

Astragalus babacianum (Fabaceae), a new species from Turkey

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Astragalus babacianum A.S. Ertekin is described as a new species from SE Anatolia, Turkey. It is morphologically most similar to *A. aleppicus*, *A. gilvus* and *A. subuliferus*, with which it is compared. *Astragalus babacianum* is illustrated in photographs, and the geographical distribution of the four species in Turkey is mapped.

Key words: *Astragalus*, Fabaceae, new species, taxonomy

On one of many floristic excursions performed in Southeastern Anatolia during the spring of 2004, specimens of a large-flowered *Astragalus* were collected near Mazıdağı, Mardin province. The habit and vegetative characters of the specimens are those of sect. *Astragalus*. The specimens were checked in the herbaria of ISTE and DUF and compared to descriptions in Aytaç (2000), Podlech (1999a, 1999b), Davis *et al.* (1988), Zohary (1987), Meikle (1977), Townsend and Guest (1974), Chamberlain and Matthews (1970), and Tutin (1968), but no match was found. It was thus concluded that the specimens represented a hitherto undescribed species. The species is named in honour of the plant taxonomist Prof. Dr. M. Tekin Babaç, who is working at the Science and Art Faculty, Abant İzzet Baysal University, Bolu, Turkey.

***Astragalus babacianum* A.S. Ertekin, sp. nova** (Figs. 1 and 2A)

Herba perennis; caulis erectus, 30–50 cm longus, pilosus. Stipulae inferiores 15–20 mm longae,

anguste ovatae, basi petioli adnate, superiores 12–20 mm, anguste lanceolatae ad filiformes. Folia 15–30 cm longa; foliola 20–25 juga, 10–18 mm longa, 7–13 mm lata, ovata vel late ovata ad suborbiculata, supra glabra, subtus pilosa. Inflorescentia 2–3 flora, pedunculi 4–7 mm longi; bractae 18–22 mm longae, lineares. Calyx 20–22 mm longus, dense pilosus, dentibus 9–10 mm longis. Corolla albida usque flava; vexillum 38–40 mm longum, anguste obovatus; alae 35–36 mm longae; carina 32–34 mm longa. Legumen 38–42 × 28–30 mm, late ovatum, transverse striatum, dense pilosum.

TYPE: Turkey. C8 Mardin: Mazıdağı, Mazıdağı to Derik 6 km, 970 m, fields, 15.IV.2004 A.S. Ertekin 2004-126 (holotype DUF).

Erect, caulescent, herbaceous perennial, 30–50 cm tall. Stems terete, striate, densely pilose, hairs 4–5 mm long. Lower stipules narrowly ovate, dense, 15–20 mm, whitish-membranous, adnate to petiole (to 1 cm), sparsely hairy at margins and apex. Median and upper stipules narrowly lanceolate to filiform, 12–20



Fig. 1. *Astragalus babacianum* in flower.

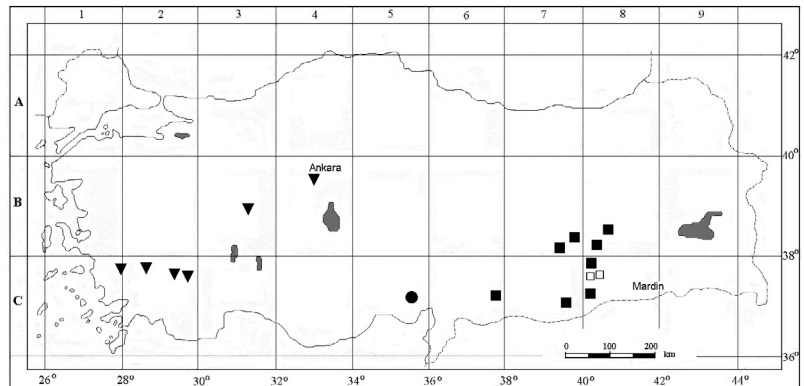


Fig. 2. Legumes of (A) *Astragalus babacianum* and (B) *A. aleppicus*.

mm, whitish-membraneous, shortly adnate to petiole and densely covered with long hairs. Petioles 2–3.5 cm long, pilose. Median leaves 15–30 cm long, with 20–25 pairs of leaflets.

Leaflets ovate, broadly ovate to suborbicular, 10–18 × 7–13 mm (upper leaflets up to 5 × 4 mm), petiolate, obtuse to slightly emarginate at apex, cuneate to slightly cordate at base, on

Fig. 3. Distribution of *Astragalus babacianum* (□), *Astragalus aleppicus* (■), *A. gilvus* (▼), and *A. subuliferus* (●) in Turkey.



upper side glabrous, on underside with spreading hairs. Racemes short, 2–3 flowered. Peduncle 4–7 mm long, pedicels 2–3 mm long, upper pedicel to 6–10 mm. Bracts 18–22 mm long, linear, whitish-membranous, densely hairy and very similar to median and upper stipules. Bracteoles absent or rarely on upper flowers. Calyx 20–22 mm long, tubular, with dense, long hairs, teeth 9–10 mm long, subequal, upper two narrowly triangular and slightly shorter than narrowly lanceolate-linear lower teeth. Corolla 33–38 mm long, whitish to pale yellow, standard limb green in center. Standard 38–40 mm long, limb 26–28 × 18–20 mm, narrowly obovate, apex emarginate, claw 12–14 mm long. Wings 35–36 mm long, limb 22–23 × 6 mm, oblong-falcate, auricle ovate, 4–5 mm long, claw 15 mm long. Keel 32–34 mm long, limb 15–18 × 7–8 mm, semi-elliptic, claw 16–19 mm long. Staminal tube 23–25 mm long, filaments 7–8 mm long, anthers light orange. Ovary ovate, ca. 7 mm long, shortly stipitate, with dense, long hairs; style 25–26 mm long. Legumes broadly ovoid, 38–42 mm long, 28–31 mm broad, 24–27 mm high, densely pilose, transversely striate, beak 10–12 mm long. Flowering in March–April, fruiting in May.

Astragalus babacianum is endemic to SE Anatolia and represents the Irano-Turanian element. It is known to grow in the field at Mazıdağı and is threatened by agricultural activities.

Section *Astragalus* is now represented in Turkey by 20 species, of which 15 (75%) are endemic (Chamberlain & Matthews 1970, Davis *et al.* 1988, Podlech 1999, Aytaç 2000).

Astragalus babacianum closely resembles *A. aleppicus*, *A. gilvus* and *A. subuliferus* of sect. *Astragalus*. *Astragalus aleppicus* (Fig. 2B) is

widespread in SE Anatolia region, Syria, Lebanon and Palestina, *A. gilvus* is endemic in Central and West Anatolia, and *A. subuliferus* is known only from South Anatolia (Chamberlain & Matthews 1970). Distribution maps were drawn using data of the specimens in several herbaria and in Chamberlain and Matthews (1969). *Astragalus gilvus* and *A. subuliferus* are distributed west of the Anatolian Diagonal (Ekim & Güner 1986), while *A. babacianum* and *A. aleppicus* are also distributed east of the Diagonal (Fig. 3).

Astragalus babacianum differs from the other mentioned species mainly by the longer floral parts and broadly ovoid legumes. The morphological differences between *A. babacianum* and the morphologically similar species are summarized in Table 1. The species may be difficult to identify, but the following key should help.

1. Calyx 10–16 mm long, teeth short (1–5 mm long) 2
1. Calyx 15–22 mm long, teeth longer (5–10 mm long) .. 3
2. Calyx teeth 2–5 mm long; legumes 25–30 × 15 mm, ovoid; stipules 7–18 mm long; leaflets in 12–25 pairs ...
..... *A. aleppicus*
2. Calyx teeth 1–2.5 mm long; legumes 20 × 8–10 mm, oblong; stipules 5–7 mm long, leaflets in 20–28 pairs ...
..... *A. subuliferus*
3. Leaflets in 12–17 pairs, narrowly elliptic oblong, 4–5 mm wide; teeth of calyx 5–7 mm long; bracts 6–12(–20) mm long *A. gilvus*
3. Leaflets in 20–25 pairs, ovate to suborbicular, 7–13 mm wide; teeth of calyx 9–10 mm long; bracts 18–22 mm long *A. babacianum*

ADDITIONAL SPECIMENS EXAMINED of *Astragalus babacianum* (paratypes): **Turkey**. C8 Mardin, Mazıdağı, Mazıdağı to Derik 6 km, 970 m, fields, 7.III.2004 A.S. Ertekin 2004-33 (DUF), 28.IV.2004 A.S. Ertekin 2004-157 (DUF). Mazıdağı to Derik 7 km, 960 m, fallow fields, 9.V.2004 A.S. Ertekin 2004-228 (DUF).

Table 1. Comparison of *Astragalus babacianum* with three morphologically close species.

Characters	<i>A. babacianum</i>	<i>A. aleppicus</i> ²⁾	<i>A. gilvus</i> ²⁾	<i>A. subuliferus</i> ¹⁾
Leaves	15–30 cm	10–25 cm	15–20 cm	15–30 cm
Leaflets	20–25 paired, 10–18 × 7–13 mm, ovate-suborbicular	12–25 paired, 5–12 × 4–8 mm, ovate to orbicular	12–17 paired, 8–15 × 4–5 mm, narrowly elliptic, oblong	20–28 paired, unknown, broadly elliptic
Stipules	12–20 mm	7–18 mm	15–30 mm	5–7 mm
Bracts	18–22 mm	3–12 mm	6–12(–20) mm	4–5 mm
Calyx	20–22 mm, teeth 9–10 mm	10–16 mm, teeth 2–5 mm	15–20 mm, teeth 5–7 mm	12–14 mm, teeth 1–2.5 mm
Corolla	33–40 mm	25–30 mm	25–35 mm	25–35 mm
Standard	38–40 × 18–20 mm	27–30 × 13–14 mm	unknown	unknown
Wings	35–36 × 6 mm	25–28 × 4 mm	unknown	unknown
Keel	32–34 × 7–8 mm	22–28 × 6 mm	unknown	unknown
Legume	38–42 × 28–30 mm, broadly ovoid	25–35 × 15–20 mm, ovoid	25–40 × 12–20 mm, ovoid	20 × 8–10 mm, oblong

¹⁾ Based on Chamberlain and Matthews (1970).

²⁾ Based on Chamberlain and Matthews (1970) and examined materials.

REPRESENTATIVE SPECIMENS EXAMINED of the other species:
— *Astragalus aleppicus*. **Turkey**. B7 Diyarbakır: Ergani, from Ergani to Dicle 10 km, slopes and fields, 11.IV.2004 A.S. Ertekin 2004-94 (DUF), 2.V.2004, A.S. Ertekin 2004-198 (DUF), 16.V.2004 A.S. Ertekin 2004-235 (DUF). Ergani, from Ergani to Çermik, 8 km, slopes, 2.V.2004 A.S. Ertekin 2004-199 (DUF). B8 Diyarbakır: Eğil, from Eğil to Diyarbakır 5 km, 880–900 m, fields, 10.V.2002 A.S. Ertekin 2002-156 (DUF). Dicle, Hani to Dicle, 14 km, fields, 16.V.2004 A.S. Ertekin 2004-236 (DUF). C8 Mardin: Derik, from Derik to Kızıltepe 16 km, fields, 15.IV.2004 A.S. Ertekin 2004-124 (DUF), 9.V.2004 A.S. Ertekin 2004-229 (DUF). Diyarbakır: Dicle University campus area, 670 m, slopes, 9.IV.2004 A.S. Ertekin 2004-74 (DUF), 17.VI.2004 A.S. Ertekin 2004-304 (DUF). — *Astragalus gilvus*. **Turkey**. B3 Afyon: Bolvadin, 19.V.1989 N. Tanker, M. Tanker & B. Çubukçu, ISTE 8139. C2 Denizli Honaz dağı, Kazıkbeli, above Cankurtaran, Söğütölük, 1250 m, 1.VI.1980 E. Tuzlacı & T. Çelebioğlu, ISTE 44412.

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