

Chamaespartium Adans. (Leguminosae): a new record for the flora of Turkey

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Abstract: *Chamaespartium sagittale* (L.) P.E.Gibbs (Leguminosae) is a new record for the flora of Turkey with specimens collected from Yuvacık Dam (Kocaeli province, NW Turkey). Its description, distribution maps, and photos are given.

Key words: *Chamaespartium*, Fabaceae, new record, Turkey

Türkiye florası için yeni bir kayıt: *Chamaespartium* Adans. (Leguminosae)

Özet: Yuvacık Barajı Havzasından (Kocaeli-Kuzeybatı Türkiye) toplanan örneklerle *Chamaespartium sagittale* (L.) P.E.Gibbs (Leguminosae), Türkiye florası için yeni bir kayıttır. Türün fotoğrafları, yayılış haritaları ve tanıttıcı karakterleri verilmiştir.

Anahtar sözcükler: *Chamaespartium*, Fabaceae, yeni kayıt, Türkiye

Introduction

The genus *Chamaespartium* Adans. is a polytypic genus mainly found in the Mediterranean region. The species of this genus were classically known as members of *Genista* L., *Genistella* Ortega, *Spartium* L., and *Cytisus* L. (Leguminosae) (Hegi, 1935; Krüssman, 1985) until new molecular phylogenetic studies showed their position within *Chamaespartium* or alternatively as its own separate tribe *Genistinae* (Badr et al., 1994; Ainouche et al., 2003; Pardo et al., 2004). However, here the genus was evaluated in the family *Leguminosae*, in accordance with the

systematic of the *Flora of Turkey*. *Chamaespartium* is widely distributed in the Mediterranean zones, much of the Europe except North Europe, Poland, Ireland, Great Britain, and the Netherlands, and is also found in S and E Europe (S, E and S Russia).

All of the authors collected some interesting plants during floristic studies in the Yuvacık Dam area (Kocaeli), during the spring and summer of 2005. From among these was identified by the authors *Chamaespartium sagittale*, during a working to ISTO Herbarium in May 2005. These specimens were compared with material in the herbaria of ULM

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(Herbarium Universitaet Ulm, Germany) and BRNO (Herbarium Universitatis Masarykiana Brno, Czech Republic) (Appendix). A description, illustration, notes on phytogeography, a distribution map, and the endangered status of the species are provided (Figures 1 and 2).

Results and discussion

Chamaespartium sagittale (L.) P.E.Gibbs in Feddes Repert. Vol. 79, p. 54 (1968) (Figures 1, 2)

Basionym: *Genista sagittalis* L. in Sp. Pl. 2: 710 (1753); Syn.: *Genistella racemosa* Moench in Meth.: 133 (1794); *Genista herbacea* Lam. in Fl. Fr., 2 : 616, (1779); *Genistella sagittalis* Gams in Hegi, III. Fl. Mittel-Eur. iv. 1196 (1923); *Cytisus sagittalis* W.D.J.Koch, Syn. Fl. Germ. Helv. (Koch) 1(1): 157 (1835); *Telinaria sagittalis* (L.) C.Presl in Bot. Bemerk. 136 (1846); *Genista delphinensis* Verl. Bull. Soc. Stat. Isere xiv, 77 (1872); *Pterospartum sagittale* Willk, Prod. Fl. Hisp. iii.440 (1880).

Type: Herb. Linn. No. Hort Cliff. No. 355 (LINN).

Plant procumbent, suffruticose, rhizomatous or caespitose, 10-35 (40) cm tall; young stems with clear wings narrowed at nodes and flattened (cladotes), entire, slightly recurved; young plants with sericeous, straight and patent hairs, later glabrous. Sterile branches jointed, with 4 longitudinal ribs all of them winged; fertile branches, rarely jointed, with 5-8 longitudinal ribs; 3-4 of them winged. Leaves linear to elliptic, entire, 5-22 × 4-10 mm, 0.3-0.5 mm mucronate, glabrous or subglabrous above, pubescent beneath. Inflorescence terminal; flowers (1)4-20(25), dense; bracts 3-4 × 0.5-1 mm, linear to oblanceolate, with long patent hairs; bracteoles 1.5-2 × 0.5 mm, linear-elliptic, with long patent hairs; pedicel 1-3 mm, with hairs. Calyx 5-7 mm, with long silvery hairs; tube 2-3(-4) mm, shorter than lips; upper lip equal or shorter than lower, teeth lobes 4-5 × 1.5-2 mm, lanceolate; lower lip (1.5) 2-3 × 0.7-1.5 mm, linear to lanceolate. Corolla yellow, standard 10-12 × 9-10 mm, claw 2 mm. Wings 9-10 × 2.5-3 mm, glabrous, claw 3

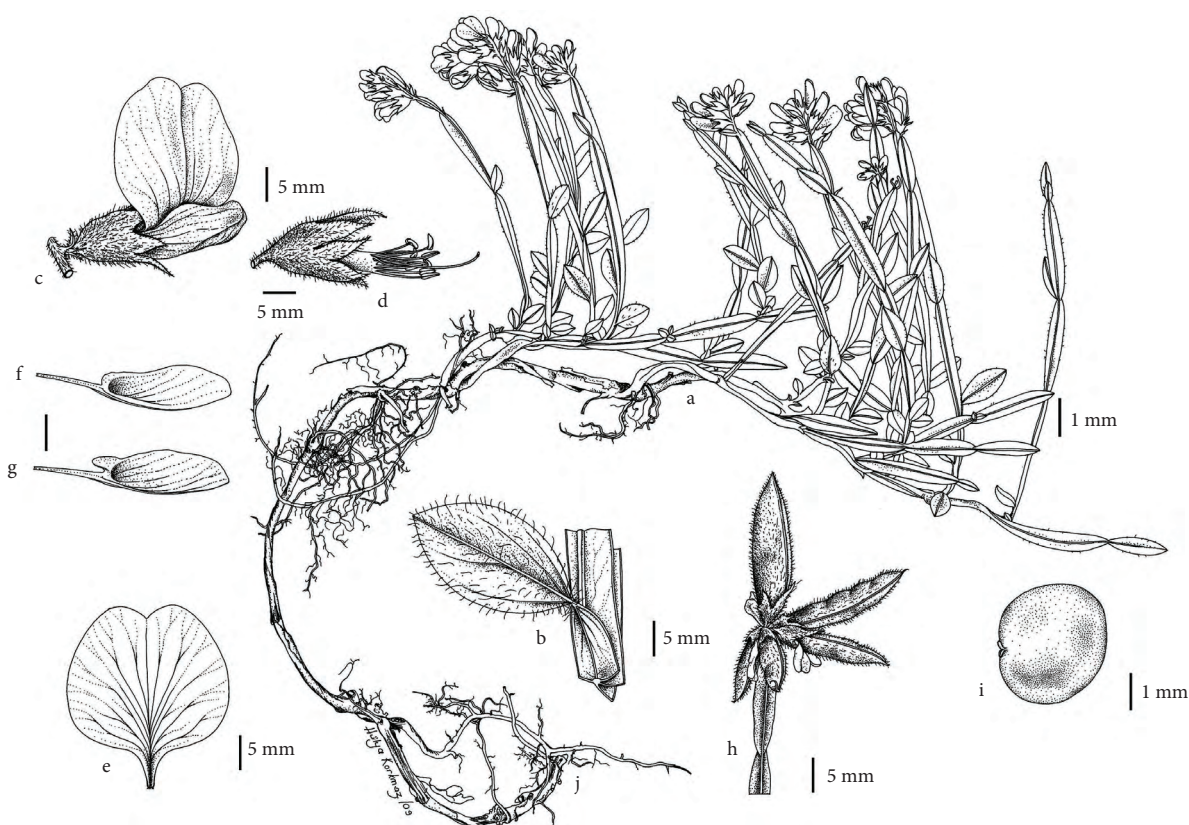


Figure 1. *Chamaespartium sagittale*: a-habit, b-stem and wing, c-flower, d-calyx, e-standard, f- wing, g-keel, h- fruits, i-seed, j- roots.

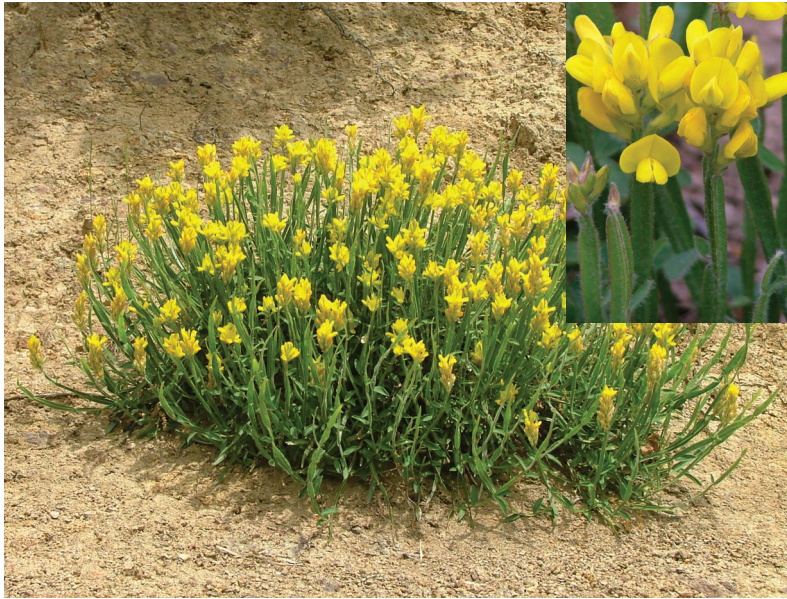


Figure 2. General view of *Chamaespartium sagittale*.

mm; keel 9.5-11 × 2.7-3 mm, claw 3 mm. Style longer than calyx. Legume 14-20 × 4-5 mm, linear-elliptic, with hairs, seeds 1-5, estrophiolate, 2-2.5 × 1.5-2 mm, oval, olive green or blackish. *Fl.* 4-5, rocky slopes, maquis scrub and open woodland, 350-850 m.

Examined specimens: A2 (A) Kocaeli: Yuvacik Dam area, Camidüzü, 480-545 m, roadsides, maquis, south, 4. v. 2006 A.Efe, N.Aksoy & D.Demir 1233 (ISTO); A3 Kocaeli: Yuvacik Dam area, between Serindere and Camidüzü, 650-820 m, maquis, south-east, 4. v. 2006, A.Efe, N.Aksoy & D.Demir 1241 (ISTO); Kocaeli: Yuvacik Dam area, Servetiye and near Camidüzü, 480 m, maquis, south, 04.05.2006, A.Efe, N.Aksoy & D.Demir s.n. (DUOF).

Chamaespartium sagittale usually grows in maquis habitats in the Mediterranean floral region. It is a Mediterranean species with a wide distribution ranging from S Europe throughout SW Asia (Tutin, 1968). Talavera (1999) recorded that the species is distributed at 1050-1600 (2360) m in shrubby and oak woodlands in S and C Europe. *Chamaespartium sagittale* is a plant in cushion form with attractive, yellow flowers (Figure 2). Therefore, it is suitable for use as an ornamental plant in rock gardens and small gardens, and on road slopes.

In Turkey, it grows at c. 850 m and in maquis and stony habitats and is distributed in Kocaeli province

(Figure 3). In its locality, the following taxa were dominant: *Quercus petraea* (Mattuschka) Liebl. subsp. *iberica* (Steven ex M.Bieb.) Krassiln., *Q. cerris* L., *Carpinus betulus* L., *Chamaecytisus hirsutus* (L.) Link., *Erica arborea* L., *Cistus creticus* L., *Arbutus unedo* L., *Rosa canina* L., *Hypericum calycinum* L., *Genista tinctoria* L., *Lathyrus undulatus* Boiss., and *Pteridium aquilinum* (L.) Kuhn.

The number of genera of Leguminosae (Davis, 1970, 1988) in the flora of Turkey is increased to 70 with the addition of *Chamaespartium*. The related genera identification key is given as follows:

Key to closely related *Chamaespartium* genera:

1. All leaves simple
 2. Spinose or spinescent shrubs
 3. Leaves reduced to spinose phyllodes; fruits included in calyx15. *Ulex*
 3. Leaves laminar; fruits exerted from calyx16. *Genista*
 2. Not spinose or spinescent shrubs or herbs
 4. Young stems broadly winged16a. *Chamaespartium*
 4. Young stems not winged16. *Genista*
1. Leaves 1-3 foliate10. *Cytisus*

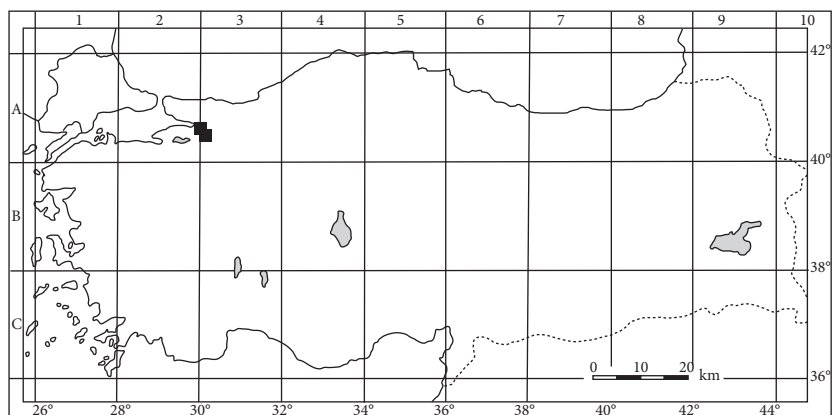


Figure 3. Distribution localities of *Chamaespartium sagittale* (■) in Turkey.

Chamaespartium sagittale is not widespread in the Kocaeli province; it is only known from 3 localities in Serindere stream valley and around Yuvacik Dam. Its natural habitat is under threat of animal grazing and road construction. The recommended IUCN Red Data Category is EN (IUCN, 2001).

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Appendix

Representative specimens examined: Germany; Sontheim on the Brenz. county of Heidenheim, about 30 km northeast of Ulm, north of the village. 12 vii 2000, *G.Starnecter* 372 (ULM); Czech Republic, Moravia Merid., distr. Znojmo: ad margines Callunetarum oca 100-200 m cursu merid.-occident. a pago Popice, 26. Vi.1979, *Z.Lastuvka* 79 (BRNU); France. Haute-Savoie. Descente de Sommant sur Mieussy (route forestiere), Obs. Pentes pierreuses de taillis, terrain decou-vert ex debise tres ensolielle, 1100 m, 16.vii.1963, *R.Pieren* 317 (BRNU).