 3–4 mm long, linear, slightly curved upward, 20–30 mm long, 3–3.5 mm high and wide, obtusely carinate ventrally, slightly grooved to rounded dorsally, with a  $\pm$  straight beak ca. 4 mm long, fully bilocular; valves tough, straw-colored, indistinctly slightly darker mottled, glabrous.

Additional specimens seen: Iran. Chahar-Mahalle e Bakhtiari: Naghan, Dourak, Kuh-e Lajan, Seh-Gach, 2250 m, 6.6.1986, Khajeddin 5854 [MSB, herb. Techn. Univ. Esfahan]. – Hamadan: 45 km SW Hamadan, 2150 m, 9.6.1959, Pabot 1558 [G].

***Astragalus gulul-saranii* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Khorasan, Gulul Sarani protected area, Kopet Dagħ, in montibus ad confines turcomanicas, 37°46'–50' N, 58°08' E, 2400–2900 m, K.H. Rechinger 53471 [M; iso W].

Plantae nanae, 4–8 cm altae, acaulescentes. Stipulae 6–7 mm longae. Folia 2,5–5 cm longa, (3–) 4 (–5) -juga. Foliola anguste elliptica, 5–9 × 1,5–2,5 mm, acuta, utrimque dense pilosa, supra minute rubro-punctata. Pedunculi 1,5–4 cm longi. Racemi floribus 1–4. Bracteae florigerae 2–4 (–5) mm longae, angustae, bracteolae ca. 0,5 mm longae. Calyx 12–14 mm longus, nigro-pilosus, dentibus 3–5 mm longis. Petala purpurea. Vexillum 20–21 mm longum, ca. 9 mm latum, obovato-oblongum, emarginatum, infra medium leviter constrictum. Laminae alarum obovato-spathulatae. Ovarium stipite ca. 1 mm longo suffultum, lineare, pilosum.

Plants 4–8 cm tall, acaulescent, caespitose, densely covered with medifixed, appressed hairs. Rootstock ca. 6 mm thick, with thick branches up to 3 cm long, densely covered with blackish remnants of old stipules. Stipules 6–7 mm long, narrowly triangular, adnate to the petiole for ca. 3 mm, densely white hairy. Leaves 2.5–5 cm long; petiole 1.5–3 cm long, like the rachis slender, sulcate adaxially, densely covered with white hairs 0.3–0.5 mm long. Leaflets in (3–) 4 (–5) pairs, narrowly elliptic, 5–9 × 1.5–2.5 mm, acute, on both sides densely covered with hairs 0.4–0.7 mm long, the upper side spotted with minute dark-red dots. Peduncles 1.5–4 cm long, hairy like the rachis but toward the raceme increasingly with black hairs. Racemes loosely 1–4-flowered; the short axis predominantly black hairy. Bracts membranous, 2–4 (–5) mm long, narrowly triangular to linear-acute, sparsely white and black hairy. Pedicels 1.5–2 mm long, black hairy; flowers erect. Bracteoles minute, ca. 0.5 mm long, at the base of the calyx or absent. Calyx 12–14 mm long, tubular, slightly obliquely cut at the mouth, rather densely covered with black hairs 0.2–0.4 mm long; teeth subulate to linear-acute, 3–5 mm long, densely hairy on the inner side. Petals purple. Standard 20–21 mm long; limb ca. 9 mm wide, obovate-oblong, emarginate at the tip, slightly constricted below the middle, angularly passing into the cuneate claw. Wings ca. 18 mm long; limbs obovate-spathulate, truncate to obliquely emarginate at the tip, gibbous above the auricle, 8 × 3.5 mm; auricle ca. 1 mm long, claw 10 mm long. Keel 17 mm long; limbs obliquely oblong, with in upper part widely curved lower edge and straight so slightly concave upper edge, obtuse-tipped, 7 × 3.5 mm; auricle ca. 0.5 mm long, claw 10 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 1 mm long, linear, hairy; style glabrous. Legumes unknown.

***Astragalus kuhidashtehensis* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Prov. Tehran, in saxosis summi montis Kuh Dashteh ca. 30 km a Tehran occidentem versus, 2400–2500 m, 28.6.1977, K.H. Rechinger 57287 [M; iso W].

Differt ab *A. robustus* BUNGE stipulis ca. 5 mm longis (nec superioribus ad 10–12 mm longis), foliolis 3–9 (–10) × 2–7 (–9) mm (nec (5–) 7–25 × (3–) 3,5–13 mm), utrimque dense usque ad densissime pilosis (nec sparse ad laxe pilosis), bracteis florigeris minutissimis 1–1,5 mm longis (nec 2–4 mm longis), vexillo ovato vel elliptico et leguminibus anguste oblongis (nec oblongi-obovatis), 4 mm (nec 4,5–6 mm) altis et ca. 3 mm (nec 3,5–5 mm) latis, indistincte rostratis (nec rostro 2–5 mm longo), valvis laevibus (nec ± distincte transversaliter rugulosis).

**Plants** 18–20 cm tall, acaulescent, densely covered with  $\pm$  medifixed, appressed, finely verruculose, in vegetative parts merely with white hairs 0.5–0.8 mm long. **Rootstock** up to 10 mm in diameter, with very short branches, covered with remnants of old leaves. **Stipules** ca. 5 mm long, from a wide base abruptly narrowed into a short, narrowly triangular tip, adnate to the petiole for ca. 2 mm, densely hairy. **Leaves** 7–14 cm long; petiole 3–9 cm long, like the rachis grooved adaxially, loosely to densely hairy. **Leaflets** in 5–8 pairs, elliptic to obovate or widely obovate, 3–9 (–10)  $\times$  2–7 (–9) mm, at the tip rounded to retuse, densely to very densely hairy on both sides. **Peduncles** 12–13 cm long, slightly angular, loosely covered with white, sometimes in the upper part also with black hairs. **Racemes** 8–17-flowered, slightly elongated in fruit and 5–6 cm long; axis white and black hairy. **Bracts** whitish, triangular, 1–1.5 mm long, sparsely white and black hairy. **Pedicels** ca. 2 mm long (in fruit), mostly black hairy. **Bracteoles** absent or sometimes present, minute, 0.2–0.3 mm long, inserted in the lower or upper part of the pedicels. **Calyx** 7–8 mm long, tubular, slightly obliquely cut at the mouth, loosely covered with appressed black hairs 0.2–0.3 mm long; teeth subulate, 1–2 mm long. **Petals** yellow. **Standard** ca. 20 mm long; limb ca. 8 mm wide, ovate to elliptic, sometimes shortly tongue-like narrowed toward the narrow, emarginate tip, at the base subabruptly narrowed into a short, cuneate claw. **Wings** ca. 15 mm long; limbs narrowly oblong, round-tipped, 6  $\times$  2.5 mm; auricle ca. 0.5 mm long, narrow, claw 9 mm long. **Keel** 13–14 mm long; limbs obliquely elliptic, with widely but slightly curved lower edge and  $\pm$  straight to slightly curved upper edge, subobtusate at the tip, 5  $\times$  2.5 mm; auricle indistinct, claw 8–9 mm long. **Stamen-tube** truncate at the mouth. **Legumes** sessile, erect, oblong to slightly obovoid, straight, 10–15 mm long, 4 mm high, 3 mm wide, obtusely carinate ventrally, rounded dorsally, with an indistinct beak 1–2 mm long, bilocular; valves pale brownish, nearly smooth, at first rather densely covered with symmetrically to asymmetrically bifurcate, appressed, sometimes slightly flexuose white hairs 0.6–0.8 mm long, becoming glabrescent to nearly glabrous with age. **Ovules** 12–16. **Seeds** mostly 4 in each locule, quadrangular-reniform, 2.5–3  $\times$  1.5–2 mm, brownish, irregularly rugulose-pitted.

Additional specimens seen: Iran. **Mazandaran**: N. side of Kandevar tunnel, 2600 m, 23.5.1974, Wendelbo & Shirdelpur 11659 [TARI]. – Chalus road, Pul-e Zangoleh, 2400 m, 27.7.1973, Babakhanlou & Amin 15256 [TARI]. – **Tehran**: in saxosis summi montis Kuh Dashteh ca. 30 km a Tehran occidentem versus, 2400–2500 m, 28.6.1977, K.H.Rechinger 57287 [M, W]. – ibidem, Gauba 542 [W]. – Karaj, between Nessa and Gachsar, 2220 m, 2.6.1986, Maassoumi 55103 [MSB, TARI]. – 70 km from Karaj on the road to Chalus, 2100 m, 1.6.1991, Assadi & Shahsavari 69631 [MSB, TARI, TUH]. – Kandavan pass, 2600–3050 m, 23.6.1979, Assadi & Mozaffarian 32870 [TARI].

***Astragalus nalbandanicus* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Prov. Tehran, Nalbandan, 65 km from Tehran to Qum, 1250 m, 25.4.1973, P. Babakhanlu & Amin 15130 [W; iso TARI].

Differt ab *A. cottonianus* AITCH. & BAKER foliis 7–9-jugis (nec 4–7-jugis), foliolis supra dense (nec laxe usque ad sparse) pilosis, bracteis florigeris anguste triangularibus, laxe pilosis (nec ovatis, margine tantum ciliatis), calyce glabro vel basin versus pilis perpaucis instructo (nec omnino laxe piloso) et ovario dense pilis asymmetricice bifurcatis applanatis, patentibus oblecto (nec glabro vel sparse pilis  $\pm$  medifixis, teretibus, appressis instructo).

Plants ca. 16 cm tall, with appressed to subappressed, mostly medifixed, nearly exclusively with white hairs 0.4–0.6 mm long. Stipules reddish-suffused, narrowly triangular to ovate, 6–8 mm long, adnate to the petiole for ca. 3 mm, densely hairy. Leaves 10–17 cm long; petiole 4.5–10 cm long, like the rachis grooved adaxially, densely hairy. Leaflets in 7–9 pairs, widely elliptic to widely obovate, 7–15 × 5–12 mm, distinctly apiculate at the tip, on the upper side densely, on the underside very densely hairy. Peduncles erect, ca. 10 cm long, 2.5 mm thick at the base, densely hairy. Racemes in early anthesis densely many-flowered, soon elongating. Bracts greenish, narrowly triangular, 8–9 mm long, loosely hairy. Pedicels ca. 1 mm long, hairy. Bracteoles greenish, linear-acute, ca. 7 mm long, at the base of the calyx. Calyx 15–16 mm long, tubular, slightly obliquely cut at the mouth, loosely covered with white hairs ca. 0.5 mm long, sometimes also with few shorter black hairs mixed in; teeth narrowly triangular, greenish, 5–6 mm long. Petals probably yellow. Standard ca. 25 mm long; limb narrowly oblong, ca. 8 mm wide, slightly narrowed toward the rounded tip, at the base gradually narrowed into the indistinct cuneate claw. Wings ca. 22 mm long; limbs narrowly oblong, slightly dilated toward the rounded tip, 10 × 4 mm; auricle ca. 1 mm long, claw 12 mm long. Keel 21 mm long; limbs obliquely oblong, with widely, slightly curved lower edge and nearly straight upper edge, subobtuse-tipped, 8 × 3.5 mm; auricle ca. 1 mm long, claw 13 mm long. Stamen-tube truncate at the mouth. Ovary sessile, linear, densely covered with flattened, spreading, asymmetrically bifurcate hairs. Legumes unknown.

***Astragalus paucifoliolatus* PODLECH, sp.n. (Sect. *Incani*)**

Holotype: Iran, Hamadan, Tuyserkan, mt. Serkan, 2000–2200 m, 17.6.1987, F. Termeh, Delghandi & Karavar s.n. [IRAN; iso MSB, TARI].

Differt ab *A. quinquejugus* BUNGE foliis 8–20 cm (nec 3–8 cm) longis, foliolis (2–) 3–5 (–6) jugis (nec 1–2-jugis), pilis 0,6–0,8 mm (nec 0,5–1,3 mm) longis obtectis, calyce 8–10 mm longo cum dentibus 1,5–3 mm longis (nec 11–12 mm longis cum dentibus 4–5 mm longis) et leguminibus 15–25 mm longis et 4–5 mm altis (nec 30–40 mm longis et ca. 2 mm diametro), glabris (nec primo dense, demum laxe appresse albo-pilosis).

Plants 20–55 cm tall, acaulescent, with medifixed, appressed, in vegetative parts exclusively white hairs 0.6–0.8 mm long. Rootstock divided, with short branches, densely covered with remnants of old stipules and petioles. Stipules triangular to narrowly triangular, 4–5 mm long, adnate to the petiole for ca. 2 mm, densely hairy, becoming glabrescent with age. Leaves 8–20 cm long; petiole 3–10 cm long, like the rachis grooved adaxially, very densely hairy. Leaflets in (2–) 3–5 (–6) pairs, elliptic or obovate to widely obovate, 8–25 × 6–16 (–20) mm, cuneate at the base, at the tip obtuse or rounded to truncate or retuse, minutely apiculate-mucronulate, on the upper side loosely to rather densely, on the underside rather densely to densely hairy, the upper side spotted with indistinct to distinct purplish dots. Peduncles 9–28 cm long, loosely to rather densely covered with white, in the upper part sometimes also with some black hairs, sometimes glabrescent. Racemes up to 25-flowered, strongly elongated in fruit, up to 22 cm long. Bracts membranous, whitish to reddish-suffused, narrowly triangular from a wide base, 2–3 mm long, sparsely white hairy to subglabrous, sometimes with minute glands at the base. Pedicels ca. 2 mm long, black hairy. Bracteoles linear,



0.8–1 mm long, directly below the calyx. Calyx 8–10 mm long, tubular, slightly obliquely cut at the mouth, loosely shortly black and white hairy; teeth slightly unequal, subulate, 1.5–3 mm long. Corolla violet with yellow claws, fading partly yellow. Standard 21 mm long; limb ca. 8 mm wide, elliptic, the in upper part tongue-like narrowed, emarginate at the tip, at the base subabruptly contracted into the very short claw. Wings ca. 17 mm long; limbs narrowly oblong, indistinctly obliquely notched at the tip,  $8.5-9 \times 2.2-2.6$  mm; auricle ca. 0.8 mm long, claw ca. 8 mm long. Keel ca. 15 mm long; limbs oblong-curved, with widely curved lower edge and slightly concave upper edge, subobtusate at the tip,  $6 \times 2.5-3$  mm; auricle minute, claw 7–9 mm long. Stamen-tube truncate at the mouth. Legume subsessile substipitately narrowed at the base, erect to  $\pm$  pendulous, linear, slightly to distinctly curved upward, 15–25 mm long, ca. 4–5 mm high, 3–3.5 mm wide, narrowed into a substipitate base ca. 3–4 mm long, subabruptly narrowed into a straight beak ca. 3 mm long, rounded to obtusely keeled ventrally by the thickened nerv, rounded dorsally, fully bilocular; valves glabrous, often distinctly purplish mottled.

Additional specimens seen: Iran. Esfahan: Sofla Pelle-toure, 27.7.1971, Asefi 24317 [TARI]. – Khonsar, Darbande Layjand, 2550 m, 15.6.1992, Feyzi 8874 (MSB). – Hamadan: Avaje, Sultan-bulagh mts, 2000–2400 m, 12.5.1987, Maassoumi & Mirhosseini 59401 [TARI]. – 45 km SW Hamadan, 2150 m, 9.6.1959, H. Pabot 1558 [G, W]. – Alvand Mts., between Asadabad and Tuiserkan, 1940 m,  $34^{\circ}42' N$ ,  $48^{\circ}13' E$ , 14.6.2001, Sytin & al. 356 [MSB]. – Tuyserkan, Serkan mt., 2000–2200 m, 17.6.1987, Termeh, Delghandi & Karavar s.n. [IRAN, MSB]. – Kabudar Ahang, Baba-Nazar, Damagh, Bughati mt. 1225 m,  $35^{\circ}32'21'' N$ ,  $48^{\circ}43'34'' E$ , 14.5.2001, Maassoumi & Shahsavari 80699 [TARI]. – Kabudar Ahang, Ghozleleh, Sari-Bulash, 1930 m,  $35^{\circ}15'13'' N$ ,  $48^{\circ}52'25'' E$ , 15.5.2001, Maassoumi & Shahsavari 80715 [TARI]. – 15–20 km from Hamadan, Yalfan mts., 1950–2200 m, 10.6.1987, Termeh, Delghandi & Karavar s.n. [IRAN, MSB]. – Assad-abad pass, 35 km from Hamadan ob road to Kermanshah, 2100 m,  $34^{\circ}50'50'' N$ ,  $48^{\circ}11'48'' E$ , 13.5.2001, Maassoumi & Shahsavari 80691 [MSB, TARI]. – Kermanshah: Songhor, Kuh-e Dalkhani, 1700 m, 10.5.1988, Mozaffarian 64389 [TARI]. – Markasi: 15 km S Arak, E of Gavar village, mt. Shamsabad, 30.5.1986, Akhani 627 [MSB]. – Zalian pass between Arak and Borujerd, 2100 m, 17.6.2001, Sytin & al. 413 [MSB].

### *Astragalus angustistipulatus* PODLECH, sp.n. (Sect. *Malacothrix*)

Holotype: Iran, Prov. Kerman, in regione inferiore montis Kuh Lalasar prope pagum Lalesar, ca. 3000 m, 11.7.1892, J.F.N. Bornmüller 3774 [B; iso B, G, W].

Differt ab *A. griseus* BOISS. caule pilis subappressis 0,3–1 mm longis (nec pilis oblique patentibus usque ad patentibus 0,2–0,5 mm longis) oblecto, stipulis 7–12 mm longis e basi anguste triangularibus longissime subulato-acuminatis (nec 3–5 mm longis, triangularibus usque ad anguste triangularibus), foliolis utrinque pilis subappressis 0,5–1 mm longis laxae usque ad densiuscule oblectis (nec dense argenteo-pilosis), calyce pilis mere albis 0,3–0,8 (nec albis nigrisque usque ad 2 mm) longis oblecto, dentibus 1,5–2,5 (nec 4–5) mm longis et vexillo 20 (nec 16–17) mm longo.

Plants 15–25 (–30) cm tall, shortly caulescent. Rootstock slender, often branched. Stems 1–5 cm long, very densely covered with subappressed to spreading white, at the nodes mostly black hairs 0.3–1 mm long. Stipules 7–12 mm long, from a narrowly triangular base very long subulate-acuminate, densely covered with appressed white or often predominantly black hairs, very shortly adnate to the petiole, free from each. Leaves 4–14 (–16) cm long; petiole 1.5–5 (–6) cm long, at the base often with appressed to subappressed hairs, in the upper part densely covered with spreading, tangled hairs 0.1–0.3 mm long like the rachis. Leaflets in 9–13 pairs, elliptic,  $5-12 \times 2-5$  mm, obtuse

to subacute or more rarely slightly emarginate, on both sides loosely to rather densely covered with subappressed or partly ascending hairs 0.5–1 mm long or more rarely subglabrous on the upper side, often folded. Peduncles 4.5–13 (–18) cm long, finely striate-sulcate, very densely white hairy like the rachis, below the raceme with black hairs mixed in. Racemes at anthesis rather densely 8–20-flowered, elongating in fruit and up to 12 cm long. Bracts 2.5–5 mm long, narrowly ovate-acuminate to narrowly triangular, with white or white and black hairs. Pedicels ca. 0.5 mm long, mostly white hairy. Calyx 11–12 mm long, tubular, slightly inflated, very obliquely cut at the mouth, rather densely covered with spreading white hairs 0.3–0.8 (–1.5) mm long, dorsally and at the teeth sometimes with some black hairs mixed in; teeth unequal, the upper two triangular, ca. 1.5 mm long, the lower three narrowly triangular, 2–2.5 mm long, hairy on the inner side. Petals violet, fading mostly to yellowish-brown. Standard 16–18 mm long; limb 6–8 mm wide, rhombic-obovate, slightly emarginate, gradually narrowed into the cuneate claw at the base. Wings 14–16 mm long; limbs narrowly oblong, round-tipped, 6 × 1.8 mm; auricle ca. 1 mm long, claw 9–10 mm long. Keel 13–16 mm long; limbs oblong-curved, with widely curved lower edge and concave upper edge, subacute-tipped, 4.5–6 × 2 mm; auricle short, claw 8–10 mm long. Stamen-tube truncate at the mouth. Legumes sessile, ellipsoid, 8–10 mm long, 3.5 mm high and 2.5 mm wide, with a short curved beak, carinate ventrally, grooved dorsally, nearly completely bilocular; valves densely white-villous, with very fine, spreading hairs 4–6 mm long, densely enveloping the pod and densely covered with very short spreading hairs 0.2–0.3 mm long.

Additional specimen seen: Iran. Kerman: Qanat Marvan, ad meridium versus a monte Kuh-e-Lalehzar, 2900 m, 23.5.1977, J. Soják 7693 [PR].

***Astragalus bajgiranensis* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Iran, Prov. Khorasan, entre Kuchan et Bajgiran, 1100–1600 m, 3.7.1956, F. Schmid 6302 [G].

Differt ab *A. gharemanii* MAASSOUMI & PODLECH stipulis 10–15 mm longis, e basi lato subabrupte filiformibus (nec 3–7 mm longis, triangularibus usque ad ovati-acuminatis), foliis 9–12-jugis (nec 6–9-jugis), calyce 8–10 mm longis, mere albo-pilosis (nec 12–13 mm longis, albo-nigro-pilosis) et vexillo ca. 10 mm longo (nec 15–16 mm longo).

Plants ca. 20 cm tall, acaulescent or subcaulescent, covered only with white hairs (at the tip of the calyx teeth sometimes with few blackish hairs). Rootstock slightly branched. Stems, if present, up to 2 cm long, densely covered with ascending hairs 0.5–1 mm long. Stipules whitish, 10–15 mm long, from a rather wide base subabruptly filiform, adnate to the petiole for ca. 5 mm, Additionalwise free, loosely covered with ascending to spreading hairs 0.3–0.5 mm long. Leaves 6–10 cm long; petiole 2.5–4.5 cm long, like the rachis rather densely covered with subappressed hairs 0.2–0.4 mm long and with distinctly longer, mostly ascending to partly spreading hairs ca. 1 mm long. Leaflets in 9–12 pairs, narrowly elliptic, 6–5 × 2–4 mm, acute, on the upper side densely covered with subappressed to slightly ascending, straight hairs 1–1.5 mm long, on the underside ± densely covered with ascending to nearly spreading, often tangled hairs 0.5–1 mm long, flat or often boat-shaped or sometimes folded. Peduncles 7–11 cm long, densely covered with very short, subappressed, bent hairs 0.1–0.2 mm long and with few long, ascending hairs 0.5–1 (–1.5) mm long. Racemes (in fruit) loose, 6–7 cm long, ca. 10–

15-flowered; axis hairy like the peduncle. Bracts slightly greenish, 3–5 mm long, filiform, hairy. Pedicels 1–2 mm long, hairy. Calyx 8–10 mm long, campanulate, gibbous at the base, whitish with greenish teeth, rather densely covered with subappressed to ascending, curly hairs 0.3–0.5 mm long and with ascending to nearly spreading, straight hairs 1–2 mm long; teeth linear-acute, 5–6 mm long, hairy on the inner side. Petal colour unknown. Standard ca. 10 mm long; limb ca. 5 mm wide, elliptic, slightly retuse, at the base subabruptly narrowed into the short claw. Wings ca. 9 mm long; limbs narrowly oblong, obtuse-tipped,  $6.5 \times 1.5$  mm; auricle ca. 1 mm long, claw 2.5 mm long. Keel ca. 8 mm long; limbs oblique-obovate, with in the upper part gibbously curved lower edge and nearly straight upper edge, obtuse-tipped,  $4.5 \times 2.5$  mm; auricle indistinct, claw 3.5 mm long. Stamen-tube obliquely cut at the mouth. Legumes sessile, narrowly elliptic, slightly curved, ca. 15 mm long, 4 mm high, 2.5 mm wide, carinate ventrally, narrowly grooved dorsally, with a very short curved beak, bilocular; valves densely covered with ascending to nearly spreading hairs 1–2 mm long, without very short hairs.

***Astragalus brevitomentosus* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Persia, 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 46793 [M; iso W].

Differt ab *A. inexpectatus* MAASSOUMI & PODLECH rhachidibus pilis 0,1–0,3 mm (nec usque ad 1 mm) longis obtectis, foliis 7–9-jugis (nec 10–18-jugis), pedunculo pilis 0,15–0,3 mm (nec 0,3–1,5 (–2) mm) longis obtecto, calyce pilis brevissimis (nec ad 2 mm longis) obtecto, calycis dentibus anguste triangularibus 1,5–2 mm longis (nec subulatis usque ad 3 mm longis), vexillo oblango-obovato, ca. 5 mm lato (nec rhomboideo, ca. 8 mm lato), leguminibus ca. 8 mm longis et 4 mm altis (nec 13–15 mm longis et 7–8 mm altis), rostro ca. 1 mm longo (nec 3–4 mm longo) provisus, pilis longioribus 3–6 mm (nec usque ad 3 mm) longis obtectis.

Plants acaulescent to subacaulescent, ca. 20 cm tall, hairy. Stems if present up to 2 cm long, very densely covered with subappressed to ascending, white hairs 0.15–0.3 mm long. Lower Stipules membranous, 2–3 mm long, triangular, the upper ones 5–8 mm long, narrowly triangular, all covered with subappressed white hairs 0.3–1 mm long, mostly with some black hairs mixed in, all adnate to the petiole for ca. 1 mm, free or very shortly vaginate-connate behind the stem. Leaves 6–11 cm long; petiole 1.5–3 cm long, rather densely to densely covered with tangled, ascending to spreading white hairs 0.1–0.3 mm long like the rachis. Leaflets in 7–9 pairs (in the first leaves of the year only in 4–6 pairs), narrowly ovate to narrowly elliptic,  $5\text{--}12 \times 1.5\text{--}4$  mm, obtuse to acute, covered on both sides rather densely with appressed to subappressed white hairs 0.3–0.6 mm long (in the first leaves on the upper side sparsely hairy and mainly toward the margins). Peduncles 5–8 cm long, very densely hairy like the rachis. Raceme (in fruit) 6–13 cm long, loosely 15–many-flowered; axis hairy like the peduncle. Bracts linear-acute to narrowly triangular, 2–4 mm long, white and predominantly black hairy. Pedicels ca. 1 mm long, white hairy. Calyx 9–10 mm long, tubular, slightly inflated, in fruit ruptured by the pod, obliquely cut at the mouth, densely covered with tangled, spreading white hairs 0.1–0.3 mm long, sometimes with very short black hairs mixed in; teeth narrowly triangular, 1.5–2 mm long, hairy also on the inner side. Petals

probably violet in life, mostly yellow-brown when dry. Standard ca. 15 mm mm long; limb oblong-obovate, ca. 5 mm wide, slightly retuse, abruptly contracted at the base into the narrowly cuneate claw. Wings ca. 13 mm long; limbs narrowly oblong, slightly dilated toward the rounded tip,  $5.5 \times 2$  mm; auricle round, ca. 1 mm long, claw ca. 8 mm long, Keel ca. 12 mm long; limbs obliquely elliptic, with widely curved lower edge and slightly curved upper edge, subacute-tipped,  $4 \times 2.5$  mm; auricle acute, ca. 0.8 mm long, claw 7–8 mm long. Stamen-tube truncate at the mouth. Ovary sessile, ovoid, densely white hairy; style long, glabrous. Legumes sessile, oblong, ca. 8 mm long, 4 mm high and 3.5 mm wide, carinate ventrally, grooved dorsally, with a recurved beak ca. 1 mm long, bilocular; valves thin, straw-colored to brownish, villous with white ascending to spreading hairs 3–6 mm long mixed with very short spreading hairs. Seeds 3 in each locule, quadrangular to triangular, ca. 3 mm long, rugulose-pitted.

***Astragalus heterophyllus* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Iran, Chaharmahal-e Bakhtiari, Shahr-e Kord, Baba Heidar, Sefid Daneh, 2380 m, 21.5.1986, V. Mozaffarian 54358 [TARI; iso MSB].

Differt ab *A. spachianus* BOISS. & BUHSE plantis distincte heterophyllis, foliis inferioribus 1,5–3 cm longis, 5–7-jugis, glabris vel sparse pilosis, foliolis  $2-4 \times 1-3$  mm, foliis subsequentibus 5–9 cm longis, 12–15-jugis, laxe usque ad dense pilosis et vexillo medio transverse per dilatato, apicem versus linguato-angustato.

Plants 12–16 cm tall, acaulescent, in the vegetative parts only white hairy. Rootstock with short subterranean branches either with a leaf-rosette only or with a flowering shoot. Stipules whitish, the lower ones 5–7 mm long, triangular to narrowly triangular, glabrous or sparsely hairy, the upper ones up to 12 mm long, narrowly triangular, more densely hairy with subappressed hairs ca. 0.5 mm long, all adnate to the petiole for 2–3 mm, very shortly connate behind the stem. Leaves heteromorphous, the leaves developed at first in a year 1.5–3 cm long; petiole 0.5–1 cm long; leaflets in 5–7 pairs, ovate to elliptic,  $2-4 \times 1-3$  mm, rounded to slightly retuse; the whole leaves glabrous or rachis and leaflet's underside sparsely covered with appressed hairs 0.2–0.3 mm long. The following leaves 5–9 cm long; petiole 1.5–2.5 cm long, densely covered with tangled,  $\pm$  spreading hairs 0.2–0.5 mm long like the rachis. Leaflets in 12–15 pairs, narrowly elliptic to elliptic,  $5-10 \times 2-5$  mm, obtuse to rounded, on both sides loosely to rather densely covered with subappressed hairs 0.5–1 mm long. Peduncles 5–11 cm long, angular-sulcate, densely covered with tangled,  $\pm$  spreading, in lower part merely white, in upper part predominantly black hairs 0.2–1 mm long. Racemes ovoid, 3–5 cm long, ca. 2.5 cm in diameter, densely many-flowered. Bracts whitish to slightly greenish, narrowly triangular, 3–5 mm long, with predominantly black hairs. Pedicels very short. Calyx 9–10 mm long, tubular, obliquely cut at the mouth, rather densely covered with ascending to nearly spreading hairs 0.3–1 mm long, dorsally with black hairs, ventrally mostly with white hairs; teeth linear-acute, 1.5–2 mm long, black hairy on the outer side, white hairy on the inner side. Petals pale greenish yellow. Standard ca. 20 mm long; strongly transversely widened limb in the middle, ca. 9 mm wide, in upper third abruptly linear-ligulately narrowed, ca. 4 mm wide, slightly emarginate, at the base subabruptly narrowed into the cuneate claw. Wings ca. 14 mm long; limbs narrowly obovate, round-tipped, constricted above the auricle, ca.  $7 \times 2.2$  mm; auricle

ca. 1 mm long, claw ca. 7 mm long. Keel ca. 12 mm long; limbs obliquely obovate-curved, with rectangular-curved lower edge and concave upper edge, subacute-tipped, ca. 5 × 2 mm; auricle short, acute, claw ca. 7 mm long. Stamen-tube truncate at the mouth. Ovary sessile, densely white hairy; style hairy in the basal part. Legumes unknown.

Additional specimens seen: Iran. Chaharmahal-e Bakhtiari: Mt. Salderoun, around Sefid-Daneh, 2300–2600 m, 9.5.1987, Zehzad 87394 [MSB]. – Esfahan: Feridoun Shahr, Meydanak, above Damdaran protected area, 2600 m, 25.5.1981, M. Nowrozi 399 [Herb. Esfahan, MSB]. – Feridoun Shahr, Meydanak, Veyhe village. 2550 m, 20.3.60 (iran. Kal.), Nowrozi 855 [Res. Center Desert reg., Esfahan]. – Hamadan: ca. 11 km from Songhor at the road to Kangavar, 2000 m, 9.5.1987, Maassoumi & Mirhosseini 59311 [TARI]. – Lorestan: Ushtaran Kuh, N.W. of Thiun, 1920 m, 26.4.1966, J.C. Archibald 1587 [E, K].

***Astragalus marandicus* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Iran. Azarbaijan Sharqi, road from Marand to Zonuz, 1550 m, 7.6.1971, J. Lamond 3815 [E].

Differt ab *A. daghdaghabadensis* MAASSOUMI foliolis subtus pilis confuse patentibus usque ad 1 mm longis (nec pilis appressis usque ad 0,5 mm longis) obtectis, calyce 11–12 mm longo pilis usque ad 1 mm longis instructo (nec 14–15 mm longo pilis usque ad 3 mm longis), laminis alarum apice rotundatis (nec emarginatis) et leguminibus pilis longis et brevissimis (nec longis in tuberculis insidentibus tantum) obtectis.

Plants 8–12 cm tall, acaulescent or nearly so, covered with white, in the inflorescence also with black hairs. Rootstock repeatedly branched, with short subterranean branches. Stems of the year, if present, up to 1 cm long, densely covered with appressed hairs 0.1–0.5 mm long. Stipules greenish, 4–7 mm long, narrowly triangular, adnate to the petiole for ca. 1 mm, shortly vaginate-connate behind the stem, the lower ones ciliate at the margin, the upper ones rather densely covered with subappressed hairs. Leaves 5–11 cm long; petiole 1–2 cm long, like the rachis slender, sulcate adaxially, rather densely covered with subappressed to ascending hairs 0.1–0.5 mm long. Leaflets in 12–14 pairs, narrowly elliptic to elliptic, 3–8 × 1–3 mm, obtuse to subacute, glabrous on the upper side or rarely with few scattered hairs only, at the margin and on the under-side loosely to rather densely covered with tousled, ± spreading hairs up to 1 mm long, often folded. Peduncles 2.5–7 cm long, angularly sulcate, rather densely covered with subappressed to spreading short hairs 0.1–0.5 mm long and with spreading hairs up to 1 mm long, toward the raceme increasingly with black hairs. Racemes shortly cylindric, 5–7 cm long, rather densely 15–20-flowered. Bracts greenish, 4–8 mm long, linear-acute, densely subappressed white and black hairy. Pedicels ca. 1 mm long. Calyx 11–12 mm long, loosely covered with obliquely spreading white hairs up to 1 mm long and with much shorter appressed black and white hairs; teeth subulate, 3–4 mm long, densely hairy also on the inner side. Petals yellowish or lemon-yellow. Standard 20–22 mm long; limb rhombic, gradually narrowed toward the widely retuse to slightly emarginate tip, gradually narrowed at the base into the cuneate claw. Wings 16–17 mm long; limbs narrowly oblong, round-tipped, 7 × 2.5 mm; auricle ca. 1.5 mm long, claw 9–10 mm long. Keel 15–16 mm long; limbs obliquely elliptic-curved, with widely curved lower edge and slightly concave to nearly straight upper edge, subacute-tipped, 6 × 2.5 mm; auricle 0.5 mm long, acute, claw 9–10 mm long. Stamen-tube truncate

at the mouth. Ovary shortly stipitate, hairy. Legumes subsessile, narrowly ellipsoid, 10–12 mm long, 4 mm high, 3 mm wide, carinate ventrally, grooved dorsally, attenuate into a recurved beak ca. 3 mm long, bilocular; valves tough, villous with soft, somewhat flattened white hairs up to 5 mm long and with very short, spreading hairs 0.1–0.2 mm long. Seeds few in each locule.

***Astragalus mutuus* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Iran, Prov. Azerbaijan Sharqi, Montes Sabalan, in declivibus borealibus saxosis supra pagum Qotur-Su, 2300–2800 m, 13.7.1971, J. Lamond & F. Termeh in herb. Rechinger 44070 [M]; iso J. Lamond 4669 p.p. [M].

Differt a *A. beckii* BORN. rhachide pilis patentibus 0,3–0,6 mm longis (nec pilis subappressis vel ascendentibus usque ad 1 mm longis) oblecto, bracteis florigeris 5–7 (nec 1.5–3) mm longis et vexillo apicem versus distincte lingulato-attenuato (nec apicem versus gradatim angustato).

Plants 6–12 cm tall, acaulescent, loosely caespitose. Rootstock slender, repeatedly branched, with short to elongated subterranean stolones. Stems inconspicuous, rather densely covered with subappressed to tangled spreading hairs up to 0.5 mm long. Stipules greenish, narrowly triangular, 2–7 mm long, nearly free from the petiole, the lower ones short, whitish, shortly vaginate-connate behind the stem, the upper ones longer, green, free from each other, mostly reflexed, with subappressed to ascending white hairs. Leaves 3–5 cm long; petiole 0.5–1.5 cm long, like the rachis slender, loosely to rather densely covered with tangled, spreading white hairs 0.3–0.6 mm long. Leaflets in 10–12 pairs, elliptic, 3–7 × 1.5–3 mm, rounded to subacute, on both sides rather densely to densely covered with subappressed hairs 0.5–0.8 (–1) mm long. Peduncles slender, 5–9 cm long, rather densely covered with subappressed to spreading white, toward the raceme also some black hairs 0.3–1 mm long. Racemes short, rather densely 8–15-flowered. Bracts greenish, very narrowly triangular, 5–7 mm long, black and white hairy. Pedicels ca. 1 mm long, predominantly black hairy. Calyx 8–9 (–10) mm long, tubular, ± truncate at the mouth, rather densely covered with ascending to spreading white hairs 0.5–1.5 mm long and dorsally and toward the teeth with somewhat shorter black hairs, often with five purplish longitudinal nerves; teeth subulate, 4–4.5 mm long, hairy on the inner side. Petals cream, soon changing to intensive violet. Standard ca. 20 mm long; limb 6–7 mm wide, rhombic-elliptic, subabruptly tongue-like narrowed towards the widely emarginate tip and here ca. 3 mm wide, at the base subabruptly passing into the narrowly cuneate claw. Wings 14 mm long; limbs narrowly oblong, obtuse-tipped, 6 × 1.6 mm; auricle ca. 0.6 mm long, claw 8 mm long. Keel ca. 12 mm long; limbs oblong-curved, with in the upper part widely curved lower edge and slightly concave upper edge, subacute-tipped, 4.5 × 2 mm; auricle minute, acute, claw ca. 8 mm long. Stamen-tube truncate at the mouth. Ovary sessile, ellipsoid, white hairy; style glabrous. Legume sessile, spreading, narrowly ovoid, 10–12 mm long, 3.5 mm high and 2.5 mm wide, carinate ventrally, slightly grooved dorsally, with a hooked beak 4–5 mm long, nearly fully bilocular; valves pale brownish, densely furnished with nearly spreading to ascending flexuose to straight white hairs up to 4 mm long, without or with few very short hairs 0.3–0.5 mm long, completely enveloping the fruit. Seeds 4 in each locule.

***Astragalus roessleri* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Syria, Antilibanon, in declivibus lapidosis prope vicum Tell (ad viam Damascus versus Saydnaya), 960–980 m, 18.4.1965, H. Roessler 4906 [M]; iso: cocollector Doppelbauer 281 [M].

Differt ab *A. iranicus* BUNGE stipulis distincte vaginato-connatis (nec plurimis liberis), in parte distincte nigro-pilosis (nec albo-pilosis interdum pilis nigris paucis instructis), rhachidibus fere semper pilis albis nigrisque (nec mere albis) obtectis, bracteis 4–6 mm longis dense pilis albis longis et nigris brevibus obtectis (nec 5–8 (–10) mm longis, imprimis albo-pilosis), leguminibus longioribus, ab *A. antilibani* BUNGE caulibus (si evolutis) et rhachidibus pilis brevibus et longis patentibus (nec subappressis aequi-longis) obtectis.

**Plants** 10–18 cm tall, acaulescent or shortly caulescent, mostly densely hairy. **Rootstock** slightly branched, in upper part densely covered with remnants of old leaves. **Stems**, if present, up to 3 (–8) cm long, sometimes slightly branched. densely covered with ascending to spreading white hairs 0.3–1 mm long, with few black hairs mixed in, toward the nodes with more black hairs. **Stipules** whitish with greenish tips, 5–9 mm long, narrowly triangular and sometimes linear-acuminate, adnate to the petiole for 2–3.5 mm, distinctly vaginate-connate behind the stem, rather densely covered with appressed to subappressed white, or black and white, or especially the upper ones nearly exclusively black hairs 0.3–1.5 (–2) mm long. **Leaves** 5–12 cm long; petiole 1.5–4 cm long, densely covered with subappressed to mostly spreading white hairs 0.2–0.6 mm long and with fewer spreading white and sometimes also black hairs 1–2 (–2.5) mm long like the rachis. **Leaflets** in 8–13 pairs (in the first leaves sometimes only in 2–5 pairs), elliptic, 5–9 × 3–5 mm, rounded to slightly emarginate, on both sides densely to very densely or on the upper side only rather densely covered with subappressed white hairs ca. 1 (–1.5) mm long, mostly flat. **Peduncles** 3–8 cm long, ascending to erect, hairy like the rachis but all hairs spreading, toward the raceme with increasing black hairs, with distinctly double indumentum. **Racemes** 4–6 cm long, rather densely 10- to many-flowered, slightly elongating in fruit; axis mostly with long white and short black hairs. **Bracts** greenish to whitish, linear-acute to narrowly triangular, 4–6 mm long, with ± spreading long white and short black hairs, near the base with minute, sessile, globular glands. **Pedicels** ca. 1 mm long, hairy. **Calyx** 12–13 mm long, tubular to slightly inflated, obliquely cut at the mouth, rather densely covered, especially ventrally, with spreading white hairs 1–2 mm long and, especially dorsally and toward the teeth, with tangled, subappressed to spreading black hairs 0.2–0.5 mm long; teeth narrowly triangular, 3–5 mm long, white hairy on the inner side. **Petals** greenish-yellow, sometimes fading to pale violet or pale violet-greenish. **Standard** 18–22 mm long; limb 9–10 mm wide, obovate, triangularly narrowed toward the distinctly emarginate tip, gradually narrowed at the base. **Wings** 17–20 mm long; limbs narrowly oblong to narrowly elliptic, round-tipped, 7–8 × 2.5–3 mm; auricle 1.5 mm long, claw 10–13 mm long. **Keel** 16–19 mm long; limbs obliquely obovate-curved, with in upper part widely curved lower edge and slightly concave upper edge, obtuse-tipped, 6.5–7 × 3 mm; auricle ca. 0.5 mm long, claw 9.5–12 mm long. **Stamen-tube** truncate at the mouth. **Ovary** sessile, densely white hairy; style glabrous. **Legumes** sessile, narrowly ellipsoid, ca. 14 mm long, 4 mm high and wide, obtusely carinate ventrally, widely and shallowly grooved

dorsally, with a curved beak ca. 5 mm long, completely bilocular; valves thin, pale brown, densely covered with spreading white hairs 3–5 mm long and with very short hairs. Seeds 2–3 in each locule,  $4 \times 2.5$  mm, reddish-brown, irregularly pitted.

Additional specimens seen: Syria: S. of Jabrud, 1300 m, 27.5.1939, Dinsmore 20403 (K) ; Damas, Doummar, 22.4.1896, Papon [G]. – ibidem, 14.4.1889, Peyron 1680 [G]. – ibidem, 22.4.1896, Peyron [G] – ibidem, 31.5.1953, Pabot [G]. – Doummar et Jebel Gasyun, 21.4.1935, Mouterde [G]. – [Jebel] Maaloula [S Jabrud], 1500 m, 12.5.1951 & 2.5.1954, Pabot [G]. – Jebel Abou el Aata, N. Damas, 11.4.1952 & 9.4.1953, Pabot [G]. – Douma (NE. Damas), 5.6.1953, Pabot [G]. – [Antilibanon], entre Maaret el Bach et Talaat Mussa, 1800–2000 m, 18.5.1952, Pabot [G]. – route Damas - Homs, vers Pastal, 1300 m, 26.4.1953, Pabot [G].

***Astragalus sarikamishensis* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Turkey, Prov. Kars, [A9] 4 km SW Selim toward Sarikamiş, 1850 m, *Artemisia*-steppe, 12.7.1959, A. Huber-Morath 16147 [G; iso MSB].

Differt ab *A. macrourus* HOHEN., cui habitu similis, stipulis 6–9 (nec usque ad 15) mm longis, petiolo vix adnatis, caule distincte decurrentibus, inter se liberis vel breviter tantum connatis (nec petiolo per 2–4 mm adnatis, alte vaginato-connatis), rhachidibus pilis confuse patentibus 0,2–1 mm longis (nec subappressis vel subappressis usque ad partim patentibus usque ad 0,5 mm longis) obtectis, foliolis supra marginem versus tantum sparse pilosis, subtus laxe ad densiuscule pilis oblique patentibus obtectis (nec utrimque densiuscule usque ad dense pilis subappressis ad oblique patentibus obtectis), pedunculis pilis patentibus tantum (nec appressis ad patentibus) obtectis, vexillo in medio 8–9 mm lato, infra medium abrupte constricto, basi in unguem brevem angustato (nec rhomboideo-ovato, in parte inferiore 6–7 mm lato, non abrupte constricto, laminis alarum 3–3,3 mm (nec 2–2,5 mm) latis et leguminibus rostro 1–1,5 mm (nec 4–6 mm) longo provisis.

Plants acaulescent to shortly caulescent, 18–30 cm tall. Stems, if present, up to 4 cm long, angular-sulcate, loosely to densely covered with subappressed to mostly ascending white, toward the nodes also black hairs 0.3–0.5 mm long. Stipules greenish, 8–9 mm long, triangular, very shortly adnate to the petiole, distinctly decurrent at the stem, free from each other or very shortly vaginate-connate, sparsely to loosely covered with ascending white or sometimes also black hairs, at the margins partly sitting on little tubercles. Leaves 14–17 cm long; petiole 2–4 cm long, like the rachis distinctly grooved adaxially, loosely to rather densely covered with  $\pm$  spreading, tangled, often curved or bent white hairs 0.2–1 mm long, sometimes with few black hairs mixed in, near the insertion of the leaflets with minute, globular, sessile glands. Leaflets in 15–19 pairs, narrowly elliptic to elliptic,  $7-15 \times 2-7$  mm, subobtusely to narrowly rounded or sometimes minutely retuse, covered on the upper side mainly toward the margins sparsely, on the underside loosely to rather densely with ascending hairs up to 1 mm long. Peduncles 8–15 cm long, finely striate-sulcate, sparsely to loosely, or in upper part sometimes more densely hairy like the rachis, partly glabrescent with age, just below the raceme with some black hairs. Racemes 7–9 cm long, densely many-flowered, strongly elongating in fruit and up to 20 cm long; axis angular-grooved, loosely covered with spreading white and black hairs up to 1 mm long. Bracts 6–8 mm long, linear-acute, white and black hairy, near the base with minute, sessile glands. Pedicels ca. 0.5 mm long, mostly black hairy. Calyx 10–12 mm long, slightly tubular-inflated, strongly



obliquely cut at the mouth, loosely covered with  $\pm$  spreading white hairs and, especially dorsally, also with flexuose, subappressed to ascending or partly spreading, shorter black hairs; teeth subulate, 3–4 mm long. Petals probably yellow. Standard ca. 20 mm long; limb in the middle 8–9 mm wide, gradually narrowed toward the wide, emarginate tip, below the middle abruptly constricted, at the base subabruptly narrowed into the very short claw. Wings ca. 15 mm long; limbs obovate-spathulate, widest near the rounded tip,  $7 \times 3$ –3.3 mm; auricle ca. 1.5 mm long, claw ca. 8 mm long. Keel ca. 14 mm long; limbs obliquely obovate, with in the upper part rectangular-curved lower edge and slightly concave upper edge, subacute,  $6.5 \times 2.5$  mm; auricle minute, claw ca. 8 mm long. Stamen-tube truncate at the mouth. Ovary subsessile, white hairy, style glabrous. Legumes sessile, obliquely narrowly ellipsoid, ca. 10 mm long, 4 mm high and 3 mm wide, obtusely keeled ventrally, flattened to very shallowly, widely grooved dorsally, with a strongly hooked beak 1–1.5 mm long, bilocular; valves thin but tough, rather densely covered with very short hairs and with tangled, spreading hairs ca. 2 mm long.

***Astragalus shuturunkuensis* PODLECH, sp.n. (Sect. *Malacothrix*)**

Holotype: Iran, Province of Bakhtiari [Lorestan], Kuh-i-Shuturan, 2440 m, 26.5.1941, W.N. Koelz 17822 [W, iso MSB].

Differt ab *A. spachianus* BOISS. & BUHSE stipulis 2–3 (nec 3–7) mm longis a petiolo fere liberis (nec per 1–3 mm petiolo adnatis), foliis 3–4,5 cm (nec 3–14 (–20) cm) longis, foliolis distincte minoribus  $2\text{--}4 \times 1,5\text{--}3$  mm, apice emarginatis (nec rotundatis usque ad acutiusculis), pilis ascendentibus usque ad subpatentibus (nec appressis) obtectis, petalis carmineis (nec flavis vel viridi-flavis) et vexillo anguste obovato ca. 5 mm lato (nec obovato ad rhomboidei-elliptici, 5–9 mm lato).

Plants 8–12 cm tall, acaulescent to subacaulescent,  $\pm$  caespitose, densely hairy. Root-stock divided, with short, slender branches. Stems, if present, up to 1.5 cm long, densely covered with subappressed, white hairs 0.4–0.7 mm long. Stipules whitish to slightly greenish, narrowly triangular to triangular, 2–3 mm long, nearly free from the petiole, shortly connate behind the stem, rather densely covered with short, subappressed white or black and white hairs, at the margins with cilia up to 1 mm long. Leaves 3–4.5 cm long cm long; petiole 0.8–2 cm long, like the rachis slender, rather densely to densely covered with subappressed to partly slightly ascending white hairs 0.2–0.5 mm long. Leaflets in 11–13 pairs, those of the first leaves in the year only with 5–6 pairs, elliptic,  $2\text{--}4 \times 1.5\text{--}3$ ,  $\pm$  distinctly emarginate, covered on both sides rather densely to densely with ascending to nearly spreading, often tangled hairs ca. 0.5 mm long, mostly folded. Peduncles 5–7 cm long, ascending to erect, sometimes recurved, rather densely to densely covered with appressed white, towards the raceme also black hairs 0.2–0.5 mm long. Racemes nearly globular, densely 8–12-flowered. Bracts narrowly triangular, 3–4 mm long, predominantly black hairy. Pedicels ca. 1 mm long, hairy. Calyx 10–12 mm long, tubular, slightly inflated, rather densely covered with very fine, tangled,  $\pm$  spreading white hairs 0.5–1.5 mm long, towards the teeth and dorsally also with black hairs; teeth subulate to narrowly triangular, 3–4 (–5) mm long, white hairy on the inner side. Petals carmine, fading to dark brownish-violet. Standard ca. 15 mm long; limb ca. 5 mm wide, narrowly obovate, obtuse, at the base gradually narrowed into the claw. Wings ca. 13 mm long; limbs narrowly oblong to slightly dilated toward

the rounded tip, ca.  $5 \times 1.8$  mm; auricle ca. 0.5 mm long, claw ca. 8 mm long. Keel ca. 12 mm long; limbs obliquely obovate-curved, with in upper part widely curved lower edge and concave upper edge, subacute-tipped, ca.  $4 \times 1.8$  mm; auricle short, acute, claw ca. 8 mm long. Stamen-tube truncate at the mouth. Ovary sessile, hairy, style sparsely hairy in the lower part. Legumes unknown.

***Astragalus pseudoquisqualis* PODLECH, sp.n. (Sect. *Mesocarpon*)**

Holotype: ad declivia argillosa abrupta inter pag. Oj-barik et pag. Sina in promontoriis montium Tschulbair, 6.6.1929, A.I. Vvedensky in Herb. Fl. SSSR 6233 [LE; iso B, BM, C, E, FI, G, LE, MSB, P, PE, S, W, WU].

Differt ab *A. quisqualis* BUNGE plantis densiuscule pilosis, indumento caulis e pilis patentibus 0,1–0,5 mm longis et insuper pilis 1–2,5 mm longis consistente (nec plantis glabris vel subglabris pilis 0,3–0,6 mm longis), calycis indumento duplo, pilis longioribus usque ad 4 mm longis oblecto (nec indumento simplice, pilis longioribus usque ad 1 mm longis) et vexillo 24–25 mm longo (nec 15–20 mm longo).

Plants 40–55 cm tall, rather densely white hairy. Stems singular or several, erect or ascending from the base, at the base 3–4 mm in diameter, terete, rather densely covered with a double indumentum of spreading hairs 0.1–0.5 mm long and much fewer hairs 1–2.5 mm long. Stipules whitish-membranous, 5–10 mm long, narrowly triangular-acuminate to filiform, adnate to the petiole for 1–2 mm, hairy. Leaves 7–12 cm long, nearly sessile; rachis loosely covered with a double indumentum like the stem. Leaflets in 8–17 pairs, 8–15  $\times$  3–6 mm, narrowly elliptic, narrowly rounded to subacute, minutely mucronulate, rather densely covered on both sides with very thin, soft hairs up to 2 mm long. Racemes sessile to subsessile in the axils of upper leaves, globular to shortly ovoid, 4–5 cm in diameter, densely many-flowered. Bracts whitish, narrowly triangular to linear-acute, 5–8 mm long, white-hairy. Flowers sessile or subsessile. Bracteoles absent. Calyx ca. 15 mm long, campanulate-tubular, densely covered with a double indumentum of tousled, flexuous, spreading short hairs and with very long hairs up to 4 mm long; teeth narrowly triangular, 5–7 mm long, somewhat shorter than the tube, densely hairy on the inner side. Petals yellowish, the standard completely covered with long subappressed to spreading hairs. Standard 24–25 mm long; limb distinctly curved upward at the middle, ca. 9 mm wide, elliptic, rounded at the tip, at the base angularly passing into the long claw. Wings as long as the standard; limbs narrowly oblong, round-tipped, 11  $\times$  3 mm; auricle broad, 1–1.5 mm long, claw 13 mm long. Keel 23 mm long; limb slightly bent upward, obliquely elliptic triangular, with widely and slightly curved lower edge and  $\pm$  straight upper edge, round-tipped, 10  $\times$  4.5 mm; auricle triangular, ca. 1 mm long, claw 13 mm long. Stamen-tube very obliquely cut at the mouth. Ovary sessile, densely white hairy; style hairy up to the middle. Legumes unknown.

***Astragalus sufianicus* PODLECH & SYTIN, sp.n. (Sect. *Onobrychoidei*)**

Holotype: Persia, Prov. Azerbaijan orient., in jugo inter Marand et Sufian, 1600–1750 m, 6.6.1971, K.H. Rechinger 41313 [M; iso J. Lamond 3764, E].

Differt ab *A. cancellatus* BUNGE stipulis hyalino-membranaceis 1,5–3 mm longis (nec albidi-viridibus 3–6 mm longis, bracteis florigeris hyalino-membranaceis 1–2 mm

longis (nec viridiusculis 3–4 mm longis), calyce ca. 6–7 mm (nec 8–10 mm) longo, pilis subappressis usque ad ascendentibus, 0.4–1 mm longis (nec  $\pm$  patentibus, 1–1.5 mm longis) oblecto, dentibus 2–3.5 mm (nec 3–5 mm) longis et vexillo 13–15 mm (nec usque ad 20 (–23) mm) longis.

**Plants** 12–30 cm tall, rather densely to densely hairy. Rootstock with short, slender, subterranean branches. **Stems** several, prostrate to ascending or erect, slender, sometimes flexuous, obtusely angular-sulcate, very densely covered with medifixed, appressed white hairs 0.3–0.5 mm long with black hairs mixed in. **Stipules** hyaline-membranous, 1.5–3 mm long, narrowly triangular, adnate to the petiole for 0.5–1.5 mm, shortly to highly up vaginate-connate, sparsely white and black hairy. **Leaves** 2–4 cm long, subsessile or with petiole up to 1 cm long; rachis slender, densely hairy like the stem. **Leaflets** in (5–) 7–10 pairs, narrowly elliptic, 3–10  $\times$  1–3 mm, subacute to obtuse, on the upper side loosely to rather densely, on the underside rather densely to densely covered with medifixed, appressed hairs 0.8–1 mm long. **Peduncles** slender, 2–6 cm long, densely white and black hairy like the stem. **Racemes** capitate to ovoid, densely 6–10-flowered, slightly elongating in fruit. **Bracts** membranous-hyaline. 1–2 mm long, predominantly black hairy, at the margins with minute sessile glands. Flowers subsessile. **Calyx** (5–) 6–7 mm long, campanulate, the tube whitish, rather densely covered with strongly asymmetrically bifurcate to subbasifixed, subappressed to ascending white and black hairs in different relations 0.4–1 mm long, sometimes with black longitudinal stripes; teeth greenish, narrowly triangular, 2–3.5 mm long, at the margins with spreading hairs sitting on distinct tubercles. **Petals** purple. **Standard** 13–15 mm long; limb 5–6 mm wide, ovate, gradually narrowed or slightly tongue-like narrowed toward the slightly emarginate tip, at the base narrowed into the short claw. **Wings** ca. 10 mm long; limbs narrowly oblong, slightly dilated toward the obliquely retuse tip, 6  $\times$  2 mm; auricle 0.5 mm long, claw ca. 4 mm long. **Keel** ca. 8 mm long; limbs obliquely obovate, with in upper part widely rectangular-curved lower edge and  $\pm$  straight upper edge, subacute-tipped, 4  $\times$  2 mm; auricle minute, claw ca. 4 mm long. **Stamen-tube** truncate at the mouth. **Ovary** sessile, hairy; style glabrous. **Legumes** sessile, narrowly ellipsoid, 5–8 mm long, 2.5 mm high, ca. 2 mm wide, carinate ventrally, narrowly grooved dorsally, abruptly narrowed into a slender, recurved beak 3–4 mm long, bilocular; valves densely covered with symmetrically to strongly asymmetrically bifurcate, subappressed to ascending white hairs 0.6–1.5 mm long, glabrescent with age.

Additional specimens seen: Azerbaijan. **Nakhichevan**: between Djagr and Buzgov, 7.7.1982, Sytin & Shanzer [MSB].

Turkey. **Van**: [B9] 7 km from Van to Erçek, 1850 m, 5.6.1966, *Davis 44398* (E).

Iran. **Azerbaijan Garbi**: 10–12 km SE Maku, 1100 m, 15.5.1974, Reching 46025 [M, W]. – ibidem, 5.5.1971, Reching 39266 [M, W]. – Bazargan, 20 km from Maku, 1300 m, 28.6.1982, Akbarzadeh & Salari 41113 [TARI]. – Maku, 1150 m, 17.6.1972, Foroughi 6348 [TARI]. – Maku, 9–11 km from Shote to Chaldoran, 1310 m, 39°09' N, 44°41'41" E, 6.6.2002, Maassoumi & Safavi 82554 [TARI]. – in valle fluvii Qotur W Khoy, 1350–1450 m, 17.7.1974, Reching 49518 [W]. – Khoy, Habash, 2400 m, 15.6.1975, Amini 1551 [TARI]. – 30 km S Khvoy versus Shahpur, 1500 m, 12.6.1971, Reching 41781 [M, W]. – 33 km from Khoy to Shahpur [Salmas], 1500 m, 30.6.1978, Assadi & Mozaffarian 30480 [MSB, TARI]. – 26 km from Salmas toward Kouzarash, 2320 m, 17.6.2000, Maassoumi & Nikchehreh 80302 [MSB, TARI]. – between Urumieh and Salmas, 1900 m, 2.7.1998, Assadi 78947 [TARI]. – Urumieh, Silvana, Targavar, 1700 m, 14.6.2000, Maassoumi & Nikchehreh 80240 [MSB, TARI]. – Rezaiyeh, Margevar, 1750 m, 13.6.1972, Foroughi 5259 [TARI]. – 20 km from Oshnaviyeh to Urmia, 1600 m, 17.6.1973, Siami 5319 [TARI]. – Rezaiyeh, by the lake just N of Golman khaneh, 1400 m, 1.6.1974,

Wendelbo, Assadi & Shirdelpur 1997 [TARI]. – Lake Urumiyeh, Ashk Island, 1300–1400 m, 3.6.1983, Zehzad 83316 [TARI]. – inter Oshnaviyeh et Naqadeh, 1500 m, 8.7.1974, Rechinger 49026 [M, W]. – Azerbaijan Sharqi: inter Miab et Babre ad radices montium Kiyamaki Dag, 1600 m, 18.6.1977, Rechinger 57032 [G, MSB, W]. – in jugo inter Marand et Sufian, 1600–1750 m, 6.6.1971, Rechinger 41314 [M]. – ad Azaran prope Sareskand, 1800 m, 14.6.1977, Rechinger 56669 pp. [G, MSB]. – 40 km from Razi to Germi, 1700 m, 22.6.1980, Mozaffarian & Nowroozi 34803 [TARI]. – Azarshahr toward Ajab Shir, 1500 m, 5.5.1987, Youssefy 1475 [herb. Agric. Univ. Tabriz]. – 5 km S of Tabriz on road to Sperkhan, 1600 m, 3.7.1991, Mozaffarian 69847 [TARI]. – 2–12 km W Zonuz, 1500–1700 m, 7.6.1971, Rechinger 41348 [M, W]. – ibidem, Lamond 3814 [E, M]. – ad ripas lacus Shebli, 2000 m, 1.6.1971, Rechinger 40739 [M, W]. – Ahar, 14 km N Tazehkand toward Nabijan, 2480 m, 23-6-1978, Termeh, Moussavi & Habibi 38941 [W]. – 30 km N Meshkinshahr, route de Moghan, 1240 m, 15.5.1960, Pabot 2907 [G, MSB]. – Kordestan: Kauleh, between Sanandaj and Saqqez, 2070 m, 21.5.1966, Archibald 2123 [K]. – Tehran: foothills of the southern range of Elbors mountains, just above Darakeh, 17.6.1972, Alava 10543 [TUR]. – Zanjan: 14 km W Takestan, 1380 m, 19.5.1960, Pabot 3411 [G, MSB]. – inter Rescht et Kaswin prope Mesrā et Agababa, 1400–1600 m, 13.5.1902, J. & A. Bornmüller 6836 [MSB, W]. – 8–22 km SW Zanjan versus Bijar, 1800 m, 30.6.1971, Rechinger 42357 [W].

***Astragalus turgidus* PODLECH, sp.n. (Sect. *Plagiophaca*)**

Holotype: Persia, [Prov. Esfahan] Qashqai, Kuh-e Surmandeh (Kuh-e Alijuq) N Semirom, 3900 m, 7.6.1974, K.H. Rechinger 47560 [MSB; iso W].

Differt ab *A. plagiophacos* MAASOUMI & PODLECH foliis 14–18 (nec 8–11) -jugis, foliolis anguste oblongis, 7–12 × 4 (nec 3–7 × 1–3) mm, supra laxe subappresse pilis 0,5–1 mm longis (nec dense pilis ± patentibus usque ad 1,5 mm longis) obtectis, bracteis lineari-acutis 5–6 mm longis (nec 3–4 mm longis, ovati-acuminatis,) calyce 11–14 (nec 9) mm longo, dentibus 5–5,5 mm (nec 3 mm) longis et leguminibus 20–25 mm longis, 10–14 mm altis et 7–8 mm latis (nec 11–13 mm longis, 7–8 mm altis et 5 mm latis).

Plants 7–12 cm tall, shortly caulescent, densely covered with flexuous, tangled hairs. Rootstock up to 15 mm thick, with short to elongated subterranean stolons, remotely furnished with scale-like stipules. Stems short or nearly absent, rarely up to 5 cm long, ascending, angular-sulcate, at lower internodes glabrous, at upper internodes loosely to densely covered with spreading hairs 0.2–0.5 mm long. Stipules whitish-membranous to greenish, 3–5 mm long, triangular, very shortly adnate to the petiole, the lower ones highly up vaginate-connate behind the stem, glabrous, the upper ones shortly vaginate-connate, loosely white hairy. Leaves 3–4.5 cm long; petiole 0.3–1.5 cm long, densely covered with tangled, spreading white hairs 0.1–0.5 (–0.7) mm long like the rachis. Leaflets close together, in 14–18 pairs, narrowly elliptic or narrowly obovate to elliptic, 7–12 × 4 mm, rounded to slightly emarginate, strongly folded, on the upper side loosely or toward the margins more densely, on the underside rather densely covered with subappressed to nearly spreading hairs 0.5–1 mm long. Peduncles 3–6 cm long, hairy like the rachis but sometimes toward the raceme also with black hairs. Racemes shortly ovoid, densely many-flowered. Bracts membranous, 5–6 mm long, linear-acute, with spreading, predominantly black hairs. Flowers nearly sessile. Calyx 11–14 mm long, tubular, obliquely cut at the mouth, rather densely covered with tangled, ± spreading white hairs 0.8–1.2 (–1.5) mm long, sometimes with some black hairs mixed in, especially at the base and teeth; teeth filiform, 4–5.5 mm long, hairy on the inner side. Petals whitish when dry. Standard ca. 18 mm long; limb ca. 6 mm wide, rhombic-elliptic, round-tipped, gradually narrowed at the base. Wings ca. 15 mm long; limbs narrowly oblong, round-tipped, 6 × 1.5 mm; auricle ca. 0.4 mm long, claw 9 mm long. Keel ca.

14 mm long; limbs obliquely elliptic, with widely curved lower edge and nearly straight upper edge, subacute-tipped,  $5.5 \times 2$  mm; auricle minute, acute, claw ca. 8 mm long. Stamen-tube truncate at the mouth. Ovary sessile, narrowly ellipsoid, very densely white hairy; style glabrous. Legumes sessile, ovoid, bladdery-inflated, 20–25 mm long, 10–14 mm high and 7–9 mm wide, very shortly acuminate, slightly carinate ventrally, shallowly grooved dorsally, unilocular; valves very thin, reddish-brown suffused, rather densely covered with spreading white hairs 3–4 mm long and with flexuose-curved very short hairs. Seeds two, ca.  $5 \times 5$  mm, pale brownish.

Additional specimens seen: Iran. Boyer Ahmadi: Kuhe Dena, Gardaneh Sichani, 1.8.1949, Behboudi 1063-E [MSB]. – Chahar Mahal Bakhtiari: Ardal, Zard-Kuh, 2700–3200 m, 14.–15.6.1973, Iranshahr & Moussavi 15595-E [W]. – Lorestan: Gahar, 2750 m, 1.6.1941, Koelz 17983 [W].

***Astragalus pseudobagramiensis* PODLECH, sp.n. (Sect. *Polycladus*)**

Holotype: Afghanistan, Bagrami, Nedjerai Tal, 26.6.1951, H.F. Neubauer 2514 p.p. [M].

Differt ab *A. bagramiensis* ŠIRJ. & RECH.f. (e sect. *Irineae*), cui similis, stipulis in tergo caulis distincte vaginato-connatis (nec inter se liberis), foliolis 5–8 (nec 3–5) jugis, calyce albo-nigro-piloso (nec mere albo-piloso), dentibus 1–1,2 mm (nec 2–2,5 mm) longis, leguminibus stipite 2 mm longo suffultis (nec subsessilibus), rectis vel parpaullo curvatis (nec arcte curvatis), pilis 0,3–0,4 mm (nec 1 mm) longis obtectis.

Plants 4–8 cm tall, densely caespitose, covered with basifixed,  $\pm$  rigid, appressed to subappressed or slightly ascending hairs 0.3–0.5 mm long. Rootstock strongly and repeatedly divided with short branches. Stems numerous, prostrate to ascending or erect, 2–6 cm long, rather densely covered with white, below the nodes or elsewhere sometimes also with black hairs. Stipules 1–1.5 (–2) mm long,  $\pm$  free from the petiole, behind the stem distinctly vaginate-connate, white hairy, sometimes with few additional black hairs. Leaves 0.8–2 cm long; petiole 0.3–1 cm long, like the rachis slender, often flexuose-curved, hairy like the stem. Leaflets in 5–8 pairs, elliptic or obovate,  $1-2.5 \times 0.5-1.3$  mm, rounded at the tip, on the upper side especially hairy toward the margins, on the underside rather densely to densely subappressed hairy, mostly folded. Peduncles 2–3 cm long, slender, hairy like the stem but increasingly with black hairs toward the raceme. Racemes 3–8-flowered. Bracts whitish-membranous, ovate-triangular, 0.5–0.8 mm long, white and black hairy. Pedicels ca. 1 mm long, predominantly black hairy. Calyx ca. 3 mm long, campanulate-turbinate, rather densely covered with subappressed white hairs up to 0.6 mm long and with mostly somewhat shorter black hairs in different relations; teeth narrowly triangular, 1–1.2 mm long, hairy on the inner side. Petals (in dry state) whitish. Standard ca. 8 mm long; limb orbicular, 5.5 mm wide, slightly retuse, at the base abruptly constricted into the cuneate claw ca. 3 mm long. Wings ca. 7 mm long; limbs narrowly oblong, round-tipped,  $4 \times 1.2$  mm; auricle 0.5 mm long, claw slender, 3 mm long. Keel 7 mm long; limbs obliquely elliptic-curved, with widely curved lower edge and concave upper edge, obtuse-tipped,  $5 \times 2$  mm; auricle short, claw 2.5 mm long. Stamen-tube slightly obliquely cut at the mouth. Ovary with a stipe ca. 1 mm long, white hairy; style and stigma glabrous. Legumes with a stipe ca. 2 mm long, obliquely ellipsoid, straight to scarcely curved, with a nearly straight ventral line and a distinctly curved dorsal line, 6–8 mm long, 2–3 mm high, 2–2.5 mm wide, subacute, carinate ventrally, flattened to widely grooved dorsally, unilocular;

valves thin, straw-colored, densely covered with thin, subappressed to ascending white hairs 0.3–0.4 mm long. Seeds mostly three,  $3 \times 2$  mm, pale brownish, smooth, shiny.

Remark: Similar to *A. bagramiensis* (sect. *Irinaea*) in habit and mixed with the type material of the latter.

***Astragalus pseudocapito* PODLECH, sp.n. (Sect. *Stereothrix*)**

Holotype: Iran. Azarbaijan, Sarab, Gharieh-ye Mir-Kuh-Hadji, 1700–1900 m, 11.–12.6.1986, F. Termeh & Daneshpajouh 41369-E [MSB; iso IRAN, W].

Differt ab *A. capito* BOISS. & HOHEN. pilis mere albis (nec partim nigris immixtis) obtectus, caulibus pilis  $\pm$  patentibus (nec subappressis) obtectis, stipulis 4–5 (nec 2–4) mm longis, foliis 6–7-jugis (nec 6–10 (–12) - jugis), petiolo pilis 1–2 mm (nec 0,2–1 mm) longis oblecto et bracteis florigeris subulato-filiformibus 11–12 mm longis (nec anguste ovato-acuminatis, 4–7 mm longis).

Plants dwarf, caespitose, 7–10 cm tall, covered with somewhat rigid white hairs. Root-stock branched, with very short to elongated subterranean branches. Stems 1.5–2 cm long, densely to very densely covered with  $\pm$  spreading hairs 0.5–0.8 mm long. Stipules whitish, 4–6 mm long, narrowly triangular, adnate to the petiole for up to 1 mm, behind the stem vaginate-connate for up to 1.5 mm, with subappressed hairs, at the margins with spreading hairs up to 1 mm long, often sitting on little tubercles. Leaves 1–2.5 cm long; petiole short, 0.4–0.8 cm long, including the rachis densely hairy like the stem. Leaflets often touching each other, in 6–7 pairs, narrowly elliptic,  $3\text{--}7 \times 1.5\text{--}2$  mm, round-tipped, on both sides densely covered with ascending hairs ca. 1 mm long, mostly boat-shaped with reddish margins curved upward. Peduncles ca. 1 cm long, densely covered with tangled,  $\pm$  spreading, white hairs 1–2 mm long. Raceme ovoid-globose, ca. 2.5 cm in diameter, densely many-flowered. Bracts reddish, subulate-filiform, 11–12 mm long, rather densely spreadingly hairy. Flowers nearly sessile. Calyx tubular-turbinate, ca. 13 mm long, densely covered with  $\pm$  spreading white hairs ca. 2 mm long; teeth linear-subulate, often red-suffused, 7–8 mm long, hairy on the inner side. Petals violet. Standard 16 mm long; limb elliptic, 5–6 mm wide, obtuse-tipped, at the base subabruptly passing into the very short claw. Wings ca. 13 mm long; limbs narrowly oblong, round-tipped, ca.  $6 \times 2$  mm; auricle ca. 1 mm long, claw 7 mm long. Keel ca. 12 mm long; limbs obliquely elliptic, with in the middle widely curved lower edge and  $\pm$  straight upper edge, acute-tipped,  $5.5 \times 2.5$  mm; auricle short, claw 7 mm long. Stamen-tube truncate at the mouth. Ovary subsessile, narrowly ellipsoid, with appressed white hairs; style glabrous. Legumes unknown.

***Astragalus pseudoshebarensis* PODLECH, sp.n. (Sect. *Trachycercis*)**

Holotype: Fars, Gharieh-ye Moshkan, Kuh-e Sare-Safid (N Neyriz), 2700–3000 m, 25.5.1975, A. Musavi & Tehrani 33617-E [W].

Differt ab *A. shebarensis* PODLECH petiolo rachideque pilis subappressis usque ad ascendentibus 0,5–0,6 mm longis (nec appressis 0,6–0,8 mm longis) oblecto, foliolis  $2\text{--}5 \times 1,5\text{--}3$  mm (nec  $2\text{--}5 \times 1\text{--}1,5$  mm, planis (nec scaphiformibus), pedunculis 1,5–3 cm (nec 0,2–1 (–1,5) cm) longis, pilis subappressis usque ad ascendentibus albis (nec appressis, apicem versus nigris immixtis) obtectis, racemis 1–2-floribus (nec 2–5-floribus), bracteis florigeris sparse (nec dense) pilosis, dentibus calycis ovati-triangulo-

laribus 0.5–1 mm longis (nec anguste triangularibus 1–2 mm longis) et leguminibus 15–25 (nec 15–18) mm longis et 8–10 (nec 7–8) mm latis.

Plants suffruticose, 4–6 cm tall, acaulescent or nearly so, caespitose. Rootstock branched. Stems of the current year, if rarely present, very short, densely covered with subappressed hairs ca. 0.8 mm long. Stipules whitish, 2–3 mm long, narrowly triangular, shortly adnate to the petiole, densely covered with appressed to subappressed white hairs. Leaves 1.5–3 cm long; petiole up to 0.7–1.2 cm long, rather densely to densely covered with subappressed to partly ascending hairs 0.5–0.6 mm long like the rachis. Leaflets in 3–4 pairs, elliptic, 2–5 × 1.5–3 mm, rounded to subacute, on both sides densely covered with subappressed hairs 0.4–0.6 mm long, flat. Peduncles 1.5–3 cm long, white hairy like the rachis. Racemes 1–2-flowered. Bracts whitish-hyaline, 1.5–2 mm long, ovate-triangular, sparsely covered with white or predominantly white hairs, at the margins with basifixed hairs ca. 0.5 mm long. Pedicels 1–2 mm long, black hairy. Calyx ca. 10 mm long, tubular, loosely covered with strongly asymmetrically bifurcate, curly, ascending white hairs 0.6–1 mm long and more densely with ± symmetrically bifurcate, flexuose, subappressed mostly distinctly shorter black hairs; teeth ovate-triangular, 0.5–1 mm long. Petals mostly unknown. Keel ca. 16 mm long. Legumes sessile, ovoid-inflated, 15–25 mm long, 8–10 mm high and wide, rounded ventrally and dorsally, triangular-acuminate toward the acute tip, bilocular; valves membranous, greenish-straw-colored, rather densely covered with extremely asymmetrically bifurcate to subbasifixed, ascending to nearly spreading, straight white hairs 1.5–2 mm long and with ± medifixed, often flexuose, subappressed to slightly ascending white hairs 0.3–0.6 mm long

Additional specimens seen: Iran. Kerman: 50 km W of Ravar mountains, above the Hamkar coal mine, 2350–2700 m, 1.6.1986, Assadi & Bazgosha 56239 [TARI]. – Yazd: Shir-Kuh, Gharieh-ye Hedesh (Deh-bala), 2800–3300 m, 10.6.1976, Mousavi & Tehrani 35033-E [W]. – Shirkuh mts., above Deh-bala, 3500 m, 21.6.1975, Foroughi & Assadi 17942 [TARI]. – ca. 50 km E of Bafq, mountains above village Hamsook, 2300–2600 m, 30.5.1986, Assadi & Bazgosha 56079 [TARI].

### References

- HOLMGREN P., HOLMGREN N., 2003: Index Herbariorum. – <http://www.nybg.org/bsci/ih/> (update 10/01/2003).
- KOMAROV V.L. (ed.), 1946: Flora URSS vol. 12. – Moskva & Leningrad: Academy of Science USSR.
- MAASSOUMI A.A., 1992: Some new species of the genus *Astragalus* sect. *Malacothrix* in Iran. – Iran. J. Bot. 5: 9–15.
- MAASSOUMI A.A., 1993: Revision of *Astragalus* L. sect. *Malacothrix* Bunge (Leguminosae) in Iran. – Sendtnera 1: 157–240.
- PODLECH D., 1985: Revision von *Astragalus* L. sect. *Caprini* DC. (Leguminosae). – Mitt. Bot. Staatss. München 25: 1–924.
- RECHINGER K.H., DULFER H., PATZAK A., 1961: Širjaevii fragmenta astragologica XIII. *Astragalus* Sect. *Malacothrix*. – Sitzungsber. Österr. Akad. Wiss., Math.-nat. Kl., Abt. I, 170: 9–29.
- RECHINGER K.H., DULFER H., PATZAK A., 1961: Širjaevii fragmenta astragologica XIV. *Astragalus* Sect. *Stereothrix*. – Sitzungsber. Österr. Akad. Wiss., Math.-nat. Kl., Abt. I, 170: 29–34.

- RECHINGER K.H., DULFER H., PATZAK A., 1961: Širjaevii fragmenta astragologica XVII. *Astragalus* Sect. *Erioceras*. – Sitzungsber. Österr. Akad. Wiss., Math.-nat. Kl., Abt. I, 170: 59-68.
- RECHINGER K.H., DULFER H., PATZAK A., 1969: Širjaevii fragmenta astragologica XVIII. *Astragalus* Sect. *Proselius*. – Sitzungsber. Österr. Akad. Wiss., Math.-nat. Kl., Abt. I, 177: 89-132.



# ZOBODAT - [www.zobodat.at](http://www.zobodat.at)

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Annalen des Naturhistorischen Museums in Wien](#)

Jahr/Year: 2004

Band/Volume: [105B](#)

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

Artikel/Article: [New species of Astragalus L. \(Leguminosae\), mainly from Iran. 565-596](#)