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## New species of the genus *Astragalus* L. (Fabaceae), mainly from the “Flora Iranica” area

### Summary

During the work on the genus *Astragalus* for the “Flora Iranica” and a planned revision of the whole genus in the Old World several new species (35) could be discovered among the material recently investigated. **They are described here:** Sect. *Aegacantha*: *A. vallis-astoris*; Sect. *Alopecuroidei*: *A. ebrahimabadensis*; Sect. *Ammodendron*: *A. harirudensis*; Sect. *Brachycarpus*: *A. ohbaensis*, *A. pishanxianensis*; Sect. *Craccina*: *A. tenuissimus*; Sect. *Dissitiflora*: *A. ahangarensis*, *A. capitis-regni*, *A. sessiliflorus*, *A. shogotensis*; Sect. *Erioceras*: *A. hecatae*; Sect. *Hololeuce*: *A. repentinus*; Sect. *Hymenostegis*: *A. qorvehensis*; Sect. *Hypoglottidei*: *A. nezva-montis*; Sect. *Incani*: *A. dorudensis*, *A. hamadryadis*, *A. harazensis*, *A. innotabilis*; Sect. *Malacothrix*: *A. absconditus*, *A. anodiophilus*, *A. khunsarensis*, *A. meshkinensis*, *A. segregatus*, *A. shehbazii*, *A. taebiae*; *A. tahbaziae*, *A. vicinalis*; Sect. *Onobrychoidei*: *A. affinis*, *A. dysbatophilus*; *A. ignotus*; Sect. *Ornithopodium*: *A. zourabadensis*; Sect. *Platyglossis*: *A. semitarius*; Sect. *Polycladus*: *A. swatensis*; Sect. *Stereothrix*: *A. bavanatensis*, *A. damghanensis*.

### Introduction

During the work on *Astragalus* for “Flora Iranica” and the planned revision of the whole genus in the Old World, new material sent from several herbaria and collected in recent time has been investigated. So several new species could be found, which are described here.

### Zusammenfassung

Neue Arten von *Astragalus* L. (Fabaceae) vorwiegend aus dem Areal der „Flora Iranica“

Im Verlauf der Bearbeitung der Gattung *Astragalus* für die „Flora Iranica“ und für eine geplante Revision aller altweltlichen Arten der Gattung konnten in dem reichhaltigen Material, das uns in neuerer Zeit zur Bearbeitung zugänglich wurde, 35 neue Arten aufgefunden werden, **die hier beschrieben werden:** Sect. *Aegacantha*: *A. vallis-astoris*; Sect.: *Alopecuroidei*: *A. ebrahimabadensis*; Sect. *Ammodendron*: *A. harirudensis*; Sect. *Brachycarpus*: *A. ohbaensis*, *A. pishanxianensis*; Sect. *Craccina*: *A. tenuissimus*; Sect. *Dissitiflora*: *A. ahangarensis*, *A. capitis-regni*, *A. sessiliflorus*, *A. shogotensis*; Sect. *Erioceras*: *A. hecatae*; Sect. *Hololeuce*: *A. repentinus*; Sect. *Hymenostegis*: *A. qorvehensis*; Sect. *Hypoglottidei*: *A. nezva-montis*; Sect. *Incani*: *A. dorudensis*, *A. hamadryadis*, *A. harazensis*, *A. innotabilis*; Sect. *Malacothrix*: *A. absconditus*, *A. anodiophilus*, *A. khunsarensis*, *A. meshkinensis*, *A. segregatus*, *A. shehbazii*, *A. taebiae*; *A. tahbaziae*, *A. vicinalis*; Sect. *Onobrychoidei*: *A. affinis*, *A. dysbatophilus*; *A. ignotus*; Sect. *Ornithopodium*: *A. zourabadensis*; Sect. *Platyglossis*: *A. semitarius*; Sect. *Polycladus*: *A. swatensis*; Sect. *Stereothrix*: *A. bavanatensis*, *A. damghanensis*.

### *Astragalus vallis-astoris* PODLECH & ZARRE, sp. nova (sect. *Aegacantha*)

Differt ab *A. zanscarensis* BUNGE subsp. *op-lites* (PARKER) I. DEML plantis gracilibus, caulibus basi ad 4 mm diametro (nec robustis, caulibus basi 6–12 mm diametro), caulibus hornotinis 8–20 cm longis, internodiis 10–20 mm longis (nec 1–2[–10] cm longis, internodiis

plerumque 1–4 mm longis), foliolis utrimque densiuscule ad dense pilosis (nec supra glabra vel raro marginem tantum versus sparse pilosis), leguminibus 18–20 mm longis et 6 mm altis, complete bilocularibus (nec 10–15 mm longis et ca. 4 mm altis), incomplete bilocularibus.

Typus: Pakistan, Gilgit, Astor valley, Das Khirim valley, 1.5 km NW Checkpost Chilim, 3300 m, 10. 07. 1999, GRUBER *pa-125/2* (holotypus MSB).

Spiny, rather slender shrubs up to 30 cm tall or more, mostly branched at the base, hairy. Stems more than 20 cm long, at the base ca. 4 mm in diameter, brownish grey bark; stems of the current year 8–20 cm long, loosely covered with subappressed white hairs 0.3–1 mm long, at the nodes with black hairs mixed in. Internodes 10–20 mm long. Stipules whitish-membranous 8–12 mm long, narrowly triangular, long attenuate, in upper half with 2–4 distinct longitudinal nerves, obliquely inserted at the stem, adnate to the petiole for 2–3 mm, sparsely to loosely, subappressed white hairy and ciliate at the margins. Leaves 6–10 cm long, paripinnate, nearly erect; petiole (2.5–)3–4 cm long, with the rachis green, slender, loosely hairy like the stem, spiny but not pungent. Leaflets in 12–14 pairs, narrowly elliptic to elliptic, 5–9 × 1–3 mm, the upper ones gradually diminishing, all shortly mucronulate-acuminate, on both sides rather densely to densely covered with subappressed hairs 0.5–0.8 mm long, flat. Peduncles 2.5–3.5 cm long, loosely white and black hairy like the stem. Racemes 2–5-flowered. Bracts whitish-membranous, filiform, ca. 5 mm long, white and black hairy. Pedicels 3–5 mm long, predominantly black hairy. Calyx 11–12 mm long, campanulate-tubular, loosely covered with ascending to spreading white hairs 0.5–0.8 mm long and with subappressed shorter black hairs; teeth subulate, ca. 3 mm long, sparsely white and black hairy on inner side. Petals yellow, glabrous. Standard ca. 24–25 mm long; limb ca. 9 mm wide, obovate, emarginate, gradually narrowed at the base. Wings ca. 22 mm long; limbs narrowly oblong, obtuse, ca. 11 × 2.5 mm; auricle 0.5 mm long, claw 11 mm long. Keel 18 mm long; limbs obliquely elliptic, with in the middle widely gibbously curved lower edge

and slightly curved upper edge, subacute, ca. 7 × 4 mm; auricle short, claw 11 mm long. Stamen-tube obliquely cut at the mouth. Ovary with a stipe ca. 1 mm long, narrowly ellipsoid, densely subappressed white hairy; style hairy up to the middle. Legumes subsessile, narrowly oblong, 18–20 mm long, ca. 6 mm high and wide, keeled, ventrally, widely grooved dorsally, with a slightly curved beak ca. 5 mm long, completely bilocular; valves pale brownish, thinly coriaceous, rather densely covered with spreading white hairs 0.5–3 mm long and with very short white and black hairs.

Species named after the Astor valley in North Pakistan.

Specimens examined

PAKISTAN: Gilgit: Astor valley, Das Khirim valley, 1.5 km NW Checkpost Chilim, 3300 m, 10. 07. 1999, MILLINGER 3165 (MSB).

***Astragalus ebrahimabadensis* ZARRE & PODLECH, sp. nova (sect. *Alopecuroidei*)**

Differt ab *A. jessenii* BUNGE foliis petiolo 2–6 cm longo suffultis (nec subsessilibus), foliolis 6–7-jugis (nec ad 13-jugis), ovatis ad ellipticis, 10–25 × 6–14 mm (nec anguste ovatis, 12–22 × 3–6 mm), racemis pedunculo sparsissime ad sparse (nec densiuscule) piloso suffultis, 3.5–4 cm (nec ca. 3 cm) diametro, bracteis albo-membranaceis (nec viridiusculis ad flavidis), petalis aequilongis (nec inaequilongis, vexillo 18–20 mm longo, carina 15–17 mm longa), laminis carinae 13 × 7 mm (nec 8 × 5.5 mm).

Typus: Iran, Prov. Markazi, Tehran to Arak, ca. 30 km before Arak, near Ebrahim Abad, "Haftad Gholeh Protected Area", 1800–2200 m, 25.–26. 05. 2000, SH. ZARRE, ESMAIL-ZADEH & MEHRNIA 35029 (holotypus TUH; isotypus MSB).

Plants ca. 60 cm tall, in vegetative parts glabrous or with scattered hairs only. Stems erect, at the base 2–4 mm in diameter, very finely striate. Stipules green, 15–20 mm long, narrowly triangular to triangular, ciliate at the margins with spreading hairs 1–2.5 mm long. Leaves 10–20 cm long; petiole 2–6 cm long, rachis glabrous or near the insertion of leaflets with scattered hairs. Leaflets in 6–7 pairs, ovate to elliptic, 10–25 × 6–14 mm, glabrous. Peduncles mostly ca. 1 cm long, of the lowest inflorescence. 3.5 cm long, of the uppermost

inflorescence very short, all sparsely to very sparsely covered with spreading hairs up to 3.5 mm long. Racemes globose, 3.5–4 cm in diameter, densely many-flowered; axis rather densely long hairy. Bracts whitish-membranous, 12–15 mm long, ca. 1 mm wide, at the margins with spreading hairs 1.5–3 mm long. Flowers subsessile. Bracteoles absent. Calyx ca. 15 mm long, turbinate-campanulate, the tube straw-coloured, the teeth green, densely covered with ascending hairs 2–5 mm long; teeth subulate, unequal, 5–8 mm long, subglabrous on inner side. Petals yellow, glabrous. Standard 21–22 mm long; limb ca. 14 mm wide, widely obovate to suborbicular, deeply emarginate, subabruptly contracted into a claw 5–6 mm long. Wings 21–22 mm long; limbs narrowly oblong, obtuse, ca.  $13 \times 4$  mm; auricle triangular, 2.5–2.8 mm long, claw ca. 9 mm long. Keel 21–22 mm long; limbs obovate-triangular, rounded,  $13 \times 7$  mm; auricle triangular, 2.5 mm long, claw ca. 9 mm long. Stamen-tube truncate at the mouth. Ovary sessile, ellipsoid, densely white hairy; style hairy at the base. Legumes unknown.

Species named after the village Ebrahim Abad in Markazi province, western Iran.

Specimens examined

Known only from the type material.

***Astragalus harirudensis* ZARRE & PODLECH,  
sp. nova (sect. *Ammodendron*)**

Differt ab *A. biabanensis* ŠIRJ. & RECH. f. plantis pulvinos densos, 7–10 cm altos formantibus (nec fruticulis 25–50 cm altis), caulibus hornotinis 2–4 cm (nec ad 15 cm) longis, stipulis 1–1.5 mm (nec 2–3 mm) longis, petiolis not indurascensibus-persistentibus-subspinescentibus, petalis flavidis (nec pallide violaceis), vexillo 11–12  $\times$  5 mm, elliptico (nec 11–13  $\times$  6–7 mm, obovato, medio constricto), leguminibus pilis longioribus 2–3 mm longis, non in tuberculis insidentibus (nec 3–4 mm long, in tuberculis minutis insidentibus).

Typus: Afghanistan, Prov. Herat, 30 km W Herat, Hari Rud valley, 890 m, 08. 05. 1969, *H. FREITAG* 5391 (holotypus KAS; isotypus MSB).

Plant a strongly branched shrublet 7–10 cm tall, forming dense cushions. Caudex up to 10 mm thick, branched, with grey-brownish bark. Stems of the current year up to 2–4 cm

long, very densely covered with medifixed, appressed white hairs 0.8–1 mm long. Stipules hyaline-membranous, 1–1.5 mm long, free from the petiole, vaginate-connate up to the top, without free tips, appressed white hairy to subglabrous. Leaves 1–2.5 cm long; petiole very short, densely hairy like the stem. Leaflets in 1(–2) pairs, elliptic to obovate, 4–9  $\times$  1.5–3.5 mm, obtuse, mostly with cucullate tip, on both sides densely to very densely covered with medifixed, appressed hairs 0.6–0.8 mm long. Peduncles 0.5–1.5 cm long, hairy like the stem. Racemes short, 1.5–2.5 cm long, (2–)3–7-flowered, not elongating in fruit. Bracts membranous, 0.5–0.7(–1) mm long, ovate, white hairy. Pedicels ca. 1 mm long, white hairy. Calyx membranous, 5–6 mm long, campanulate, rather densely covered with medifixed, appressed white hairs 0.3–0.8 mm long; teeth narrowly triangular, ca. 0.5 mm long, white hairy on inner side. Petals pale yellowish. Standard 11–12 mm long; limb 5 mm wide, elliptic, rounded, subabruptly contracted into the narrowly cuneate claw ca. 5 mm long. Wings 10 mm, long; limbs narrowly obovate, rounded,  $5 \times 2$  mm, auricle minute, claw 5 mm. Keel 9 mm long; limb obliquely elliptic, ca.  $6 \times 2$  mm; auricle minute, claw 5 mm long. Stamen-tube truncate at the mouth. Ovary sessile, densely white hairy. Legumes sessile, ovoid, ca. 5 mm long, 3 mm high and 2 mm wide, narrowly rounded ventrally and dorsally, with a slightly curved beak ca. 1 mm long, bilocular; valves densely lanate-villous with basifixed,  $\pm$  spreading white hairs 2–3 mm long, not sitting on little tubercles and with very short, asymmetrically bifurcate, often flexuose, subappressed to spreading hairs. Seeds one in each locule,  $3 \times 2$ , pale brown, smooth.

The species is named after the Hari Rud river in NW Afghanistan.

Specimens examined

Known only from the type material.

***Astragalus ohbaensis* PODLECH, sp. nova  
(sect. *Brachycarpus*)**

Differt ab *A. clarkeanus* ALI caulibus glabris (nec sparse pilosis), stipulis petiolo per 1–2 mm adnatis (nec liberis vel brevissime adnatis), rhachidibus glabris vel sparse appresse ad subappresse pilosis (nec sparse ad laxe pilis ap-

pressis ad patentibus obtectis), calyce pilis 0.2–0.3 mm longis subappressis ad partim patentibus, implexis obecto (nec pilis 0.3–0.5 mm longis appressis ad subappressis obecto), alis apice breviter sed distincte emarginatis (nec rotundatis), ovariis sparse albi-pilosis (nec dense albi- et nigri-pilosis).

Typus: China, Prov. Xinjiang, Kunlun mountains, Taxkorgan Xian, Hongqilepu, 4600 m, 08. 12. 1989, S. K. WU, H. OHBA, Y. H. WU & Y. FEI 4871 (as *A. clarkeanus*) (holotypus TI).

Plants 20–25 cm tall, caespitose. Caudex with a pluricipital root-crown. Stems several, erect, slightly curved or flexuose, up to the middle only with few leaves, angular, glabrous. Stipules greenish-membranous, 6–9 mm long, ovate, those of upper leaves narrowly triangular; adnate to the petiole for 1–2 mm, otherwise free, glabrous, at the base often with some minute glands. Leaves 3–4 cm long, sessile to subsessile; rachis slender, glabrous or very sparsely to sparsely covered with white and black appressed to subappressed hairs 0.1–0.2 mm long. Leaflets in 5–7 pairs, narrowly elliptic to elliptic, 5–12 × 2–4 mm, obtuse to subacute, glabrous on upper side, on underside sparsely covered with appressed white hairs, up to 0.3 mm long, sometimes only at the margins and midvein. Inflorescence subterminal. Peduncles 4.5–8 cm long, angular-sulcate, sparsely covered with appressed to slightly ascending white and black hairs up to 0.3 mm long. Racemes 1.5–2 cm long, rather densely 6–10-flowered. Bracts whitish-membranous, ca. 5 mm long, linear, acute, sparsely white and black hairy, at the base with few minute glands. Pedicels ca. 1 mm long, densely black hairy, recurved, flowers and fruits therefore nodding. Calyx 6–7.5 mm long, campanulate, oblique at the base, obliquely cut at the mouth, loosely to rather densely covered with subappressed to partly spreading, flexuose, tangled, predominantly black hairs 0.2–0.3 mm long, especially toward and at the teeth with some more white hairs; teeth unequal, the ventral (adaxial) two remote, triangular, ca. 2 mm long, the three dorsal (abaxial), close together, 2.5 mm long, narrowly triangular, 2–3 mm long, all nearly glabrous on inner side. Petals pale blue, drying pale yellow. Standard ca. 12 mm long; limb widely ovate, ca. 7 mm wide, widest near the

base, deeply bilobed, abruptly contracted into the short claw. Wings ca. 11 mm long; limbs narrowly obovate, shortly but distinctly emarginate, ca. 7 × 3 mm; auricle oblong-curved, ca. 1.5 mm long, claw ca. 4 mm long. Keel ca. 8 mm long; limbs obliquely obovate, with widely, nearly rectangularly curved lower edge and nearly straight upper edge, obtuse, 4 × 2.5 mm; auricle minute, acute, 0.3 mm long, claw ca. 4 mm long. Stamen-tube ± truncate at the mouth, but the two uppermost marginal filament inserted distinctly deeper to the rim. Ovary subsessile, narrowly ellipsoid, very sparsely white hairy; style glabrous. Legumes unknown.

The species is named after H. Ohba, cocollector of the plant.

Specimens examined

Known only from the type material.

***Astragalus pishanxianensis* PODLECH, sp. nova**  
(sect. *Brachycarpus*)

Differt ab *A. densifloro* KAR. & KIR. caulibus 15–20 cm (nec 2–5[–7]) cm longo, stipulis a petiolo et inter se liberis (nec petiolo adnatis et partim vaginati-connatis), margine nigro-ciliatis (nec albo-ciliatis, calyce 4.5–5 mm [nec 3–4 mm] longo, petalis albis vel flavis (nec violaceis), vexillo late obovato, ca. 5 mm lato (nec elliptico), 3.2–3.5 mm lato, laminis alarum obovatis, 4.5 × 2 mm (nec anguste oblongis, 3.5 × 1.2 mm).

Typus: China, Prov. Xinjiang, Kunlun mountains, Pishan Xian, Naoarbatibuqiong, 3300 m, 18. 06. 1988, S. G. WU, H. OHBA, Y. H. WU & Y. FEI 2434 (holotypus TI; isotypus KUN).

Plants 20–25 cm tall. Caudex with ± elongated, slender, branched stolons. Stems 15–20 cm long, slender, erect to slightly ascending, angular-sulcate, loosely to rather densely covered with appressed to ascending, white, below the nodes often predominantly black hairs 0.3–0.6 mm long, mostly glabrous at the base. Stipules greenish, ovate, 4–5 mm long, free from the petiole and from each other, all black ciliate at the margins. Leaves 4–5 cm long, the uppermost subsessile, the others with a petiole 0.6–2 cm long; petiole and rachis loosely to rather densely covered with appressed to subappressed, tangled white hairs up to 0.5 mm long, with black hairs mixed in. Leaflets in

4–5 pairs, narrowly elliptic to elliptic,  $5\text{--}13 \times 1\text{--}4.5$  mm, rounded so subacute, glabrous on upper side, loosely to rather densely covered with appressed white hairs  $0.3\text{--}0.5$  mm long on underside. Peduncle  $3\text{--}7$  cm long, rather densely white hairy like the rachis, toward the raceme with increasing black hairs. Raceme capitate to ovoid,  $2\text{--}3$  cm long, densely many-flowered, slightly elongating with age. Bracts linear, whitish-membranous, ca.  $5$  mm long, black hairy, at the base with few minute glands. Pedicels  $0.5\text{--}1$  mm long, black hairy. Calyx  $4.5\text{--}5$  mm long, campanulate, obliquely cut at the mouth, rather densely covered with subappressed to ascending black hairs  $0.3\text{--}0.5$  mm long; teeth subulate,  $1.5\text{--}2$  mm long, densely black hairy on inner side. Petals whitish to yellow. Standard ca.  $8$  mm long; limb widely obovate,  $5$  mm wide, minutely emarginate, gradually widely cuneately narrowed at the base. Wings ca.  $7$  mm long; limbs obovate,  $4.5 \times 2$  mm narrowly oblong, rounded,  $3.5 \times 1.2$  mm; auricle ca.  $0.5$  mm long, claw ca.  $2.5$  mm long. Keel ca.  $6$  mm long; limbs obliquely elliptic-curved, with widely curved lower edge and nearly straight upper edge, obtuse,  $3 \times 1.7$  mm; auricle minute, claw ca.  $2.5$  mm long. Stamen-tube truncate at the mouth. Ovary very shortly stipitate, ovoid, glabrous. Legumes unknown.

The species is named after the Pishan Xian, part of the central Kunlun range in southern Xinjiang, China.

Specimens examined

Known only from the type material.

***Astragalus tenuissimus* ZARRE & PODLECH,  
sp. nova (sect. *Craccina*)**

Differt ab *A. huthianus* FREYN & BORN. foliolis  $2\text{--}3$ -jugis (nec  $4\text{--}7$ -jugis), calyce  $5$  mm (nec  $3.5\text{--}4$  mm) longo dentibus ejus  $1\text{--}1.5$  mm (nec  $0.4\text{--}0.8$  mm) longis, vexillo ca.  $13$  mm (nec  $9\text{--}10$  mm) longo.

Typus: Iran, Prov. Tehran, Sarhol, road of Firuzkuh,  $1950$  m,  $24.06.1972$ , DINI & ARAZM 15846 (holotypus W).

Plants herbaceous, ca.  $25$  cm tall, in vegetative parts covered with appressed, medifixed white hairs. Caudex with a pluricapital root-crown. Stems several, ascending to erect, densely covered with hairs  $0.5\text{--}0.8$  mm long,

glabrescent with age. Stipules hyaline-membranous,  $2\text{--}3$  mm long, nearly free from the petiole, behind the stem vaginate-connate up to the middle, the free tips narrowly triangular, attenuate, subglabrous or sparsely hairy, at the margins with basifixed hairs and mostly with minute, sessile glands. Leaves  $3\text{--}5$  cm long; petiole  $0.8\text{--}1.5$  cm long, like the rachis very slender, grooved adaxially, loosely to rather densely hairy like the stem. Leaflets in  $2\text{--}3$  pairs, linear,  $5\text{--}13 \times 0.5\text{--}1$  mm, on both sides sparsely to loosely hairy like the stem, sometimes folded. Peduncles  $6\text{--}7$  cm long, slender, loosely hairy like the stem, glabrescent with age. Racemes  $6\text{--}12$  cm long, remotely  $10\text{--}16$ -flowered. Bracts hyaline-membranous, ca.  $1.5$  mm long, narrowly triangular, glabrous or sparsely white hairy, sometimes with few black hairs mixed in, at the margins with some basifixed hairs and sometimes also with few minute, sessile glands. Pedicels ca.  $1$  mm long, with white or white and black hairs. Calyx ca.  $5$  mm long, shortly tubular, slightly turbinate at the base, obliquely cut at the mouth, rather densely to densely covered with symmetrically to asymmetrically bifurcate, appressed white hairs  $0.5\text{--}0.8$  mm long, sometimes with shorter black hairs mixed in; teeth unequal,  $1\text{--}1.5$  mm long, sparsely white hairy on inner side. Petals violet. Standard ca.  $13$  mm long; limb ca.  $5$  mm wide, rhombic-elliptic to rhombic-ovate, obtuse, at the base gradually narrowed. Wings ca.  $11$  mm long; limbs narrowly oblong, obtuse,  $6 \times 1.5$  mm; auricle ca.  $0.3$  mm long, claw  $4.5$  mm long. Keel ca.  $9$  mm long; limbs obliquely ovate, with slightly, widely curved lower edge and  $\pm$  straight upper edge, obtuse,  $4 \times 2$  mm; auricle very short, claw  $4.5$  mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca.  $0.5$  mm long, narrowly oblong, covered with very short, subappressed white hairs. Legumes unknown.

Specimens examined

Known only from the type material.

***Astragalus ahangarensis* ZARRE & PODLECH,  
sp. nova (sect. *Dissitiflora*)**

Differt ab *A. eburneus* BORN. & GAUBA stipulis  $2$  mm longis, sparse pilosis (nec  $3\text{--}4$  mm longis), dense pilosis, foliolis anguste ellipticis,  $8\text{--}15 \times 1.5\text{--}3$  mm (nec linearibus,  $12\text{--}30 \times$

2–3 mm), bracteais ca. 1 mm longis, ovatis (nec 2 mm longis, anguste triangularibus), petalis flavis (nec sordide purpureis ad rubris), vexillo distincte emarginato (nec vix emarginato), leguminibus pilis asymmetrice bifurcatis (nec medifixis) obtectis.

Typus: Iran, Khorasan, Ghayen, toward Ahangaran after Hajiabad, around Mohammadabad, 1078 m, 33°33'35" N, 60°01'55" E, 05. 05. 2002, A. GHahreman, F. ATTAR, MEHDIGHOLI & OKHOVAT 28479 (TUH; isotypus: MSB).

Plants herbaceous, ca. 30 cm tall. Caudex with a pluricipital root-crown. Stems several, 20–25 cm long, erect, densely covered with medifixed, appressed white hairs 0.6–0.98 mm long. Stipules green, narrowly whitish-margined, ca. 2 mm long, narrowly triangular to triangular, very shortly adnate to the petiole, sparsely hairy. Leaves 3.5–9 cm long; petiole 1–4 cm long, like the rachis slender, hairy like the stem. Leaflets in 3(–4) pairs, remote, linear-elliptic, 8–15 × 1.2–3 mm (end-leaflet up to 25 mm long), very shortly acuminate at the tip, on both sides densely covered with medifixed, appressed hairs ca. 1 mm long. Peduncles 4–6(–10) cm long, white hairy like the stem. Racemes 5–7 cm long, remotely 6–10-flowered; axis white hairy like the peduncle. Bracts whitish, ca. 1 mm long, triangular-ovate, white and black hairy. Pedicels 1–1.5 mm long, white and black hairy. Calyx 15–16 mm long, tubular, obliquely inserted at the base, obliquely cut at the mouth, rather densely covered with ± appressed, medifixed, white and black or predominantly black hairs (0.2–)0.3–0.5 mm long; teeth subulate, 2–3 mm long, white hairy on inner side. Petals yellow. Standard ca. 26 mm long; limb obovate, distinctly emarginate, with a rather long claw. Wings ca. 25 mm long; limbs narrowly oblong, rounded, ca. 8 × 3 mm; auricle triangular, ca. 0.5 mm long, claw 15–16 mm long. Keel 22–23 mm long; limbs obliquely obovate, with in upper third widely curved lower edge and nearly straight upper edge, subobtusate, 6 × 3 mm; auricle minute, claw 15–16 mm long. Stamen-tube truncate at the mouth. Ovary sessile, linear, hairy. Legumes sessile, spreading, linear, 35–50 mm long, 3–3.5 mm high and 2–2.5 mm wide, shortly acuminate, bilocular; valves densely covered with slightly to distinctly asymmetri-

cally bifurcate, subappressed white hairs ca. 1 mm long, with some black hairs mixed in.

The species is named after the village Ahangaran in the Khorasan province, Iran.

#### Specimens examined

IRAN: Prov. Khorasan: Torbat-e Jam, toward Afghanistan border, Cheshmeh-Zakani, 35°10' N, 60°58' E, 04. 05. 2002, GHahreman, ATTAR, MEHDIGHOLI & OKHOVAT 28488 (TUH).

#### *Astragalus capitis-regni* PODLECH & ZARRE, sp. nova (sect. *Dissitiflori*)

Differt ab *A. eburneus* BORN. & GAUBA pedunculis ad racemum versus pilis nigris obtectis (nec mere albopilosis), bracteolis in apice pedicelli evolutis (nec bracteolis deficientibus), calyce 12–13 mm (nec 13–17 mm) longo, ovario leguminibusque stipite ca. 5 mm longo suffultis (nec sessilibus), leguminibus 18–20 mm (nec 35–40 mm) longis.

Typus: Afghanistan, 30 km SW Kabul, before pass on road to Ghazni, 2200 m, vertical cliffs of soil at ravins, 11. 06. 1968, H. FREITAG 2973 (KAS; isotypus: MSB).

Plants a subshrub 25–40 cm tall, covered in vegetative parts with ± medifixed, appressed hairs. Stems 12–30 cm long, ligneous in lower parts, branched, with greyish bark; parts of the current year 2–12 cm long, very densely covered with appressed to subappressed white hairs 0.7–1 mm long, at the nodes also with black hairs. Stipules whitish, narrowly triangular to triangular, 3–4 mm long, adnate to the petiole for 1–1.5 mm, rather densely covered with subappressed white hairs, with some black hairs mixed in. Leaves 3.5–5 cm long; petiole 0.5–1 cm long, like the rachis slender, sulcate adaxially, densely hairy like the stem. Leaflets in 4–6 pairs, linear, narrowly elliptic to linear, 7–20 × 1–2 mm, acute subobtusate and mostly very shortly acuminate, on both sides loosely covered with appressed white hairs ca. 1 mm long. Peduncles 4–10 cm long, erect, rather densely to densely covered with medifixed, appressed white hairs 0.5–0.9 mm long, toward the raceme with some black hairs mixed in, sometimes partly glabrescent with age. Racemes loosely 6–10-flowered, 8–10 cm long, at fruiting time somewhat elongated. Bracts whitish-membranous, ovate to narrowly triangular, 2–4 mm long, densely black hairy.

Pedicels 2–3 mm long, predominantly black hairy. Bracteoles present, 0.3–1 mm long, at the pedicel below the calyx. Calyx 12–13 mm long, tubular, distinctly obliquely gibbous at the base, obliquely cut at the mouth, densely covered with symmetrically to asymmetrically bifurcate, flexuose, subappressed black hairs (0.2–)0.4–1 mm long; teeth subulate, 3–4 mm long, densely white villous on inner side. Petals: standard blue violet, wings and keel white. Standard 23–24 mm long; limb ca. 9 mm wide, obovate,  $\pm$  rounded, slightly constricted in lower third, subabruptly narrowed into the very short claw. Wings ca. 22 mm long; limbs narrowly elliptic, obtuse,  $10 \times 3$  mm; auricle ca. 1 mm long, claw 12 mm long. Keel ca. 20 mm long; limbs elliptic, with slightly curved lower edge and slightly curved upper edge, subobtusate,  $9 \times 3.5$  mm; auricle ca. 0.5 mm long, claw 11 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 5 mm long, narrowly oblong, white hairy; style glabrous. Legumes (unripe) with a stipe ca. 5 mm long, 18–20 mm long, ca. 2 mm high and 1.5 mm wide, obtusely keeled ventrally, very narrowly grooved dorsally, with a straight to curved beak ca. 2 mm long, nearly completely bilocular; valves straw-coloured, rather densely covered with medifixed, appressed white hairs ca. 1 mm long, glabrescent with age.

Etymology: “caput regni” is the capital of a country, in this case Kabul of Afghanistan.

Specimens examined

Known only from the type material.

***Astragalus sessiliflorus* PODLECH & ZARRE, sp. nova (sect. *Dissitiflori*)**

Differt ab omnibus speciebus sectionis racemis sessilibus 1–3-floris.

Typus: Afghanistan, Prov. Herat, 30 km W Herat, at Hari Rud valley, 860 m, sand covered pediment plains, 09. 05. 1969, H. FREITAG 5414 (holotypus KAS).

Plants 10–17 cm tall (or higher ?), covered with appressed, merely white hairs. Caudex simple or slightly divided. Stem up to 12 cm long (or longer ?), angular-sulcate, very densely covered with medifixed, appressed white hairs 0.8–1 mm long. Stipules 3–5 mm long, narrowly triangular, adnate to the petiole for 1–2.5 mm, rather densely hairy. Leaves

3–6 cm long; petiole 0.5–1.5 cm long, like the rachis densely covered with medifixed hairs 0.5–1 mm long. Leaflets in 1–5 pairs, narrowly elliptic to linear,  $10\text{--}25 \times 1\text{--}3.5$  mm, subobtusate to acute, covered on upper side rather densely, on underside densely with medifixed hairs 0.5–1 mm long. Racemes sessile, 1–3-flowered; axis up to 2 cm long hairy like the stem. Bracts membranous, red suffused, 3–4 mm long, narrowly triangular, long acuminate, white hairy. Pedicels 4–7 mm long, densely hairy. Calyx 18–19 mm long, tubular, turbinate at the base, slightly obliquely cut at the mouth, densely covered with medifixed, appressed hairs 0.4–1 mm long; teeth linear-acute, 4–5.5 mm long, on inner side covered with  $\pm$  spreading, very fine white hairs. Petals yellow. Standard 21–22 mm long; limb 7–8 mm wide, obovate, truncate to indistinctly emarginate, in lower third slightly constricted, auriculate-dilated below constriction, triangularly narrowed, at the base subabruptly contracted into the short claw. Wings 19–20 mm long; blades elliptic, rounded,  $8 \times 3\text{--}3.5$  mm; auricle minute, claw 10–11 mm long. Keel 15–16 mm long; limbs obliquely obovate, with in upper half widely curved lower edge and straight upper edge, acute,  $5 \times 3$  mm, claw 10–11 mm long. Stamen-tube truncate at the mouth. Ovary subsessile, linear, white and black hairy; style glabrous. Legumes unknown.

Specimens examined

Known only from the type material.

***Astragalus shogotensis* PODLECH, sp. nova (sect. *Dissitiflori*)**

Differt ab *A. steineranus* PODLECH plantis 20–35 cm (nec ad 15 cm tantum altis), foliolis anguste ellipticis,  $5\text{--}8 \times 1\text{--}2.5$  mm (nec linearibus,  $4\text{--}12 \times 1$  mm), pedunculis 5–12 cm (nec 4–5 cm) longis, vexillo elliptico-rhombeo (nec obovato-rhombeo, infra medium distincte constricto), laminis alarum apice obtusis (nec distincte oblique incisis).

Typus: Pakistan, Chitral, Shogot–Aviret,  $36^{\circ}1' N$ ,  $71^{\circ}45' E$ , 9500 ft., 30. 05. 1958, S. A. BOWES LYON 744 (holotypus BM).

Plants 20–35 cm tall, subshrubby. Caudex up to 10 mm thick, divided. Stems several, strongly branched, with many lateral, short, non-flowering side-branches, the lower parts

ligneous, covered with greyish bark, parts of the current year 2–5 cm long, densely to very densely covered with medifixed, appressed, in parts of the same plant predominantly black or predominantly white or mixed white and black hairs 0.5–1 mm long. Stipules slightly greenish, 3–4.5 mm long, narrowly triangular to triangular, obtuse, adnate to the petiole for 1–2 mm, loosely white and black hairy. Leaves 3–4 cm long, those of side-branches shorter; petiole 0.3–1 cm long, like the rachis slender, rather densely to densely white hairy like the stem, sometimes with few black hairs mixed in. Leaflets in 5–6 pairs, narrowly elliptic, 5–8 × 1–2.5 mm, subobtuse to subacute, on upper side loosely, on underside rather densely covered with medifixed, appressed white hairs 0.8–1 mm long. Peduncles 5–12 cm long, erect, loosely white hairy like the stem, mostly toward the raceme with some black hairs mixed in. Racemes at beginning of anthesis subumbellate, densely 7–12-flowered, later on slightly elongating and 5 or more cm long; axis rather densely white and black or predominantly black hairy. Bracts whitish-membranous, narrowly triangular, 2–3 mm long, loosely black hairy, at the margins also with basifixed hairs. Pedicels 0.5–1 mm long, densely predominantly black hairy. Calyx 10–11 mm long, tubular, obliquely gibbous at the base, obliquely cut at the mouth, rather densely to densely covered with strongly asymmetrically bifurcate to subbasifixed, subappressed to ascending, tangled white hairs 1–1.2 mm long and with mostly more symmetrically bifurcate, appressed to subappressed, shorter black hairs; teeth narrowly triangular, 2–3 mm long, subglabrous on inner side. Petals pale purplish violet. Standard 17–20 mm long; limb 7–8 mm wide, ± rhombic-elliptic, triangularly narrowed toward the obtuse tip, at the base angularly passing into the claw 5–7 mm long. Wings 16–18 mm long; limbs narrowly oblong, subobtuse, 6–8 × 2 mm; auricle ca. 0.8 mm long, claw 9–10 mm long. Keel 14–16 mm long; limbs obliquely elliptic, with widely curved lower edge and slightly concave upper edge, subobtuse, 5–6 × 2.5 mm; auricle ca. 0.5 mm long, claw 9–10 mm long. Stamen-tube truncate at the mouth. Ovary sessile, linear, white hairy; style hairy in lower part. Legumes unknown.

The species is named after the Shogot village in Chitral, Pakistan.

*Specimens examined*

PAKISTAN: Chitral: Turikho River, Istar, 3050 m, 21.05.1958, *STANTON* 2488 (BM); Drosh, 2130–2290 m, vi. 1908, *TOPPIN* 261 (K).

***Astragalus hecatae* ZARRE & PODLECH, sp. nova  
(sect. *Erioceras*)**

Differt ab *A. pentanthus* BOISS. plantis 15–18 cm (nec 5–10 cm) altis, caulibus 3–4 cm evolutis (nec acaulescentibus vel subacaulescentibus), pedunculis 6–8 cm (nec 2–4 cm) longis, bracts white and black (not only black) hairy, ovary glabrous (not hairy).

*Typus*: Iran, Prov. Hamadan. 24 km from Razan toward Avaj, 2000–2050 m, 10.05.2004, SH. ZARRE, S. MASHAYEKHI, F. TAEB, A. PIRANI & H. MOAZENI 35172 (holotypus TUH; isotypus MSB).

Plants 5–10 cm tall, shortly caulescens, covered in vegetative parts with appressed, ± medifixed white, warty hairs 0.6–1 mm long, only at the stipules sometimes with few black hairs mixed in. Caudex divided, with short subterranean branches. Stems 3–4 cm long, angular-sulcate, very densely hairy. Stipules slightly greenish, 3–5 mm long, triangular, adnate to the petiole for 1 mm, loosely to rather densely hairy. Leaves 5–10 cm long; petiole 2–4.5 cm long, with the rachis loosely to rather densely hairy like the stem. Leaflets in 5–7 pairs, narrowly elliptic to elliptic, 7–15 × 2.5–5 mm, obtuse to subacute, on both sides loosely to rather densely appressed hairy. Peduncle 6–8 cm long, angular-sulcate, loosely to rather densely white hairy like the stem, toward the raceme with black hairs mixed in. Racemes 4–9 cm long, loosely to rather densely 10–18-flowered. Bracts whitish, 3–5 mm long, narrowly oblong, white and black hairy, with partly subbasifixed hairs. Pedicels 1 mm long, black hairy, sometimes with some white hairs mixed in. Calyx 13–15 mm long, tubular, obliquely cut at the mouth, covered at the ventral (upper) side predominantly with asymmetrically to extremely asymmetrically bifurcate, supappressed to partly ascending or even nearly spreading white hairs up to 1.5 mm long, at the dorsal (lower) side predominantly with somewhat shorter and partly more symmetrically bifurcate, ± flexuose, tangled, subappressed to ascending black hairs; teeth narrowly triangular



3–4 mm long, white hairy on inner side. Petals pink to lilac, sometimes with pale yellow keel. Standard ca. 24 mm long; limb 9–10 mm wide, obovate, retuse, at the base gradually narrowed into the rather short claw. Wings ca. 22 mm long; limbs narrowly oblong, rounded to slightly retuse, ca.  $7\text{--}7.5 \times 3$  mm; auricle ca. 1 mm long, claw 15 mm long. Keel 20 mm long; limbs obliquely obovate, with widely curved lower edge and  $\pm$  straight upper edge, rounded, ca.  $6 \times 3$  mm; auricle ca. 1 mm long, claw 15 mm long. Stamen-tube truncate at the mouth. Ovary sessile, linear, glabrous. Legumes unknown.

**Etymology:** The species is named after Hekate, the Greek goodness of hunting and the roads.

**Specimens examined**

Known only from the type material.

***Astragalus repentinus* M.EKICI & PODLECH,  
sp. nova (sect. *Hololeuce*)**

*A. hyalolepis* BUNGE similis sed differt stipulis distincte petiolo adnatis (nec liberis), pedunculis pilis albis tantum obtectis (nec racemum versus praecipue pilis nigris instructis), floribus distincte brevioribus, vexillo elliptico-rhombeo,  $18\text{--}19 \times 7\text{--}9$  mm (nec anguste oblongo ad anguste elliptico,  $22\text{--}28 \times 5\text{--}7$  mm).

**Typus:** Iran, Prov. Khorasan, 12 km NE Rivash, N Kashmar, 2000 m, 05.05.1975, *M. IRAN-SHAHR 40888-E* (holotypus MSB; isotypi Iran, *K. H. RECHINGER 51278* [cocollector] W).

Plants 12–20 cm tall, acaulescent or nearly so, with mostly  $\pm$  medifixed white, in the inflorescence also black hairs 0.5–0.8 mm long. Caudex up to 15 mm in diameter, divided, with branches up to 4 cm long, in upper part densely covered with remnants of old leaves. Stems, if present, very short, up to 1(–3) cm long, mostly covered by the stipules, densely subappressed white hairy. Stipules whitish-hyaline, narrowly triangular to triangular, 5–7 mm long, adnate to the petiole for 2–3 mm, vaginate-connate behind the stem up to the middle, sparsely hairy to nearly glabrous. Leaves 5–15 cm long; petiole 1–3 cm long, like the rachis densely covered with appressed hairs. Leaflets in 5–12 pairs, flat to folded, narrowly ovate to narrowly elliptic, more rarely ovate, acute,  $4\text{--}10 \times 1.5\text{--}3$  mm, on upper side sparsely to loosely hairy or sub-

glabrous, on underside loosely appressed hairy. Peduncles 8–13 cm long, striate-sulcate, loosely white hairy. Racemes at anthesis short, ca. 10–15-flowered, soon somewhat elongating and up to 6 cm long. Bracts whitish-hyaline, narrowly triangular, 3–5 mm long, sparsely black hairy, at the margins with basifixed hairs. Bracteoles absent. Pedicels ca. 1 mm long, black hairy. Calyx 9–10 mm long, tubular, obliquely inserted at the base, obliquely cut at the mouth, loosely to rather densely covered with subappressed to slightly obliquely spreading, predominantly black hairs; teeth narrowly triangular,  $\pm$  equal, 2–3 mm long, on outer side predominantly black hairy, on inner side merely white hairy. Petals purplish to lilac. Standard 18–19 mm long, rhombic-elliptic to rhombic-ovate, 7–9 mm wide, emarginate, at the base narrowed into the cuneate claw. Wings 14–15 mm long; limbs narrowly oblong, slightly emarginate,  $6\text{--}7 \times 2\text{--}2.5$  mm; auricle ca. 1 mm long, claw 6–8 mm long. Keel 13–14 mm long; limbs obliquely obovate, with in upper part widely to rectangularly curved lower edge and slightly sigmoid upper edge, obtuse,  $5 \times 2.5\text{--}2.8$  mm; auricle ca. 0.5 mm long, claw 8–9 mm long. Stamen-tube truncate at the mouth. Ovary sessile, ellipsoid, glabrous. Legumes unknown.

**Etymology:** “repentinus” = unexpected.

**Specimens examined**

IRAN: Prov. Khorasan: [Golestan Park], near Dasht, v. 1973, *POLUNIN 11867* (K); [Golestan Park], ad viam versus Almeh ducentem, N Robat-e Qareh Bil, 1200 m, 05.06.1975, *RECHINGER 52867* (M, W). Prov. Mazandaran: Haraz valley, ridge between Haraz and Panjab, ca. 1400 m,  $36^{\circ}10' \text{ N}$ ,  $52^{\circ}16' \text{ E}$ , 12.05.1959, *WENDELBO 676* (W). Prov. Semnan: Khosh Yeylaq [NE Shahrud], 2140 m, 10.06.1973, *FOROUGH 2140* (TARI); Shahrud toward Azad-Shahr, Khosh-Yeylaq, Zardabeh, Darreh Khersou, 1599–1850 m, 25.05.1982, *TERMEH & ZARGANI 41152-E* (MSB, W); entre Naudeh [Now Deh Ali] et Shahrud, 1000–2000 m, 15.06.1956, *SCHMID 6154* (E, W); in montibus inter Shahmirzad et Fulad Mahalla, 53 km NE Semnan, 2000 m, 30.05.1975, *RECHINGER 52234* (W).

***Astragalus qorvehensis* PODLECH, sp. nova  
(sect. *Hymenostegis*)**

Differt ab *A. straussii* BORNH. plantis acaulescentibus (nec caulibus hornotinus  $1.5\text{--}5$  cm longis), stipulis 8–12 mm longis nervis tenui-

bus persursis (nec 12–23 mm longis, in parte basali reticulatim nervosis et demum reticulatim dissolutis), bracteis 8–9 mm longis, late hyalino-marginatis, dorso sparse pilosis, margine dense ciliatis (nec 8–15 mm longis, angustissime hyalino-marginatis, glabris vel margine sparse ciliatis).

Typus: Iran, Prov. Hamadan, ca. 36 km to Hamadan on the road from Qorveh, 2 km after Veynesar, 35°00'22" N, 48°06' E, 1939 m, 09. 06. 2002, A. A. MAASSOUMI & R. S. SAFAVI 82602 (holotypus MSB).

Plants subshrubby, acaulescent, cespitose, spiny, ca. 25 cm tall. Stems in the older parts ligneous, very short, up to 8 mm in diameter, covered with grey blackish bark and with remnants of old leaves; parts of the current year indistinct. Stipules hyaline-membranous, 8–12 mm long, narrowly triangular, with many fine longitudinal nerves, adnate to the petiole for ca. 5 mm, very shortly connate behind the stem, sparsely ciliate at the margins. Leaves 6–8 cm long; petiole 2–3 cm long, like the rachis densely covered with subappressed so slightly ascending hairs 0.3–0.7 mm long; terminal spine 1/3–1/2 as long as the uppermost leaflets. Leaflets in 6–8 pairs, narrowly elliptic, 8–15 × 2.5–4.5 mm, acuminate, with a pungent tip 1–2 mm long, on both sides densely covered with subappressed hairs 0.3–0.6 mm long. Peduncles 12–15 cm long, densely covered with fine, subappressed to slightly ascending, tangled hairs (0.1–)0.2–0.5 mm long and with fewer, more ribbon-like, ascending to spreading hairs 1–2 mm long. Racemes globose to ovoid, 3–4.5 cm long, ca. 2.5 cm wide, densely many-flowered. Bracts partly falling, whitish-membranous, widely hyaline at the margins, red in the centre, ovate, acuminate, 8–9 × 4–5 mm, in the red central part sparsely hairy, densely ciliate at the margins with hairs 0.5–1 mm long. Calyx ovoid, 14–15 mm long, straw-coloured with purple teeth, densely covered with ascending to spreading hairs 1–3 mm long and with few very short, subappressed hairs; teeth subulate, 5–7 mm long, densely subappressed hairy on inner side. Petals dark violet, the claws pale yellowish. Standard ca. 19 mm long; limb 7–8 mm wide, oblong-panduriform, below the middle distinctly constricted, angularly dilated and slightly wider

than above the constriction, rounded, subabruptly contracted into the short, wide claw. Wings ca. 17 mm long; limbs narrowly elliptic, rounded, ca. 7 × 2.2 mm; auricle minute, claw ca. 10 mm long. Keel ca. 14 mm long; limbs obliquely obovate, with in upper part widely, nearly rectangularly curved lower edge and slightly curved upper edge, subacute, ca. 5 × 3 mm; auricle indistinct, claw ca. 9 mm long. Ovary sessile, densely hairy. Legumes unknown.

Species named after Qorveh village in Western Iran.

Specimens examined

Known only from the type material.

***Astragalus nezva-montis* PODLECH & ZARRE,  
sp. nova (sect. *Hypoglottidei*)**

*A. nurensis* BOISS. & BUHSE similis sed differt indumento e pilis patentibus tantum consistente (nec partim pilis subappresseis ad ascendentibus consistente), stipulis 2–4 mm (nec 3–7 mm) longis, foliolis 3–5 × 2–3 mm, semper complicatus (nec 5–9 × 2–4 mm, planis), utrimque dense pilis patentibus (nec supra sparse ad laxe, subtus laxe ad desinenscule pilis ± subappressis) obtectis, bracteis 3–5 mm (nec 5–8 mm) longis pilis non in tuberculis insidentibus (nec pilis saepissime in tuberculis insidentibus), calyce 10–11 mm (nec 12–13 mm) longo, dense pilis patentibus albis ad 1 mm longis et dorso pilis brevioribus nigris obtecto (nec laxe pilis ascendentibus ad patentibus albis nigrisque 1–1.5 mm longis, saepe in tuberculis insidentibus obtect), dentibus ejus 2–2.5 mm (nec 4–8 mm) longis.

Typus: Iran, Prov. Mazandaran, Nezva Kuh, western top, northern side, 3300 m, 35°59' N, 53°10' E, 08. 07. 1959, P. WENDELBO 1282 (holotypus BG).

Plants 5–10 cm tall, shortly caulescent. Caudex with a pluricipital root-crown, with short subterranean stolons, ending in flowering or sterile shoots. Stems several, ascending to erect, branched in lower part with non-flowering brachyblasts, densely covered with rigid, nearly spreading, tangled white hairs 0.3–0.6 mm long. Stipules whitish-membranous, 2–4 mm long, nearly free from the petiole, behind the stem vaginate-connate up to the middle or even higher up, loosely white hairy or the lower ones subglabrous, often with some

black hairs mixed in. Leaves 3–5 cm long; petiole 1–2 cm long, with the rachis hairy like the stem. Leaflets in 10–12 pairs, close together, elliptic, (3–)5–9 × (1.5–)2–4 mm, retuse to widely emarginate, more rarely rounded, on both sides densely spreading hairy. Peduncles 1.5–7 cm long, densely covered with spreading, tangled white hairs 0.6–1 mm long, below the raceme with black hairs mixed in. Racemes capitate to ovoid, 2–2.5 cm long, densely 10–12-flowered. Bracts 5–8 mm long, narrowly triangular, densely covered with ± spreading white and black hairs ca. 1 mm long, never sitting on little tubercles, at the margins with some minute, sessile glands. Flowers subsessile. Calyx 10–11(–12) mm, tubular, slightly inflated, straw-coloured, densely covered spreading, tangled white hairs up to 1 mm long and at the dorsal side with distinctly shorter black hairs; teeth subulate, 2–2.5 mm long, densely white hairy on inner side. Petals violet. Standard 13–16 mm long; limb ca. 7 mm wide, obovate to elliptic, emarginate, at the base narrowed into the cuneate claw. Wings 11–14 mm long; limbs narrowly oblong, obliquely emarginate, 5–7 × 2 mm; auricle 1.5 mm long, claw 5–7 mm long. Keel 10–13 mm long; limbs obliquely elliptic, with widely curved lower edge and straight upper edge, subacute, 5–6 × 2.5 mm; auricle ca. 0.3 mm long, claw 5–7 mm long. Stamen-tube truncate at the mouth. Ovary sessile or shortly stipitate, sparsely white hairy; style glabrous. Legumes unknown.

Species named after the Nezva Kuh mountain in the eastern Elburs Range.

Specimens examined

Known only from the type material.

***Astragalus dorudensis* ZARRE & PODLECH,  
sp. nova (sect. *Incani*)**

Differt ab *A. xiphidiopsis* BORNH. 15–18 cm (not 20–50 cm) altus, stipulis ca. 2 mm longis, triangularibus, petiolo adnatis per ca. 1 mm (nec 5 mm longis, petiolo adnatis per ca. 3 mm), foliis 8–16 cm longis petiolo 2–4 cm longo (nec 15–25 cm longis petiolo 6–12 cm longo), foliolis sine punctatione (nec supra cum punctatione purpureo distincto), pedunculis 5–10 cm (nec 7–20 cm) longis, bracteis 2–3 mm (nec 4–6 mm) longis, bracteolis

0.8–1 mm longis, pedicello infra calycem affixis (nec 1–2 mm) longis, basi calycis affixis.

Typus: Iran, Prov. Lurestan, Dorud, 01.05.1941, W. KOELZ 17378 (holotypus W).

Plants 20–50 cm tall, with appressed, merely white (only at the calyx sometimes with few very short black), symmetrically to slightly asymmetrically bifurcate hairs (0.3–)0.4–0.8 (–1) mm long. Caudex up to 8 mm in diameter, branched, with short to somewhat elongated subterranean branches, covered with remnants of old leaves. Stipules membranous, ca. 2 mm long, triangular, adnate to the petiole for ca. 1 mm, those of first leaves sparsely hairy, those of the following leaves densely appressed hairy. Leaves 8–16 cm long; petiole 2–4 cm long, like the rachis loosely to rather densely covered with appressed to ascending, tangled hairs. Leaflets in 6–9 pairs, remote, narrowly elliptic, 10–15 × 2–3 mm, obtuse to acute, on upper side rather densely on underside very densely subappressed hairy, not or indistinctly only pale dotted on upper side. Peduncles 4–10 cm long, erect, angular-striate, loosely to densely hairy like the rachis. Racemes loosely 10–20-flowered, up to 10 cm long; axis densely hairy. Bracts whitish-membranous, 2–3 mm long. Ovate-acute to narrowly triangular, hairy, at the margins with minute glands. Pedicels ca. 2 mm long, hairy; flowers mostly erect. Bracteoles whitish, narrowly triangular, 1–2 mm long, at the base of calyx. Calyx 10–13 mm long, tubular, obliquely cut at the mouth, densely covered with appressed white hairs 0.5–0.8 mm long, sometimes with few to many much shorter black hairs mixed in; teeth linear-acute, somewhat unequal in length, 3–6 mm long, white hairy on inner side. Petals pale yellowish. Standard ca. 20 mm long; limb slightly curved upward, ca. 10 mm wide, widely elliptic, shortly triangularly narrowed toward the narrowly obtuse tip, angularly passing into the short, cuneate claw. Wings ca. 17 mm long, narrowly oblong, rounded, 9 × 2.5 mm; auricle ca. 0.8 mm long, claw 9–10 mm long. Keel ca. 15 mm long; limbs obliquely obovate, with widely, rectangularly curved lower edge and concave upper edge, subacute, 7 × 3 mm; auricle short, claw ca. 9 mm long. Stamen-tube obliquely cut at the mouth. Ovary with a stipe 2–3 mm long, linear

white hairy; style glabrous. Legumens unknown.

Species named after the village Dorud in the Lorestan province, western Iran.

Specimens examined

Known only from the type material.

***Astragalus hamadryadis* PODLECH, sp. nova  
(sect. *Incani*)**

Differt ab *A. dekazygus* ŠIRJ. & RECH. f. foliolis 4–8 × 3–5 mm (nec 4–15 × 3–11 mm), supra laxe pilis 0.5–1 mm longis, subtus laxe ad dense pilis mere medifixis ad 0.5 mm longis obtectis (nec supra subglabris vel sparse pilosis, subtus sparse pilis medifixis et pilis asymmetrice bifurcatis ad basifixis obtectis), racemis 5–8-floris (nec 10–23-floris), bracteolis minutis, ca. 0.3 mm longis in medio pedicelli affixis, interdum absentibus (nec 1–2 mm longis, basi calycis affixis), petalis flavis (nec malvaceis, alis pallide flavis carina violacea), leguminibus rostro 1–2 mm (nec 3–4 mm) longo, laxe ad densiuscule pilis imprimis nigris (nec albis) obtectis.

Typus: Iran, Prov. Mazandaran, after Firouzkou, 2250 m, 17. 06. 2003, MAASSOUMI, JALILI & REZAEI 83512 (holotypus MSB; isotypus TARI).

Plants 20–25 cm tall, with appressed, warty, mostly ± medifixed, in vegetative parts merely white hairs. Caudex up to 8 mm in diameter, with a pluricipital root-crown, branches up to 4 cm long, densely covered with remnants of old petioles. Stipules narrowly triangular, 6–9 mm long, adnate to the petiole for 2–3 mm, densely appressed hairy. Leaves 6–13 cm long; petiole 2–6 cm long, like the rachis grooved adaxially, rather densely to very densely covered with hairs 0.3–0.5 mm long. Leaflets in 9–13 pairs, elliptic to obovate, 4–8 × 3–5 mm, rounded to truncate or slightly retuse and minutely mucronulate, on upper side loosely covered with appressed hairs 0.5–1 mm long, on underside loosely to densely covered with appressed hairs up to 0.5 mm long. Peduncle 12–17 cm long, rather densely to densely covered with appressed white hairs 0.3–0.5 mm long, below the raceme with some black hairs mixed in. Raceme in fruit rather loose, with 5–8 legumes; axis white and black hairy. Bracts whitish, narrowly triangular-linear, 2.5–3 mm long, loosely white and black

hairy. Pedicels 1–2 mm long, black hairy. Bracteoles minute, whitish, ca. 0.3 mm long, in the middle of the pedicel. Calyx 9–10 mm long, tubular, obliquely cut at the mouth, loosely to rather densely covered with appressed black hairs 0.1–0.3 mm long; teeth subulate, 2–3 mm long, subglabrous on inner side. Petals yellow, tip of the keel pale violet. Standard 21–22 mm long; limb ca. 6 mm wide, narrowly elliptic, emarginate, gradually narrowed into the short claw. Wings 17 mm long; limbs narrowly oblong, obtuse, 7–8 × 2 mm; auricle 1 mm long, claw 9 mm long. Keel 13–14 mm long; limb obliquely elliptic, with widely rectangularly curved lower edge and ± straight upper edge, subobtuse, 4 × 2.5 mm; auricle ca. 0.8 mm long, claw 9 mm long. Stamen-tube truncate at the mouth. Ovary sessile, linear, appressed white hairy; style glabrous. Legumes sessile, erect, linear, straight to slightly curved, 18–25 mm long, 2.5–3 mm high and wide, keeled ventrally, slightly grooved dorsally, with a straight beak 1–2 mm long, bilocular; valves pale brownish, loosely to rather densely covered with appressed to subappressed, medifixed, often somewhat flexuose black hairs 0.2–0.5 mm long.

Etymology: “hamadryas” Greek = nymph of trees.

Specimens examined

Known only from the type material.

***Astragalus harazensis* ZARRE & PODLECH, sp. nova  
(sect. *Incani*)**

Differt ab *A. confusus* BUNGE stipulis 4–5 mm (nec 6–10 mm) longis, dense pilosis (nec laxe pilosis ad subglabris), foliis utrinque dense ac densissime (nec sparse ad laxe) pilosis, calycibus 12–13 mm (nec 6–8 mm) longis, vexillo 23–25 mm (nec 15–20 mm) longo.

Typus: Iran, Prov. Mazandaran, Haraz valley, Polur to Ryneh, 1 km after deviation of Lar dam, 2500 m, 15. 05. 2004, SH. ZARRE, S. MASHAYEKHI & H. MOAZENI 35022 (holotypus TUH; isotypus MSB).

Plants 13–15 cm tall, with medifixed white, in the inflorescence also black hairs 0.3–0.7 mm long. Caudex divided, with short branches, covered with remnants of old leaves. Stipules whitish, triangular, 4–5 mm long, adnate to the petiole for ca. 2 mm, densely subappressed hairy. Leaves 5–10 cm long;

petiole 2–4 cm long, like the rachis slender, grooved adaxially, very densely appressed hairy. Leaflets in 6–10 pairs, obovate, 4–7 × 2–4 mm, rounded to retuse, sometimes very shortly mucronulate, on both sides densely to very densely appressed hairy. Peduncles 5–10 cm long, angular, loosely to densely white hairy, glabrescent with age. Racemes 3–5 cm long at anthesis, loosely 8–12-flowered; axis white hairy with some black hairs mixed in. Bracts whitish, narrowly triangular, 1.5–2 mm long, white hairy, sometimes with few black hairs mixed in, at the base of margins with some minute glands. Pedicels 1–2 mm long, white and black hairy; flowers ascending to spreading. Bracteoles minute, up to 0.5 mm long, at the base of calyx, in some flowers absent. Calyx 12–13 mm long, tubular, obliquely cut at the mouth, whitish with greenish teeth, rather densely appressed white and black hairy; teeth narrowly triangular, 2–3 mm long, loosely white and black hairy on inner side. Petals whitish with ± violet keel limbs, changing to violet when fading. Standard 23–25 mm long; limb ca. 9 mm wide, elliptic, slightly emarginate, gradually narrowed into the rather wide and long claw. Wings ca. 20 mm long; limbs obovate, obliquely emarginate, 8 × 4 mm; auricle ca. 1 mm, claw 12 mm long. Keel ca. 18 mm long; limbs obliquely elliptic, with widely, rectangularly curved lower edge and slightly curved upper edge, subacute, 7 × 3 mm; auricle minute, claw ca. 11 mm long. Stamen-tube truncate at the mouth. Ovary sessile, narrowly oblong to linear, white and black hairy. Legume unknown.

Species named after the Haraz valley in Central Elburs range, Iran.

Specimens examined

Known only from the type material.

***Astragalus innotabilis* PODLECH, sp. nova  
(sect. *Incani*)**

Differt ab *A. gillettii* C.C.TOWNS. stipulis 10–15 mm longis per 5–6 mm petiole adnatis (nec 3–7 mm longis, per ca. 2 mm petiolo adnatis). Foliolis subsessilibus, 6–12 × 3.5–5 mm (nec petiolulo 2–3 mm longo suffultis, 10–17 × 7–10 mm), racemis brevibus 3–5 cm (nec ad 20 cm) longis, laminis alarum apice oblique emarginatis (nec rotundatis).

Typus: Iran, Kordestan, ca. 38 km on the road from Divan-Darreh to Saghez, 2130 m, 10. 05. 2001, A. A. MAASSOUMI & A. SHAHSAVARI 80650, (holotypus MSB; isotypus TARI).

Plants ca. 15 cm tall, covered medifixed, appressed hairs 0.5–0.9 mm long. Caudex with a pluricipital root-crown. Stipules membranous, narrowly triangular, acute, 10–15 mm long, adnate to the petiole for 5–6 mm, white hairy. Leaves 8–12 cm long; petiole 4–6 cm long, like the rachis grooved adaxially, loosely to rather densely hairy. Leaflets in (4–)5–7 pairs, subsessile, elliptic, 6–12 × 3.5–5 mm, subacute to obtuse, minutely mucronulate, on both sides loosely to rather densely covered with appressed hairs, on upper side indistinctly to distinctly spotted with minute, dark dots. Peduncles 10–13 cm long, rather densely covered with appressed white hairs, below the raceme with some black hairs mixed in. Racemse 3–5 cm long, rather densely 10–20-flowered. Bracts membranous, narrowly triangular, 2–3 mm long, subglabrous or sparsely hairy. Pedicels 1.5–2 mm long, sparsely hairy. Bracteoles minute, ca. 0.8 mm long, at the base of or just below calyx. Calyx ca. 7 mm long, shortly tubular, slightly gibbous at the base, obliquely cut at the mouth, rather densely covered with appressed black 0.1–0.3 mm long and with somewhat longer white hairs; teeth narrowly triangular, 1–1.5 mm long, white hairy on inner side. Petals creamy when dry. Standard 18 mm long; limb ca. 6–7 mm wide, elliptic, widely emarginate, slightly constricted in lower part, abruptly contracted into the short, cuneate claw. Wings 14 mm long; limbs narrowly oblong, obliquely emarginate, 7 × 2 mm; auricle 0.5 mm long, claw 7 mm long. Keel 12 mm long; limbs obovate-triangular, with widely rectangularly curved lower edge and slightly sigmoid upper edge, obtuse, 5 × 2.5 mm; auricle short, ca. 0.3 mm long, claw 7 mm long. Stamen-tube obliquely cut at the mouth. Ovary sessile, narrowly oblong, with appressed white hairs, ca. 12-ovulate. Legumes unknown.

Etymology: *innotabilis* = not noticed up to now.

Specimens examined

Known only from the type material.

***Astragalus absconditus* ZARRE & PODLECH,  
sp. nova (sect. *Malacothrix*)**

Differt ab *A. singarensis* BOISS. & HAUSK. stipulis omnibus  $\pm$  dense pilosis (nec inferioribus subglabris), calycibus 12–14 mm (nec 6–8 [–10] mm) longis, pilis ad 1,5(–2) mm (nec ad 1 mm) longis obtectis, dentibus 4–5 mm (nec 2–3 mm) longis, vexillo ca. 20 mm longo, late ovato, subabrupte in unguem angustum limbo aequilongum contracto (nec 14–19 mm longo, rhombico-elliptico, gradatim in unguem cuneiformem abeunte).

Typus: Iran, Esfahan prov., Kashan, from Kamu to Varkan, 33°1' N, 51°11' E, 2500 m, 20. 05. 2004, AMERICAN-IRANIAN BOT. DELEGATION 33634 (holotypus TUH; isotypus MSB).

Plants 7–9 cm tall, acaulescent. Caudex slender. Stipules whitish or the upper ones with greenish tip, those of lower leaves 3–4 mm long, triangular, very shortly connate behind the stem, those of upper leaves 5–8 mm long, narrowly triangular, free from each other, all shortly adnate to the petiole, rather densely to densely covered with subappressed, at the margins spreading white hairs 0.1–1 mm long, sometimes with few black hairs mixed in. Leaves 4–9 cm long; petiole 1.5–4 cm long, like the rachis sulcate adaxially, loosely to  $\pm$  densely covered with tangled, subappressed to spreading white hairs 0.3–0.8(–1) mm long. Leaflets in (6–)8–11 pairs, narrowly elliptic, 5–10  $\times$  1.5–4 mm, obtuse to rounded, on both sides rather densely to densely covered with subappressed to slightly ascending white hairs 1–1.5 mm long, often folded. Peduncles 2–50 cm long, angular-sulcate, densely to very densely covered with white, spreading hairs, 0.2–0.5 mm long and with few ascending to spreading hairs up to 1 mm long, below the raceme with some black hairs mixed in. Racemes oblong, rather loosely 10–20-flowered. Bracts greenish, narrowly white-margined, 3–6 mm long, linear to narrowly triangular, acute, covered with white hairs up to 1 mm long and with shorter black hairs. Flowers subsessile. Calyx 12–14 mm long, tubular, obliquely cut at the mouth, straw-coloured or purple-suffuse, with greenish teeth, densely covered with spreading white hairs 0.3–1.5 (–2) mm long and mostly with shorter black hairs; teeth subulate, 4–5 mm long, white hairy

on inner side. Petals greenish dirty violet when dry. Standard ca. 20 mm long; limb 9 mm wide, widely ovate, emarginate, abruptly contracted into the narrow claw ca. 10 mm long. Wings ca. 17 mm long; limbs narrowly obovate, rounded, 6.5  $\times$  2.5 mm; auricle ca. 1.5 mm long, claw 10–10.5 mm long. Keel 17 mm long; limbs obliquely elliptic, with slightly widely curved lower edge and slightly sigmoid upper edge, obtuse, 6  $\times$  3 mm; auricle ca. 1 mm long, claw ca. 11 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 1 mm long, densely covered with white hairs ca. 1.5 mm long. Legumes unknown.

Etymology: “absconditus” = hidden.  
Specimens examined  
Known only from the type material.

***Astragalus anodiophilus* ZARRE & PODLECH,  
sp. nova (sect. *Malacothrix*)**

Differt ab *A. pauperiflorus* indumento in partibus vegetativis partim e pilis applanatis 0,02–0,4 mm longis consistente (nec pilis teretibus, saepissime longioribus consistente), foliolis minutis 1–2 mm (nec 2–4 mm) longis, pedunculo 3–6 cm (nec 0,8–2 cm) longo, racemis laxis ca. 8 (nec densis 3–4) floribus; dentibus calycis 0,3–1 mm (nec 1–2 mm) longis, ovario glabro (nec piloso).

Typus: Iran, Prov. Lorestan, in monte Shutarunkuh, vii. 1903, TH. STRAUSS (holotypus B).

Plants up to 8 cm tall, acaulescent to subacaulescent, caespitose, covered in vegetative parts with often somewhat flattened, white hairs, in the inflorescence with slender white and black hairs. Caudex strongly branched with short to elongated subterranean, blackish branches, the aerial part of the stolons glabrous. Stems of the current year, if present, very short, loosely subappressed hairs. Stipules whitish-membranous, 2–4 mm long, adnate to the petiole for 1–2 mm, distinctly vaginate-connate behind the stem high up, sometimes nearly to the top, the free tips triangular, at the margins with hairs 0.02–0.2 mm long, otherwise glabrous or sparsely hairy toward the tips. Leaves small, 1–2 cm long; petiole 0.2–0.5 mm long, like the rachis slender, often flexuose-curved, loosely to rather densely covered with subappressed to ascending, rigid, partly flattened hairs 0.2–0.3 mm long. Leaflets in 5–9 pairs,

elliptic,  $1-2.5 \times 0.5-1.2$  mm, obtuse to slightly retuse, those of the basal leaves sparsely covered on both sides with subappressed hairs  $0.05-0.2$  mm long, those of the upper leaves loosely to rather densely with subappressed to slightly ascending hairs up to  $0.4$  mm long. Peduncle  $3-6$  cm long, slender, loosely covered in lower part with appressed to subappressed white and black, in upper part with black hairs  $0.1-0.25$  mm long. Raceme short, densely ca. 8-flowered. Bracts whitish-membranous, ovate, ca.  $1$  mm long, sparsely predominantly black hairy. Pedicels ca.  $0.5$  mm long, hairy. Calyx narrowly tubular, ca.  $7$  mm long, obliquely cut at the mouth, loosely to rather densely covered with appressed to subappressed hairs  $0.2-0.4$  mm long, at upper (ventral) side with predominantly white, at lower (dorsal) side and at the teeth with predominantly black hairs; teeth narrowly triangular,  $0.3-1$  mm, hairy at the inner side. Petals yellow, fading yellowish-brown. Standard ca.  $13$  mm long; blade  $4-5$  mm wide, elliptic to rhombic-elliptic, widely emarginate, with a short claw. Wings ca.  $11$  mm long; blades narrowly oblong, round-tipped, ca.  $4 \times 1.5$  mm; auricle ca.  $1$  mm long, claw ca.  $7$  mm long. Keel ca.  $11$  mm long; blades obliquely elliptic-upcurved, with widely curved lower edge and sigmoideous-concave upper edge, acute-tipped, ca.  $3.5 \times 1.5$  mm; auricle minute, claw ca.  $7$  mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca.  $1$  mm long, glabrous, with ca.  $10$  ovules. Legume sessile,  $7$  mm long,  $3-4$  mm high and ca.  $2.5-3$  mm wide, subcarinate ventrally, deeply grooved dorsally, subabruptly narrowed into a straight beak  $2$  mm long, sometimes with persistent style; valves thin, straw-coloured to pale brownish, covered with nearly spreading white and black or predominantly black hairs up to  $1.5$  mm long. Fruit opening at the ventral side, nearly fully bilocular. Seeds ca.  $2 \times 1.5$  mm, brown, smooth.

Etymology: “anodiophilus” living in rough regions.

Specimens examined

Known only from the type material.

***Astragalus khunsarensis* ZARRE & PODLECH,  
sp. nova (sect. *Malacothrix*)**

Differt ab *A. macrourus* BUNGE pilis mere albis (nec partim pilis nigris) obtectus, rhachidibus

pilis patentibus ad  $1$  mm longis (nec partim subappressis,  $0.1-0.5$  mm longis) obtectis, foliolis  $7-10 \times 2-4$  mm (nec  $7-25 \times 2-8$  mm), racemis  $7-8$  cm longis, laxe  $8-12$ -floribus (nec  $10-15$  cm longis, densiuscule multifloribus), pedicellis  $3-5$  mm (nec  $0.5-1$  mm) longis, bracteolis in nonnullis floribus evolutis (nec omnino absentibus), calyce  $12-14$  mm (nec  $8-11$  mm) longo, dentibus  $3-6$  mm (nec  $1-3.5$  mm) longis, vexillo obovato, in parte superiore latissimo (nec ovato, in parte basali latissimo).

Typus: Iran, Prov. Esfahan, ca.  $10$  km after Khunsar on the road to Golpayegan,  $50^{\circ}24'$  E,  $339'$  N,  $2550$  m, 21. 05. 2004, AMERICAN-IRANIAN BOT. DELEGATION 33705 (holotypus TUH; isotypus MSB).

Plants acaulescent to nearly acaulescent,  $25-30$  cm tall, covered with only white hairs. Caudex divided, with short branches covered with remnants of old, partly persistent petiole. Stems, if present, up to  $1$  cm long, hairy. Stipules whitish, distinctly longitudinally nerved, the lower ones  $5-8$  mm long, triangular to narrowly triangular, adnate to the petiole for  $2-4$  mm, vaginate-connate up to half of the length behind the stem, the upper ones narrowly oblong, up to  $20$  mm long, only shortly connate behind the stem but highly adnate to the petiole, subobtusate to subacute, all covered with ascending to spreading hairs  $0.3-0.5$  mm long, sometimes the lower ones glabrescent to nearly glabrous. Leaves  $15-18$  cm long; petiole  $3-7$  cm long, densely covered with spreading hairs  $0.2-1$  mm long. Leaflets in  $18-22$  pairs, narrowly ovate,  $7-10 \times 2-4$  mm, subobtusate to acute, on both sides  $\pm$  densely covered with ascending to partly spreading hairs  $0.3-0.7$  mm long, those of the first leaves of a year often in less pairs, shorter, elliptic, rounded and less densely hairy, especially on upper side. Peduncles  $12-18$  cm long, slender, striate, hairy like the rachis. Racemes  $7-8$  cm long, loosely  $8-12$ -flowered. Bracts mostly greenish,  $5-9$  mm, linear-acute, densely hairy. Pedicels  $3-5$  mm long, spreadingly hairy. Bracteoles in some flowers present, linear,  $1-2$  mm long, at the base of calyx. Calyx  $12-14$  mm long, tubular, slightly obliquely cut at the mouth, densely covered with flexiose, tangled, spreading hairs,  $0.3-1$  mm long; teeth greenish, unequal, narrowly triangular,  $3-6$  mm long, sparsely hairy

on inner side. Petals greenish yellow, fading pale violet. Standard ca. 22 mm long; limb ca. 10 mm wide, obovate, widely rounded and narrowly emarginate, gradually narrowed into the cuneate claw. Wings 18 mm long; limbs narrowly oblong, rounded,  $8 \times 3$  mm; auricle ca. 1 mm long, claw 10 mm long. Keel 16 mm long; limbs obliquely obovate, with in upper third rectangularly curved lower edge and  $\pm$  straight upper edge, subacute,  $6 \times 4$  mm; auricle ca. 0.8 mm long, claw 10 mm long. Stamen-tube obliquely cut at the mouth. Ovary with a stipe ca. 2 mm long, sparsely shortly white hairy; style glabrous. Legumes unknown.

The species is named after the village Khunsar in Iran.

Specimens examined

Known only from the type material.

***Astragalus meshkinensis* PODLECH, sp. nova**  
(sect. *Malacothrix*)

Differt ab *A. mehrizianus* PODLECH & MAAS-SOUMI plantis sine caulibus sterilibus (nec caulibus sterilibus evolutis), caulibus pilis 0.2–0.4 mm (nec 0.3–1 mm) longis obtectis, stipulis foliorum superiorum 8–10 mm longis petiole per 1–2 mm adnatis (nec 10–15 mm longis, petiole per 4–5 mm adnatis), dentibus calycis 3–4 mm (nec 4.5–5 mm) longis, petalis flavis (nec violaceis), vexillo 20 mm, alis ca. 19 mm, carina 17 mm longis (nec vexillo 20 mm, alis 15–16 mm et carina 14 mm longis).

Typus: Iran, Prov. Zanjan, Ghara-pushlu, Meshkin village, 2150 m, 74, 3, 9 (pers. calend.), *A. MUSAVI* 543 (holotypus TARI).

Plants ca. 20 cm tall, caulescent. Caudex branched. Stems several, the older parts blackish-brown, parts of the current year 3–8 cm long, branched at the base, densely to very densely covered with appressed white hairs 0.2–0.4 mm long, in upper part and especially toward the nodes also with black hairs. Stipules of lower leaves whitish, 3–4 mm long, narrowly triangular, adnate to the petiole for 1.5–2 mm, distinctly vaginate connate behind the stem, rather densely white hairy, those of upper leaves 8–10 mm long, green, linear-acute to very narrowly triangular, adnate to the petiole for 1–2 mm, otherwise free from each other, densely appressed black hairy, at the mar-

gins with spreading white hairs ca. 1 mm long. Leaves 10–14 cm long; petiole 3–7 cm long, like the rachis grooved adaxially, rather densely covered with subappressed to mostly ascending white hairs 0.2–0.5 mm long and with mostly spreading hairs 0.8–1.5 mm long, with numerous black hairs mixed in. Leaflets in 12–14 pairs, narrowly elliptic,  $5-9 \times 2-4$  mm, obtuse to subacute, covered on upperside sparsely, especially toward the margins, on underside loosely with subappressed to ascending white hairs 0.6–1 mm long, at the base of underside mostly with some short black hairs mixed in. Peduncles 9–10 cm long, loosely hairy like the rachis but toward the raceme with more black hairs. Racemes ovoid, densely 10–12-flowered. Bracts whitish, linear-acute to filiform, 7–10 mm long, with spreading, predominantly black hairs 0.5–1.2 mm long, at the base of margins with sessile, minute glands. Pedicels ca. 1 mm long, predominantly black hairy. Calyx 14–15 mm long, tubular, slightly inflated, obliquely cut at the mouth, loosely to rather densely covered with tangled, nearly spreading hairs 1–2 mm long, on ventral side with predominantly white, on dorsally side with predominantly black hairs; teeth subulate, 3–5 mm long, sparsely hairy on inner side. Petals yellow, fading partly pale lilac. Standard ca. 20 mm long; limb ca. 8 mm wide, ovate, emarginate, subabruptly contracted into the narrowly cuneate claw ca. 9 mm long. Wings ca. 19 mm long; limbs obovate, rounded and very slightly obliquely retuse,  $8 \times 3$  mm; auricle 1.5 mm long, claw 11 mm long. Keel 17 mm long; limbs obliquely obovate, with in upper part  $\pm$  rectangularly curved lower edge and slightly concave upper edge, subacute,  $6 \times 2.8$  mm; auricle ca. 0.8 mm long, claw 11 mm long. Ovary sessile, hairy; style glabrous. Legumes unknown.

The species is named after the village Meshkin in Iran.

Specimens examined

Known only from the type material.

***Astragalus segregatus* ZARRE & PODLECH,**  
**sp. nova (sect. *Malacothrix*)**

Differt ab *A. iranicus* BUNGE, cui ob indumentum in rhachidibus duplum similis, stipulis omnibus distincte vaginato-connatis (nec inter se liberis vel inferioribus tantum brevissime



connatis), bracteis subulatis 4–5 mm longis (nec linearibus ad anguste triangularibus, 5–10 mm longis), calyce anguste tubuloso, ventro alte oblique inciso, dentibus in latere dorsali congestis (nec tubuloso, leviter oblique truncato, dentibus non in latere dorsali congestis), corolla obscure violacea, carina pallide violacea ad flavida (nec petalis omnibus flavis).

Typus: Iran, Prov. E Azerbaijan, 10 km SE Maragheh, mountains in front of Goshayesh village, ca. 2000 m, 20. 06. 2004, *F. TAEB 35321* (holotypus TUH; isotypus MSB).

Plants 6–15 cm tall, acaulescent, hairy. Caudex with a pluricipital root-crown. Stipules 7–10 mm long, from triangular base long subulate, greenish, adnate to the petiole for 2–4(–5) mm, all distinctly vaginate-connate behind the stem, loosely covered with subappressed white hairs up to 1 mm long, at the margins with spreading hairs ca. 2 mm long. Leaves 4–9 cm long; petiole 1.5–3 cm long, like the rachis rather densely covered with spreading white hairs 0.1–0.5 mm long and with mostly fewer, longer hairs 1–1.4 mm long. Leaflets in 7–13 pairs, narrowly elliptic to elliptic, 3–7 × 1–2.5 mm, acute, on both sides densely or on upper side loosely covered with ascending or partly spreading white hairs up to 1.6 mm long, mostly flat. Peduncles ca. 10 cm long, erect, white hairy like the rachis. Racemes at anthesis ca. 4 cm long, densely ca. 15–20-flowered. Bracts greenish, 4–5 mm long, subulate, white hairy like the peduncles, sometimes with few, very short black hairs mixed in, near the base sometimes with minute, sessile glands. Flowers subsessile. Calyx 12–13 mm long, narrowly tubular, in the basal half slightly ventricose, very strongly obliquely cut at the mouth, so the calyx teeth all close together at the dorsal side, loosely to densely covered with tangled, spreading short white hairs and longer white hairs up to 2 mm long, at the dorsal side sometimes also with short black hairs mixed in; teeth greenish, subulate, 3–4 mm long, white hairy on inner side. Petals dark violet with pale violet to yellowish keel. Standard ca. 18 mm long; limb obovate, ca. 7 mm wide, rounded to shallowly retuse, gradually narrowed into the long claw. Wings ca. 17 mm long; limbs narrowly obovate, rounded, ca. 7 × 2.5 mm; auricle ca. 1 mm long, claw ca.

10 mm long. Keel ca. 16 mm long; limbs obliquely oblong to obovate-curved, with in upper part widely, nearly rectangularly curved lower edge and ± straight upper edge, subacute, ca. 6 × 2.5 mm; auricle minute, acute, claw ca. 10 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 1 mm long, long white hairy; style glabrous. Legumes unknown.

Etymology: “segregare” = to set off.

Specimens examined

Known only from the type material.

***Astragalus shehbazii* ZARRE & PODLECH, sp. nova**  
(sect. *Malacothrix*)

Differt ab *A. inexpectatus* MAASSOUMI & PODLECH caulibus, rhachidibus et pedunculis densissime pilis albis brevissimis, 0.1–0.2 mm (nec pilis ad 1–2 mm) longis obtectis, stipulis viridiusculis, 5–8 mm longis (nec albo-membraceis, 2–4 mm longis), foliolis acutis (nec rotundatis ad leviter emarginatis), pedunculis 10–13 cm (nec 5–6 cm) longis, racemis cylindraceis, 7–8 cm longis (nec globosis ad ovoideis), floribus subsessilibus (nec pedicello 2–3 mm longo suffultis), bracteolis in floribus proximis evolutis, calycibus 13–14 mm (nec 10–11 mm) longis.

Typus: Iran, Prov. Esfahan, 10 km from Khansar toward Golpayegan, 33°20' N, 50°20' E, 1900 m, 21. 05. 2004, *AMERICAN-IRANIAN BOT. DELEGATION 33796* (holotypus TUH; isotypus MSB).

Plants ca. 24 cm tall, shortly caulescent, densely covered with white, in the inflorescence also with black hairs. Caudex slender, divided. Stems few, 2–4 cm long, branched, very densely covered with spreading hairs 0.1–0.2(–0.25) mm long. Stipules greenish, 5–8 mm long, narrowly triangular, adnate to the petiole for ca. 1 mm, shortly vaginate-connate behind the stem, densely covered with subappressed white hairs 0.3–0.8 mm long, with few black hairs mixed in. Leaves 7–11 cm long; petiole 2.5–3.5 cm long, with the rachis densely hairy like the stem; the first leaves of the year often shorter and with white hairs. Leaflets in 6–10 pairs, narrowly elliptic, 6–15 × 2–4 mm, acute, covered on upper side with appressed to subappressed, straight hairs 0.5–0.8 mm long, on underside rather densely to densely with tangled, subappressed to partly ascending hairs 0.3–0.5 mm long, flat or

folded; the first leaves of the year often shorter and with 3–5 pairs of leaflets only. Peduncles 10–13 cm long, hairy like the stem, just below the raceme with some black hairs mixed in. Racemes cylindric, 7–8 cm long, loosely 15–22-flowered. Bracts greenish, very narrowly triangular, 5–7 mm long, covered with white hairs up to 0.8 mm long and with shorter black hairs. Flowers subsessile. Bracteoles at the lowest flowers present, subulate, 1–3 mm long, at the base of calyx. Calyx 13–14 mm long, tubular, slightly inflated, densely covered with spreading, tangled white hairs up to 0.8 mm long and, especially toward the teeth and at the dorsal (lower) side, with shorter black hairs mixed in; teeth greenish, narrowly triangular, 3–4.5 mm long, white hairy on inner side. Petals pale lilac with yellowish keel. Standard ca. 19 mm long; limb 7 mm wide, rhombic-obovate, obtuse, gradually narrowed onto the rather long claw. Wings ca. 16 mm long; limbs narrowly oblong, rounded, 6 × 2 mm; auricle ca. 1 mm long, claw 10 mm long. Keel 15 mm long; limbs oblong, with in upper part widely curved lower edge and ± straight edge, ca. 6 × 2.8 mm, acute; auricle minute, claw 9 mm long. Stamen-tube truncate at the mouth. Ovary sessile, narrowly ellipsoid, very densely covered with ascending white hairs ca. 3 mm long. Legumes unknown.

The species is named after Ihsan Ali Al-Shehbaz from Missouri Botanical Garden, cocollector of the plants.

Specimens examined

Known only from the type material.

***Astragalus taebiae* ZARRE & PODLECH, sp. nova**  
(sect. *Malacothrix*)

Differt ab *A. iranicus* BUNGE caulibus pilis 0,1–0,3 mm (nec 0,2–1 mm) longis obtectis, stipulis subglabris vel sparse pilis appressis ad 0,2 mm longis obtectis (nec laxae ad dense pilis appressis ad patentibus 0,2–1,2 mm longis obtectis), rhachidibus pilis ascendentibus vel partim patentibus 0,1–0,5 mm longis obtectis (nec pilis patentibus 0,1–0,5 mm et insuper pilis 1–1,6 mm longis obtectis), racemis per anthesin 5–11 cm longis, subaxe multifloribus (nec per anthesin brevibus, dense 10-multifloribus), calyce antice profunde fisso, dentibus ejus in latere dorsali congestis (nec modice oblique truncato, dentibus aequaliter distributis).

Typus: Iran, Prov. E Azerbaijan, Maragheh dam towards Sahand mts., 12 km NW Maragheh, near Tazeh Kand village, ca. 1900 m, 21. 06. 2004, *F. TAEB 35308* (holotypus TUH; isotypus MSB).

Plants ca. 20 cm tall, caespitose, shortly caulescent. Caudex diffusely divided, mostly with short branches. Stems several, branched, 2–3 cm long, densely covered with ascending to spreading white hairs 0.1–0.3 mm long. Stipules 7–10 mm long, from whitish base long greenish, subulate, adnate to the petiole for ca. 3 mm, very shortly vaginate-connate behind the stem, subglabrous or sparsely covered with ± appressed white and black hairs ca. 0.2 mm long, at the margins with spreading white hairs up to 1 mm long and with subsessile minute glands. Leaves 7–10 cm long; petiole 2–3 cm long, like the rachis slender, grooved adaxially, loosely to rather densely covered with ascending to partly spreading white hairs 0.1–0.5 mm long. Leaflets in 8–14 pairs, narrowly elliptic, 5–10 × 1.5–3.5 mm, subacute to obtuse, on upper side loosely, on underside rather densely covered with subappressed to slightly ascending hairs 0.8–1.2 mm long. Peduncles 9–13 cm long, loosely to rather densely covered with ± spreading white hairs 0.05–0.4 mm long and with few hairs ca. 1 mm long, just below the raceme with few short black hairs mixed in. Racemes at anthesis cylindric, 5–11 cm long, rather loosely many-flowered. Bracts whitish to greenish, 6–9 mm long, subulate, at the base with some short, appressed black hairs, at the margins with white hairs up to 1 mm long and with minute glands. Pedicels ca. 0.5 mm long, hairy. Calyx whitish with greenish teeth, 13–15 mm long, tubular, slightly ventricose, strongly obliquely cut at the mouth, so the calyx teeth all close together at the dorsal side, rather densely covered with ± spreading white hairs 0.3–1 mm long and, especially at the dorsal side, with somewhat shorter and more appressed black hairs; teeth subulate, 4–6 mm long, appressed white hairy on inner side. Petals greenish yellow. Standard ca. 20 mm long; limb obovate, ca. 7 mm wide, emarginate, narrowly cuneate at the base. Wings ca. 17 mm long; limbs narrowly oblong, slightly dilated toward the rounded tip, ca. 7 × 2.5 mm; auricle 0.5 mm long, claw 10 mm long. Keel ca. 15 mm long; limbs obliquely elliptic, with widely curved lower edge and slightly concave

upper edge, subobtusate, ca.  $6 \times 3$  mm; auricle 0.5 mm long, claw 9 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 1.5 mm long, densely white hairy; style glabrous. Legumes (unripe) densely covered with white hairs ca. 4 mm long and with very few short hairs.

The species is named after Fatimeh Taeb, the collector of the plants.

Specimens examined

Known only from the type material.

***Astragalus tahbaziae* ZARRE & PODLECH, sp. nova**  
(sect. *Malacothrix*)

Differt ab *A. singarensis* BOISS. & HAUSSKN. caulibus evolutis (nec planta acaulescens vel caulibus perbrevibus), foliolis supra glabris (nec utrinque pilosis), ovariis glabris (nec villosis).

Typus: Iran, Esfahan prov., Kashan, from Kamu to Varkan,  $33^{\circ}41' N$ ,  $51^{\circ}11' E$ , 2500 m, 20. 05. 2004, AMERICAN-IRANIAN BOT. DELEGATION 33643 (holotypus TUH; isotypus MSB).

Plants 4–18 cm tall, ca. 16 cm tall, caulescent. Caudex divided, with very short branches, covered with remnants of old stipules. Stems ca. 6 cm long, very densely covered with spreading, tangled white hairs 0.3–1 mm long. Stipules greenish, 5–10 mm long, triangular, adnate to the petiole for 1–3 mm, vaginate-connate behind the stem for 1–3 mm, with spreading white hairs at margins and tip, sometimes with few very short black hairs mixed in. Leaves 8–12 cm long; petiole 1–2.5 cm long, like the rachis sulcate adaxially, loosely covered with tangled, often flexuose, spreading hairs 0.3–1 mm long. Leaflets in 6–9 pairs, elliptic,  $8-15 \times 3-8$  mm, obtuse to rounded or very minutely retuse, on upper side glabrous, on underside loosely to rather densely covered with ascending to spreading hairs 0.5–1.5 mm long, flat. Peduncles 4–5 cm long, erect, angular-sulcate, loosely to rather densely hairy like the rachis, just below the raceme with some short black hairs mixed in. Racemes shortly cylindric, rather densely ca. 16–20-flowered. Bracts whitish with green tip, ca. 5 mm long, linear to narrowly triangular, acute, with spreading white and shorter black hairs, at the base of margins with few minute glands. Pedicels 0.5–1 mm long, white and black hairy. Calyx

8–10 mm long, shortly tubular, obliquely cut at the mouth, purplish suffused, densely covered with spreading, white hairs 0.5–1.5 mm long and with very short, subappressed to ascending black hairs; teeth narrowly triangular to subulate, greenish, 2–3 mm long, white hairy on inner side. Petals violet. Standard ca. 14–15 mm long; limb 5–6 mm wide, rhombic-elliptic, slightly emarginate, gradually narrowed to the tip and base. Wings ca. 13 mm long; limbs narrowly oblong, rounded,  $6 \times 1.8$  mm; auricle ca. 1 mm long, claw 7 mm long. Keel ca. 12 mm long; limbs obliquely elliptic, with slightly curved lower edge and  $\pm$  straight upper edge, obtuse,  $5 \times 2$  mm; auricle ca. 1 mm long, claw 7 mm long. Stamen-tube truncate at the mouth. Ovary with a stipe ca. 1 mm long, glabrous. Legumes unknown.

The species is named after Fosiee Tahbaz, curator of Jepson Herbaria, Berkeley, California.

Specimens examined

Known only from the type material.

***Astragalus vicinalis* ZARRE & PODLECH, sp. nova**  
(sect. *Malacothrix*)

Differt ab *A. brevitomentosus* PODLECH ca. 10 cm (nec 20–28 cm) altus, stipulis albob pilosis (nec partim vel praecipue nigro-pilosis), foliolis 12–14-jugis (nec 7–9-jugis), bracteis filiformibus, 7–10 mm longis (nec 2–5 mm longis), calyce 13–14 mm (nec 9–10 mm) longo, pilis albis 0.8–1.5 mm (nec 0.1–0.3 mm longis) oblecto, dentibus filiformibus 5–6 mm longis (nec anguste triangularibus, 1.5–2 mm longis).

Typus: Iran, Prov. Esfahan, after Qamsar to Qohrud,  $51^{\circ}30' E$ ,  $33^{\circ}23' N$ , 1880 m, 20. 5. 2004, AMERICAN-IRANIAN BOT. DELEGATION 33614 (holotypus TUH; isotypus MSB).

Plants acaulescent or nearly so, ca. 10 cm tall, densely hairy. Stem singular, ca. 1 cm long. Stipules 5–7 mm long, narrowly triangular, adnate to the petiole for 1–2 mm, very shortly vaginate-connate behind the stem, densely covered with short, subappressed hairs, at the margins with white hairs up to 1 mm long. Leaves 6–10 cm long; petiole 1–3 cm long, densely to very densely covered with spreading, tangled white hairs 0.1–0.3 mm long and with few hairs up to 0.8 mm long. Leaflets in 12–14 pairs (in the first leaves of

the year only in 8–10 pairs), narrowly elliptic, 4–12 × 1.5–4 mm, obtuse to subacute, covered on upper side loosely, on underside rather densely to densely with subappressed white hairs 0.5–1 mm long, mostly folded. Peduncles 3–6 cm long, very densely white hairy like the rachis. Racemes short, rather densely 10–12-flowered. Bracts filiform, 7–10 mm long, densely covered with subappressed white hairs up to 1 mm long and with shorter black hairs. Pedicels 0.5–1 mm long, white hairy. Calyx 13–14 mm long, tubular-inflated, slightly obliquely cut at the mouth, straw-coloured, reddish-suffused on the dorsal side, densely covered with spreading white hairs 0.8–1.5 mm long, at the dorsal side and at the teeth also with much shorter, subappressed to ascending black hairs; teeth filiform, 5–6 mm long, white hairy on inner side. Petals yellow-brown when dry. Standard ca. 16 mm long; limb oblong-obovate, ca. 5 mm wide, ± rounded, gradually narrowed at the base. Wings ca. 15 mm long; limbs narrowly oblong, obtuse, ca. 5 × 1.5 mm; auricle rounded, ca. 0.8 mm long, claw ca. 10 mm long. Keel ca. 15 mm long; limbs obliquely obovate, with in upper part widely curved lower edge and ± straight upper edge, subacute, ca. 5–5 × 2 mm; auricle acute, ca. 0.5 mm long, claw 9 mm long. Stamen-tube truncate at the mouth. Ovary very shortly stipitate, ovoid, densely long white hairy; style long, glabrous. Legumes unknown.

Etymology: “vicinalis” = neighbourly.

Specimens examined

Known only from the type material.

***Astragalus affinis* PODLECH & ZARRE, sp. nova**  
(sect. *Onobrychoidei*)

Differt ab *A. effusus* BUNGE surculis sterilibus brevibus cum foliis foliolisque minoribus, foliis caulium principalium 5–6 cm longis petiolo 2–3 cm longo (nec 2.5–5 cm longis, basalibus petiolo 0.5–1.3 cm longo, superioribus subsessilibus), foliolis 8–11-jugis (nec in 5–6-jugis vel in foliis superioribus 2–3-jugis tantum), anguste oblongis ad anguste ellipticis, 5–7 × 1–2 mm (nec obovatis ad ellipticis, 4–5 × 1.5–2.8(–4) mm, pedunculis 9–12 cm (nec [2–] 5–7 cm) longis, bracteis 2.5–3 mm (nec 1–2 [–3] mm longis, vexillo ovato ab basi latissimo gradatim angustato (nec ab basi elliptico subabrupte longe lingulato).

Typus: Iran, Prov. Khorasan, N Shirvan, Golul, 2200 m, 20. 06. 1989, FAGHIHNI & ZANGOEE 17770 (holotypus MSB).

Plants ca. 20 cm tall, with appressed hairs. Caudex strong, repeatedly divided, with brown, short branches, in upper part densely covered with remnants of old stipules. Stems several, erect, 5–8 cm long, branched at the base, with short, non-flowering shoots, angular-sulcate, very densely covered with ± medifixed, white hairs 0.5–0.8 mm long. Stipules hyaline-membranous, 2–5 mm long, adnate to the petiole for ca. 1 mm, behind the stem highly up vaginate-connate, the free tips narrowly triangular, sparsely hairy, at the margins also with basifixed hairs and often with few minute glands. Leaves 5–6 cm long; petiole 2–3 cm long, like the rachis grooved adaxially, rather densely to densely covered with symmetrically to asymmetrically bifurcate, appressed to subappressed hairs 0.2–0.5 mm long. Leaflets in 8–11 pairs, obovate to elliptic, 5–7 × 1–2 mm (those of sterile shoot-leaves smaller), rounded, on both sides densely covered with symmetrically to asymmetrically bifurcate white hairs 0.6–1 mm long, often folded or slightly boot-shaped. Peduncles 9–12 cm long, angular-sulcate, loosely to rather densely white hairy like the rachis. Racemes shortly ovoid, 2–3 cm long, densely many-flowered. Bracts hyaline-membranous, 2.5–3 mm long, narrowly triangular, ciliate at the margins with basifixed white hairs and sometimes with few minute, subsessile glands, sometimes with few black hairs mixed in. Pedicels ca. 0.5 mm long, white hairy. Calyx 5–6 mm long, shortly tubular-campanulate, rather densely covered with feebly flexuous, symmetrically to asymmetrically bifurcate, subappressed white hairs 0.5–1 mm long, toward and at the teeth with somewhat shorter and more medifixed black hairs; teeth subulate, ca. 3 mm long, white hairy on inner side. Petals rose to rose purple. Standard 11–12 mm long, upcurved above the claw; limb ca. 5 mm wide, ovate, from widest base gradually narrowed upward, slightly retuse, at the base gradually narrowed. Wings ca. 8 mm long; limbs obovate-spathulate, widest near the obliquely truncate tip, 5 × 2 mm; auricle ca. 0.5 mm long, claw 4 mm long. Keel 7 mm long; limbs elliptic, with widely curved lower edge

and slightly curved upper edge, subobtusate,  $3.5 \times 1.8$  mm; auricle short, claw 4 mm long. Stamen-tube truncate at the mouth. Ovary sessile, narrowly ovoid, white hairy. Legumes unknown.

Specimens examined

Known only from the type material.

***Astragalus dysbatophilus* ZARRE & PODLECH,  
sp. nova (sect. *Onobrychoidei*)**

Differt ab *A. vegetus* BUNGE stipulis inferioribus brevissime (nec ad medium vel altiore) vaginato-connectentibus, rhachidibus pilis mere albis (nec albis nigrisque) obtectis, pedunculis pilis albis (nec albis nigrisque) obtectis, calycibus dense pilis subbasifixis ad basifixis, acentibus ad patentibus albis 1–2 mm longis et pilis arcte asymmetricis bifurcatis ad basifixis brevioribus nigris obtectis, dentibus 3–4 mm longis, margine pilis in tuberculis insidentibus provisus (nec pilis appressis ad subappressis albis nigrisque 0.3–0.7 mm longis obtecto, dentibus sine pilis in tuberculis insidentibus).

Typus: Iran, Prov. E. Azarbaijan, Maragheh dam towards Sahand mts., 10 km NW Maragheh, near Esfentanaj village, ca. 1850 m, 21.06.2004, *F. TAEB* 35298 (holotypus TUH; isotypus MSB!).

Plants more than 50 cm tall, basal parts absent. Stem erect, angular-sulcate, with few leaves and internodes up to 18 cm long, densely covered with  $\pm$  medifixed, appressed white hairs 0.5–0.8 mm long, glabrescent along the edges. Stipules membranous, 2–3 mm long, narrowly triangular, sparsely white and black hairy, free from the petiole, those of lower leaves very shortly vaginate-connate behind the stem, those of upper leaves free from each other. Leaves 3–7 cm long, the lower ones with petiole up to 3 cm long, the upper ones subsessile; rachis loosely to rather densely hairy like the stem. Leaflets in 3–6 pairs, narrowly elliptic to narrowly oblong,  $12\text{--}20 \times 2\text{--}3$  mm, acute or shortly acuminate, on both sides loosely covered with appressed to subappressed,  $\pm$  medifixed white hairs 1–1.5 mm long. Peduncles 7–14 cm long, loosely to rather densely white hairy like the stem, just below the raceme with few black hairs mixed in. Racemes ovoid to shortly cylindric, 2–5 cm long, rather densely ca. 15–20-flowered. Bracts whitish, 2–3 mm long, narrowly triangular, loosely white and black hairy. Pedicels 0.5–

1 mm long, white and black hairy. Calyx whitish with greenish teeth, 8–9 mm long, campanulate-tubular, slightly obliquely cut at the mouth, densely covered with subbasifixes to basifixes, ascending to spreading, tangled white hairs 1–2 mm long and with strongly asymmetrically bifurcate to basifixes, somewhat shorter black hairs; teeth subulate, 3–4 mm long, hairs at the margins sitting on little tubercles, sparsely black hairy on inner side. Petals glabrous, violet, drying partly to whitish. Standard 17–18 mm long; limb ca. 7 mm wide, rhombic-ovate,  $\pm$  gradually narrowed toward the rounded tip, subabruptly narrowed into the short claw. Wings 12 mm long; limbs narrowly oblong, slightly dilated upward, rounded,  $7 \times 2$  mm; auricle ca. 1 mm long, claw 5 mm long. Keel 9 mm long; limbs obliquely obovate, with widely curved lower edge and straight upper edge, subobtusate,  $4.5 \times 2$  mm; auricle minute, claw ca. 5 mm long. Stamen-tube truncate at the mouth. Ovary sessile, ellipsoid, white hairy; style glabrous. Legumes unknown.

Etymology: *dysbatophilus* = living in rough regions.

Specimens examined

Known only from the type material.

***Astragalus ignotus* PODLECH, sp. nova  
(sect. *Onobrychoidei*)**

Differt ab *A. bijarensis* PODLECH & SYTIN foliolis 4–6-jugis, in foliis temporis verni saepe 2–3-jugis (nec 7–8-jugis), apice obtusis vel subacutis (nec emarginatis), pedunculis 3–11 cm (nec 1.5–2.5 cm) longis, racemis ca. 10–15-floris (nec 3–6-floris), calyce ca. 8 mm longo dentibus 3–4 mm longis, pilis longioribus in margine dentium tantum in tuberculis insidentibus (nec 4.5–6 mm longo dentibus 2–2.5 mm longis, pilis longioribus plerumque ubique in tuberculis insidentibus), vexillo ca. 19 mm (nec 15 mm) longo.

Typus: Iran, Prov. Azarbaijan Sharqi, Kuh-e Gechi Qaleh, W of Marand,  $38^{\circ}25' \text{ N}$ ,  $45^{\circ}34' \text{ E}$ , 1700–1900 m, 10.05.1992, *MOHAMADZE & OLFAT* 1665 (holotypus MSB).

Plants ca. 25 cm tall. Stem erect, sulcate, very densely covered with medifixed, appressed white hairs 0.4–0.8 mm long. Stipules 2.5–4 mm long, hyaline-membranous, free from the petiole, those of lower leaves vaginate-connate high up, sometimes for the whole

length, those of upper leaves connate shortly or up to the middle, sparsely white hairy to subglabrous. Leaves 3–6 cm long, the upper ones subsessile, the lower ones with a peduncle up to 2 cm long; rachis slender, grooved adaxially, rather densely hairy like the stem, near the insertion of leaflets with few minute, ovoid, sessile glands. Leaflets in 4–6 pairs, narrowly elliptic, 6–12 × 2–4 mm, obtuse to subacute, on both sides rather densely covered with subappressed, tangled, partly slightly flexuose, symmetrically to asymmetrically bifurcate hairs 0.8–1 mm long. Peduncles 3–11 cm long, sulcate, rather densely to densely covered with appressed to subappressed, ± medifixed white hairs 0.3–0.8 mm long, below the raceme with black hairs mixed in. Racemes short, densely ca. 10–15-flowered. Bracts whitish-membranous, 2–3 mm long, narrowly triangular, white and black hairy, at the margins also with basifixed hairs, near the base with minute, ovoid, sessile glands. Pedicels ca. 0.5 mm long, predominantly white hairy. Calyx ca. 8 mm long, campanulate, whitish, densely covered with strongly asymmetrically bifurcate to basifixed, ascending to spreading white hairs 1–1.5 mm long, at the margins of teeth mostly sitting on little tubercles and with less asymmetrically bifurcate, flexuose, subappressed to ascending, on ventral side predominantly white, on dorsal side predominantly black hairs 0.3–0.5 mm long; teeth 3–4 mm long, hairy on inner side. Petals violet. Standard ca. 19 mm long; limb ca. 6 mm wide, narrowly elliptic, rounded, gradually narrowed into the short claw. Wings ca. 13 mm long; limbs narrowly oblong, rounded, 8 × 2.5 mm; auricle ca. 1 mm long, claw 5 mm long. Keel 11 mm long; limbs obliquely obovate, within upper half widely, nearly rectangularly curved lower edge and ± straight upper edge, obtuse, 5 × 2.8 mm; auricle minute, claw 5–6 mm long. Stamen-tube truncate at the mouth. Ovary sessile, narrowly ellipsoid, hairy; style glabrous. Legumes unknown.

Etymology: ignotus = unknown.

Specimens examined

Known only from the type material.

***Astragalus zourabadensis* ZARRE & PODLECH,  
sp. nova (sect. *Ornithopodium*)**

Differt ab *A. lunatus* PALL. foliolis supra sparse ad laxe pilosis (nec glabris vel pilis solitariis

tantum provisus), bracteis 2,5–4 mm longis, pilis asymmetrice bifurcatis laxe obtectis (nec 0,5–2 mm longis, pilis medifixis sparse obtectis), vexillo ovato (nec rhombeo-elliptico, apicem versus lingulatim attenuato), leguminibus 8–19 mm longis et 1 mm latis, brevissime acuminatis (nec 12–15 mm longis et 2 mm latis, rostro 2–3 mm longo).

Typus: Iran, Prov. Azerbaijan, between Khoy and Siahcheshmeh, Mahlamlu, border of Turkey, 1950 m, 10. 07. 1991, V. MOZAFFARIAN 69996 (holotypus TUH; isotypus MSB).

Plants ca. 25 cm tall. Caudex divided with short branches. Stems several, up to 15 cm long, striate-sulcate, slightly branched with very short, few-leaved, non flowering brachyblasts, densely covered with medifixed, appressed white, at the nodes also black hairs 0.6–0.8 mm long. Stipules membranous, 3–4 mm long, from a wide, amplexicaul base ca. 2 mm long abruptly contracted into narrowly triangular tips, adnate to the petiole for ca. 1 mm, the lower ones vaginate-connate for 1–2 mm, the uppermost ones sometimes nearly free from each other, sparsely appressed white and black hairy. Leaves 5–6 cm long; petiole 1.5–2 cm long, in uppermost leaves ca. 0.5 cm long, like the rachis slender, hairy like the stem. Peduncles ca. 8 cm long, loosely covered with medifixed white, toward the raceme with increasing black hairs. Racemes 5–9 cm long (in fruit), remotely 15–20-flowered (-fruited); axis white and black hairy. Bracts whitish-membranous, 2.5–4 mm long, very narrowly triangular, 0.5–1 mm wide at the base, loosely covered with asymmetrically bifurcate, subappressed to ascending, predominantly black hairs up to 0.7 mm long, at the base sometimes with minute glands. Pedicels ca. 1 mm long, strongly recurved in fruit, shortly white and black hairy. Calyx 6–7 mm long, turbinate-campanulate, obliquely cut at the mouth, rather densely covered with ± medifixed, subappressed to partly slightly ascending black hairy 0.3–0.6 mm long and with asymmetrically bifurcate white hairs up to 0.8 mm long; teeth subulate, unequal, 1.5–3 mm long. Petals unknown. Keel ca. 10–11 mm long (according to the stamen length). Stamen-tube truncate at the mouth. Legumes sessile, pendulous, narrowly oblong-ellipsoidal, slightly curved,

8–10 mm long, 2 mm high and 1 mm wide, carinate ventrally, narrowly grooved dorsally, very shortly acuminate at the tip, bilocular; valves thin but tenacious, rather densely covered with medifixed, subappressed, flexuose black hairs 0.2–0.4 mm long and with white hairs up to 0.6 mm long, soon partly glabrescent.

Species named after the village Zourabad in Azerbaijan prov., NW Iran.

Specimens examined

IRAN: Prov. Azerbaijan Garbi: NW of Khoy, boundary altitude of Turkey from Zourabad, Ghelje, Kelisa to Dizaje Aland, 2750 m, 10. 07. 1991, *MOZAFFARIAN* 69975 (MSB, TUH); West mountains of Kelisa-Kandi (Agh-Dash), 2127 m, 26. 06. 2003, *SAFAVI & NIKCHEREH* 84049 (MSB); Khoy, Aland region, Jangal-sar village, 2300–2600 m, 38°44' N, 44°28' E, 29. 06. 2003, *SAFAVI, ALIZADE & NIKCHEREH* 84124 (MSB); Maku, Chaldoran, ca. 10 km from Sheykh-Salou to Chaldoran, 2271 m, 38°00' N, 44°20' E, 28. 06. 2003, *SAFAVI & NIKCHEREH* 84093 (MSB). Prov. Azerbaijan Sharqi: in agris derelictis ad meridiem jugi Goja Bel, 1650 m, 29. 05. 1971, *RECHINGER* 40566 (W).

***Astragalus semitarius* ZARRE & PODLECH, sp. nova**  
(sect. *Platylottis*)

Differt ab *A. suberosus* BANKS & SOL. subsp. *suberosus* caule sparsissime pilis albis ± patentibus 0,5–1,5 mm longis (nec dense pilis albis, ad nodis nigris quoque 1–2,5 mm longis) proviso, rhachidibus sparse ad laxe (nec dense) pilosis, foliolis 5–7-jugis (nec 7–12[–15]-jugis), bracteis 3–4 mm (nec 4–13 mm) longis, auricula alarum ca. 0,6 mm (nec 2–2,5 mm longa, leguminibus levibus (nec leviter ad arcte verrucosis).

Typus: Iran, Prov. E. Azarbaijan, Maragheh dam towards Sahand mts., 12 km NW Maragheh, near Tazeh Kand village, 1900 m, 21. 06. 2004, *F. TAEB* 35305 (holotypus TUH; isotypus MSB).

Plants probably perennial (?), basal parts missing) ca. 30 cm tall. Stem ca. 20 cm long, erect, very sparsely covered with ± spreading white hairs 0.5–1.5 mm long, glabrous in basal parts. Stipules green, 4–5 mm long, those of lower leaves triangular, of upper leaves narrowly triangular, all free from petiole and from each other, ciliate at the margins. Leaves 4–8 cm long; petiole 0.5–1.5 cm long, with the rachis sparsely to loosely hairy like the stem.

Leaflets in 5–7 pairs, elliptic to obovate, 8–11 × 5–8 mm, rounded to truncate, on upper side glabrous, on underside and at the margins sparsely covered with spreading hairs up to 1 mm long. Peduncles 6–9 cm long, white hairy like the rachis. Racemes loosely 6–10-flowered; axis white hairy. Bracts greenish, 3–4 mm long, ovate (the proximal ones) to narrowly triangular (the distal ones), white and black hairy. Pedicels ca. 2 mm long, sparsely hairy. Calyx 10–12 mm long, widely tubular, reddish brown suffused, loosely covered with spreading white hairs up to 1.5 mm long, with some black hairs mixed in; teeth narrowly triangular, 4–5 mm long, densely white hairy on inner side. Petals yellow. Standard ca. 20 mm long; limb 9.5 mm wide, rhombic-ovate, in upper third slightly tongue-like narrowed, narrowly triangular, rounded, at the base subabruptly contracted into a narrow claw ca. 6 mm long. Wings 14 mm long; limbs narrowly oblong, rounded, 7 × 2 mm; auricle ca. 0.6 mm long, claw 7 mm long. Keel ca. 13 mm long. Stamen-tube nearly truncate at the mouth. Ovary with a stipe ca. 2 mm long, white hairy; style glabrous. Legumes (not fully ripe) with a stipe ca. 2 mm long, obliquely ellipsoid, ca. 20 mm long, 7–8 mm high and wide, obtusely keeled to rounded ventrally, rounded to swallowly grooved dorsally, with a curved to hooked beak 3–5 mm long, bilocular; valves loosely to densely covered with spreading white hairs 1–2 mm long.

Etymology: semitarius = growing along side-roads

Specimens examined

Known only from the type material.

***Astragalus swatensis* PODLECH & ZARRE, sp. nova**  
(sect. *Polycladus*)

Differt ab *A. strictus* BENTH. caulibus pilis 0,1–0,3 mm (nec 0,3–0,6 mm) longis obtectis, stipulis 3–4 mm (nec 3,5–6 mm) longis, sparse ad laxe pilis ad 0,3 mm longis (nec laxe ad densiuscule pilis ad 1 mm longis) obtectis, calyce 4–5 mm (nec 3,5–4 mm) longo, pilis nigris tantum 0,1–0,2 mm longis (nec pilis albis ad 1 mm longis et pilis nigris brevioribus) obtecto, dentibus 0,5–1 mm longis (nec longioribus 1,5–2 mm longis), vexillo 10–11 mm (nec 7–9 mm) longo, alis vexillo aequilongis

ungue 5–5.5 mm longo (nec vexillo ca. 1 mm brevioribus ungue 2.5–3 mm longo).

Typus: Pakistan, Swat, Ulrore, 7500', 06.07.1966, E. NASIR 4001 (holotypus W; isotypus MSB).

Plants 20–30 cm tall. Caudex up to 10 mm in diameter, with a pluricipital root-crown, sometimes strongly divided with short subterranean stolons passing into the aerial stems. Stems several, 12–22 cm long, slender, ascending to erect, angular-sulcate, sparsely covered with appressed white, somewhat flattened hairs 0.1–0.3 mm long. Stipules slightly greenish, 3–4(–6.5) mm long, widely ovate, acuminate, very shortly adnate to the petiole, shortly but distinctly connate behind the stem, sparsely to loosely covered with white hairs up to 0.3 mm long. Leaves 3–5 cm long; petiole 0.5–1 cm long, like the rachis slender, grooved adaxially, loosely to densely covered with appressed to subappressed white hairs 0.2–0.3 mm long. Leaflets in 8–10 pairs, narrowly elliptic to elliptic, (3–)5–8 × 2–4.5 mm, narrowly rounded to retuse or slightly emarginate, on upper side sparsely, on underside loosely covered with appressed white hairs 0.3–0.5 mm long. Peduncles 3–5 cm long, sulcate, loosely hairy like the stem but with black hairs mixed in. Racemes spherical to shortly ovoid, rather densely 10–15-flowered. Bracts whitish-membranous, 2–2.5 mm long, narrowly triangular, loosely predominantly white hairy. Pedicels 1–2 mm long, densely black hairy. Calyx 4–5 mm long, campanulate, obliquely gibbous at the base, obliquely truncate at the mouth, loosely covered with appressed black hairs 0.1–0.2 mm long; teeth narrowly triangular, lightly unequal, 0.5–1 mm long, black hairy on inner side. Petals pale violet with darker tips. Standard 10–11 mm long; limb rhombic elliptic, with shortly tongue-like narrowed tip, ca. 4.5 mm wide, emarginate, gradually cuneately narrowed at the base. Wings 10–11 mm long; limbs narrowly oblong, obtuse, 5–5.5 × 1–1.5 mm; auricle ca. 0.5 mm long, claw 5–5.5 mm long. Keel ca. 9 mm long; limbs obliquely elliptic, with slightly curved lower edge and nearly straight upper edge, obtuse, ca. 4 × 1.8 mm; auricle ca. 0.5 mm long, claw 5 mm long. Stamen-tube strongly obliquely cut at the mouth. Ovary with a stipe ca. 2.5 mm long, white hairy; style glabrous. Legumes (unripe)

with a stipe ca. 3 mm long, narrowly ellipsoid, densely covered with subappressed white and black hairs ca. 0.3 mm long.

Species named after the Swat District in Pakistan.

Specimens examined

Known only from the type material.

***Astragalus bavanatensis* ZARRE & PODLECH,  
sp. nova (sect. *Stereothrix*)**

Differt ab *A. ledinghamii* BARNEBY stipulis a petiolo liberis (nec eo adnatis per 1–1.5 mm), foliis 2–3 cm longis petiolo 1–1.5 cm longo (nec superioribus 5–17 cm longis), petiolo 5–6 cm longo, foliolis 7–12 × ca. 3 mm (nec in foliis superioribus 10–50 × 1–4 mm), calyce pilis 0.5–1.2 mm longis (nec ad 2 mm longis) obtectis.

Typus: Iran, Prov. Fars, Abadeh, Bavanat, Sourian, 24.06.1969, F. TERMEH & IZADYAR 14718-E (holotypus Iran; isotypus MSB).

Plants 4–10 cm tall, subcaulescent to shortly caulescent. Stems singular, 1.5–5 cm long, very densely covered with subappressed to slightly ascending, rigid white hairs ca. 0.5 mm long. Stipules whitish, 4–8 mm long, from wider base linear, acute, free from the petiole and from each other, loosely hairy. Leaves 2–3 cm long; petiole 1–1.5 cm, like the rachis loosely to rather densely appressed hairy, with leaflets in 3–4 pairs, narrowly elliptic, 7–12 × ca. 3 mm, on upper side rather densely, on underside densely covered with appressed to subappressed hairs ca. 1 mm long. Peduncles ca. 3 cm long, hairy like the rachis. Racemes spherical, 2 cm in diameter, densely many-flowered. Bracts whitish, 2–2.5 mm long, narrowly triangular, white hairy. Pedicels ca. 0.5 mm long, white hairy. Calyx shortly tubular, 10–11 mm long, covered with nearly spreading white hairs 0.5–1.2 mm long, at the tip of teeth sometimes with few black hairs mixed in; teeth filiform, often curved, 5–7 mm long, hairy on inner side. Petals whitish yellowish. Standard 8 mm long; limb ca. 3 mm wide, elliptic, truncate, subabruptly narrowed at the base. Wings ca. 7 mm long; limbs narrowly obovate, rounded, 3 × 1 mm; auricle minute, claw ca. 4.5 mm long, very slender. Keel ca. 6 mm long; limbs obliquely obovate, with widely and nearly rectangularly curved lower



edge and nearly straight upper edge, subacute,  $2.8 \times 1.5$  mm; auricle indistinct, claw 4.5 mm long. Stamen-tube truncate at the mouth. Ovary very shortly stipitate, ellipsoid, white hairy; style slender, glabrous. Legumes unknown.

Species named after Bavanat village in Prov. Fars, SW Iran.

Specimens examined

IRAN: Prov. Fars: Firouzabad, Kuh-e Koleh Ghandi, 1800 m, 31. 05. 1985, MIRZAYEN & HASHEMI s.n. (IRAN).

***Astragals damghanensis* PODLECH, sp. nova**  
(sect. *Stereothrix*)

Differt ab *A. capito* BOISS. & HOHEN. caulibus pilis patentibus ad 1 mm longis (nec pilis subappressis ad 0,5 mm longis) obtectis, foliolis utrimque pilis ascendentibus ad patentibus (nec subtus pilis appressis) obtectis, bracteolis evolutis, 0,5–0,8 mm longis (nec bracteolis deficientibus). Ovario stipite 1–1,5 mm longo suffulto (nec ut legumine sessile).

Typus: Iran, Prov. Mazandaran, 41 km from Damghan on road to Sari, 450 m, 17. 05. 1978, P. WENDELBO & M. ASSADI 29574 (holotypus MSB; isotypus: TARI).

Plants ca. 15 cm tall, densely white hairy. Stem ca. 10 cm long, ascending, covered with rigid, spreading, tangled hairs 0.5–1 mm long. Stipules greenish, ca. 5 mm long, narrowly triangular, free from the petiole, those of lower leaves vaginate-connate up to the middle, those of upper leaves free from each other, densely white hairy, sometimes with black hairs mixed in. Leaves 2–4 cm long, subsessile; rachis grooved adaxially, hairy like the stem. Leaflets in 7–12 pairs, elliptic to obovate,  $3-7 \times 1.5-3$  mm, rounded to retuse, on upper side loosely, on underside rather densely to densely covered with ascending to spreading white hairs ca. 1 mm long. Peduncles 2.5–5 cm long, densely white hairy like the stem, sometimes below the raceme with few black hairs mixed in. Racemes spherical, ca. 2 cm in diameter, densely ca. 12–15-flowered. Bracts greenish, 6–10 mm long, narrowly triangular, white and black hairy. Flowers subsessile. Bracteoles membranous, 0.5–0.8 mm long, at the base of calyx, hairy. Calyx 10–12 mm long, campanulate-tubular, whitish with greenish teeth, rather densely covered with  $\pm$  spreading white hairs 1–2 mm

long, with few, much shorter black hairs mixed in; teeth subulate, 5–7 mm long. Petals violet. Standard 14–15 mm long; limb ca. 4 mm wide, narrowly rhombic-elliptic, emarginate, long cuneately narrowed at the base. Wings 10–12 mm long; limbs narrowly oblong, obliquely emarginate,  $4-5 \times 1.5$  mm; auricle 0.8–1 mm long, claw 7 mm long. Keel 9–10 mm long; limbs obliquely elliptic, with widely curved lower edge, and slightly curved upper edge, subacute,  $3.5 \times 2$  mm; auricle 0.5 mm long, claw ca. 6.5 mm long. Stamen-tube  $\pm$  obliquely cut at the mouth. Ovary with a stipe 1–1.5 mm long, ellipsoid, densely covered with ascending white hairs; style hairy in lower half. Legumes unknown.

Species named after the town Damghan in Prov. Semnan, Iran.

Specimens examined

Known only from the type material.

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Manuscript received: October 21<sup>st</sup>, 2004.