

## *Astragalus guzelsuensis* (Fabaceae: Galegeae), a new species from Turkey

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*Astragalus guzelsuensis* F. Ghahrem.-Nejad, Behçet & Demir *sp. nova* (Fabaceae), endemic to the eastern Anatolia, Turkey, is described here. It is placed in the sect. *Incani* due to its medifixed hairs, free stipules, bibracteolate flowers, and imparipinnate leaves, and it appears to be most closely related to *A. siahcheshmehensis*. *Astragalus guzelsuensis* differs, among other things, in having more leaflets (6–10 not 2–6 pairs), longer stipules (8–13 mm not 3–4 mm), a glabrous calyx (not hairy), a longer standard (29–31 not 25 mm), and a glabrous fruit (not hairy).

Key words: *Astragalus*, Fabaceae, new species, Sect. *Incani*, taxonomy

Turkey is one of the centres of diversity of the genus *Astragalus* (Fabaceae). It is the largest genus in Turkey, with nearly 450 species, of which fewer than half are endemic (Ghahremaninejad & Behçet 2003). Here we introduce a new species of *Astragalus* sect. *Incani* from Turkey. Nearly 25 species of section *Incani* thrive in Turkey, of which more than half are endemic (Davis 1970, Davis *et al.* 1988, Podlech 1999).

*Astragalus* sect. *Incani*, originally established by De Candolle (1825) with 12 species, is now known to contain nearly 150 species. Von Bunge (1868) introduced this section under *Proselius*. The centre of diversity of this section is the Armeno–Iranian floristic province of the Irano–Turanian region. The species of this section are distributed in the Middle East, south, east, west and central Asia, Caucasus, north Africa and Europe (Ghahremaninejad 2004).

***Astragalus guzelsuensis*** F. Ghahrem.-Nejad, L. Behçet & İ. Demir, *sp. nova* (Figs. 1–3)

*Differt ab A. siahcheshmehensis foliis 6–10-jugis (nec 2–6-jugis), stipulis 8–13 mm longis (nec 3–4 mm), calyce glabro (nec piloso), vexillo 29–31 mm longo (nec 25 mm), petiolo 2.5–9 cm longo (nec 0.5–3 cm), leguminibus glabris (nec pilosis), non maculatis, et 37–40 mm longis nec 20 mm.*

TYPE: Turkey. East Anatolia Region, Van Province, Güzelsu (Hoşap) District, between Zerne Dam and Üçgen Village, rocky slopes, grassy steppe, 2063 m, 12.V.2007 İbrahim Demir 125 [in flowering state] (holotype VANF; isotypes FAR, GAZI, VANF, W).

ETYMOLOGY: The specific epithet is derived from the original collecting location, Güzelsu (Hoşap) district, Turkey.

Perennial plants 12 to 17 cm tall, caespitose,



**Fig. 1.** *Astragalus guzelsuensis* (from holotype). Left to right: standard, stamen-tube, keel, wings, calyx, pistil.



**Fig. 2.** Holotype of *Astragalus guzelsuensis*.

from a woody caudex enclosed in remains of old stipules and petioles, sparsely vested with appressed white and black bifurcate hairs. Stipules membranous, yellow to yellow-purple, 8–13 mm long, 3–4 mm broad at base, ovate to lanceolate, adnate to petiole for 3–4.5 mm, moderately white hairy, or glabrescent. Leaves 5–15 cm long; petiole 2.5–9 cm long, like rachis sparsely white hairy to glabrescent. Leaflets in 6–10 pairs, 5–12 × 3–10 mm, obovate to broadly elliptic, rounded to somewhat retuse at tip, glabrous to only on

underside and somewhat on upperside along midvein. Peduncles 2.5–7 cm long, up to 1.5 mm thick, almost terete, shorter than leaves, loosely covered with white short hairs to glabrous. Inflorescence rather compact, 4–12-flowered, ovate-oblong, 3–6 cm long. Bracts ovate-elliptic, membranous, purplish, glabrous, sometimes at tip white ciliate, 2–4 mm long, 0.7–1 mm wide. Bracteoles subulate, membranous, 2–3.5 mm long, 0.7–1 mm wide, glabrous, purple to yellow-green at base of calyx. Pedicel 2.5–3 mm



**Fig. 3.** Paratype of *Astragalus guzelsuensis*.

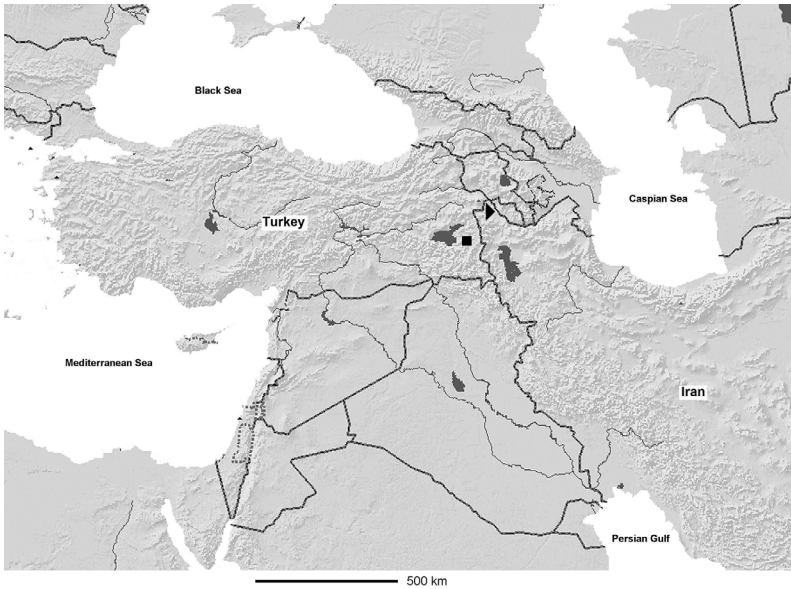
long, with appressed white or white and black hairs; flowers erect. Calyx cylindrical, purplish, 12–14.5 mm long, tubular, slightly gibbous at base, glabrous; calyx teeth subulate-triangular, 1.8–2.1 mm long, 1/7 as long as tube. Corolla violet to sometimes purple, glabrous; standard 29–31 mm long, limb elliptic-oblong, 9–10.5 mm wide, obtuse to somewhat oblong-retuse; wing 24–25 mm long, limb oblong, obtuse, almost as long as claw, 3.2–3.5 mm wide, auricle 1.1–1.3 mm long; keel 19–19.5 mm long, limb ca. 9 mm long, ca. 3 mm wide, auricle 0.7–0.9 mm long, claw 10–10.5 mm long. Stamen tube 18–19 mm long, free portion 5–5.5 mm long, anther ca. 1 mm long. Pistil 19.5–20.5 mm long; ovary 8.5–9.5 mm long, linear-oblong ca. 1 mm wide, sessile, with an stipe ca. 1–1.5 mm long, glabrous; style ca. 10 mm long, glabrous. Pod sessile, curved, erect, 3.7–4 cm long, 3.5–4 mm broad, bilocular, compressed laterally, with a straight beak 2–2.5 mm long, purple to purple-yellowish, glabrous. Flowering in June, fruiting in June–July.

ADDITIONAL SPECIMEN EXAMINED (paratype). — **Turkey.** East Anatolia Region, Van Province, Güzelsu (Hoşap) District, between Zerneq Dam and Üçgen Village, rocky slopes,

grassy steppe, 2063 m, 10.VI.2007 *İbrahim Demir 496* (in fruiting state).

**DISTRIBUTION:** The specimens were collected from East Anatolia region in a grassy steppe on rocky slopes of limestone. The locality is ca. 0.5 km away from N and NE of Zerneq dam, 40 km east of Lake Van. The area where the species is distributed is nearly 300 × 15 m. The population consists of almost 150 individual plants (Fig. 4).

**RELATIONSHIPS:** The morphologically nearest relative of *A. guzelsuensis* is *A. siahcheshmehensis* (holotype TARI!), a narrow endemic species of Iran. The latter species thrives in a small area in NW of Iran in West Azarbaijan province, near the borders with Turkey and Azerbaijan (Podlech & Maassoumi 2003). *Astragalus guzelsuensis* differs from *A. siahcheshmehensis* in having the stipules 8–13 mm (vs. 3–4 mm) long, longer leaves (5–15 vs. 1.5–6 cm), a longer petiole (2.5–9 vs. 0.5–3 cm), 6–10 pairs of leaflets (vs. 2–6 pairs), bigger leaflets (5–12 × 3–10 mm vs. 3–7 × 2–6), a glabrous calyx (vs. hairy), a longer standard (29–31 vs. 25 mm), a longer wing (24–25 vs. ca. 20 mm), a longer bract (2–4 vs. 2–2.5 mm), and a longer pod (37–40 vs. ca. 20 mm), glabrous (vs. hairy pod).



**Fig. 4.** Distribution map of *Astragalus guzelsuen-sis* (square) and *A. siah-cheshmehensis* (triangle).

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