

A new species of *Silene* (Caryophyllaceae) from east Anatolia, Turkey

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Silene bitlisensis O.Tugay & Ertugrul from the Green Line Afforestation Zone (B9: Bitlis Province) is a new species described and illustrated here. It is closely related to *S. caramanica* Boiss. & Heldr. var. *ilarslanii* Aytaç & Dural, from which it mainly differs in its habit, leaf, and floral features. © 2008 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2008, 156, 463–466.

ADDITIONAL KEYWORDS: Bitlis – Irano-Turanian – *Sclerocalycinae* – taxonomy.

INTRODUCTION

Silene contains almost 700 species, about one-half of which grow in the Mediterranean area. The South Balkan Peninsula and south-west Asia are the two main centres of diversity of the genus (Greuter, 1995). *Silene* is the largest genus of the Caryophyllaceae in Turkey. Since the revision of *Silene* for the *Flora of Turkey and the East Aegean Islands* (Coode & Cullen, 1967), 19 new species have been described from Anatolia (Davis, Mill & Tan, 1988; Tan & Vural, 2000; Vural & Dönmez, 2002; Duran & Menemen, 2003; Aytaç & Duman, 2004; Deniz & Düşen, 2004). Currently, 138 species of *Silene* are known to occur in Turkey.

Turkey has a rich flora which is still relatively unknown, with many species yet to be described, as shown by recent papers in this journal (for example, Akpulat & Çelik, 2007; Çelik, Askin & Dönmez, 2007; Doğan & Akaydin, 2007; Dönmez, 2007; Sağıroğlu & Duman, 2007; Uysal *et al.*, 2007). *Silene* L. is no exception.

During a project for the revision of the genus *Consolida* Gray in Turkey, undertaken in the summer of 2003, some interesting plant specimens were collected by the authors from the Green Line Afforestation Zone (Bitlis, Turkey). One of the specimens belonged to the genus *Silene* L. These specimens had very striking anthophores. They were compared with

many specimens of supposedly related species in the herbaria KNYA, ADO, ANK, and GAZI, and with records in references (Chater & Walters, 1964; Zohary, 1966a, b; Coode & Cullen, 1967; Täckholm, 1974; Meikle, 1977; Davis *et al.*, 1988; Greuter, 1995, 1997; Vural & Adıgüzel, 1996; Aytaç, 1998; Tan & Vural, 2000; Vural & Dönmez, 2002; Duran & Menemen, 2003; Aytaç & Duman, 2004; Deniz & Düşen, 2004).

Specimens of *S. caramanica* Boiss. & Heldr. var. *caramanica* and var. *ilarslanii* Aytaç & Dural, *S. bupleroides* L. ssp. *staticifolia* (Sibth. & Sm.) Chowdh., and *S. doganii* A.Duran & Y.Menemen were examined in the herbaria KNYA, ADO, ANK, and GAZI for this study. It was shown that some of these specimens were representatives of a species new to science (Fig. 1) belonging to section *Sclerocalycinae* Boiss. A map is provided (Fig. 2) showing the distribution of *S. bitlisensis* O.Tugay & Ertugrul, *S. caramanica* var. *ilarslanii*, *S. bupleroides* ssp. *staticifolia*, and *S. doganii* based on the localities in which specimens were found and the citations of Coode & Cullen (1967).

SPECIES DESCRIPTION

SILENE BITLISENSIS O.TUGAY & ERTUĞRUL,
SP. NOV. (FIG. 1)

Type: Turkey. B9 Bitlis: Green Line Afforestation Zone, 1680 m, 38°26.370'N, 42°08.620'E, 4.vii.2003, *Ertugrul 2927* & *O.Tugay* (holotype: KNYA; isotypes: GAZI, ANK, K).

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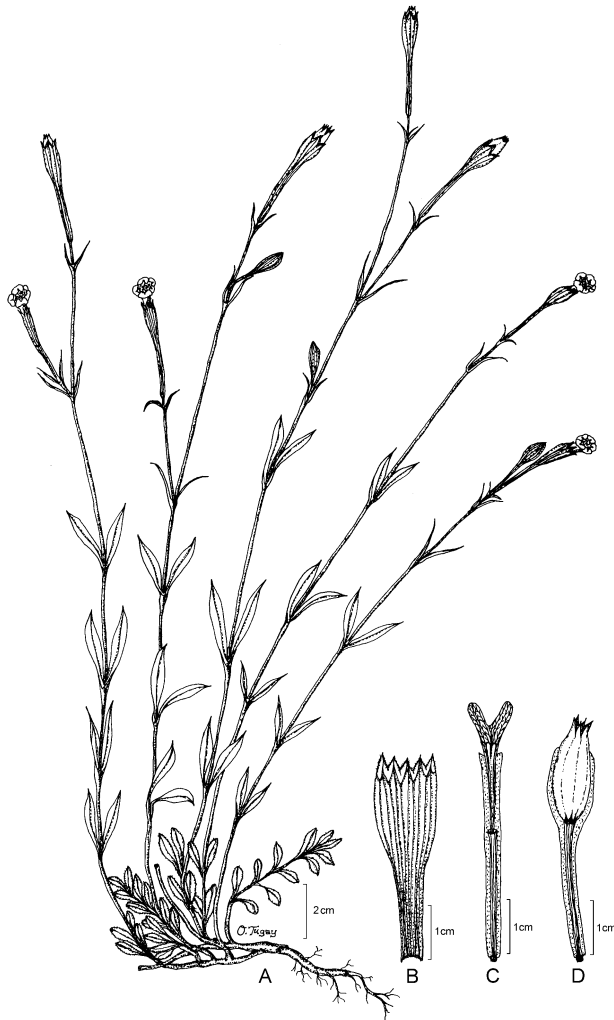


Figure 1. *Silene bitlisensis* O.Tugay & Ertugrul: A, habit; B, calyx; C, petal and anthophore; D, capsule and anthophore.

Diagnosis: Plantae 20–45 cm altae, herbaceae, perennes. Folia basalia 10–18 × 3–4 mm, spathulato-oblancoelata. Calyces 33–40 mm longi. Petala cremeo-colourata. Anthophora glabra, 25–28 mm longa.

Description: Loosely tufted herbaceous perennial with short vegetative shoots. Flowering stems 20–45 cm, terete, 1–1.5 mm in diameter, glabrous, glaucous, not viscid, much branched from the base. Leaves dimorphic. Basal leaves spathulate-oblancoelate, 10–18 × 3–4 mm (including petiole), glabrous, with minutely ciliate margin, acuminate; young leaves green, older straw-coloured. Cauline leaves gradually decreasing towards inflorescence, 18–30 × 2–5 mm; lower and middle cauline leaves oblancoelate-elliptic, acuminate, wholly glabrous, glaucous green. Upper cauline leaves narrowly lan-

ceolate to subulate. Nodes swollen; internodes 2–3 cm below, up to 7 cm above. Inflorescence a reduced cyme or with one to two flowers only, glabrous. Bracts 6–10 mm, subulate, not viscid, glabrous, with scarious, minutely ciliate margin. Pedicels 4–12 mm, glabrous. Calyx 33–40 mm, glabrous, glaucous; 10-nerved; teeth 2–3 mm, triangular-acute to acuminate, minutely ciliolate-villous with scarious margin. Petals 28–30 mm, cream, light green when dry; limb 16–20 mm, deeply bifid; lobes 7–8 mm, ±oblong; coronal scales present, auriculate, 1.5–2 mm; staminal filaments glabrous; styles 3. Capsule immature, ±oblong, exceeding calyx, 16–18 × 5–6 mm. Anthophore glabrous, 25–28 mm. Flowers 6–7. Stony slopes, 1650–1700 m.

Specimens examined: *Silene caramanica* var. *ilarslanii*; C5 Konya: Ereğli, Aydos Dağı, Aktoprak, 1700 m, 28.viii.1973, *Erik 2614* (HUB). C4 Konya: Karaman, Kızılyaka, Karatepe, 1600 m, 29.vii.1984, *M.Serin 1500* (KNYA); Antalya: Gündoğmuş, Geyik Dağı, 2300–2500 m, *Dural 3916 & İlarslan* (GAZI). C3 Antalya: Akseki, Çukurköy Y. Hacıbeyin Eşmesi, 2000 m, 5.vii.1996, *A.Duran 4090* (GAZI); Antalya: Akseki, Çukurköy Y., Toptaş mevkii, 2050 m, 6.vii.1996, *A.Duran 4097* (GAZI). *Silene bupleuroides* L. ssp. *staticifolia* (Sibth. & Sm.) Chowdh.; Turkey. B1 Manisa: M. Sipylos Magnesiae [Manisa Da.] in fruticetis summi cacuminis, solo calcarea, c. 1800–1900 m, 13.viii.1933, *O.Schwarz 1017* (holotype of *S. sipylea* O.Schwarz. B, photo. ADO!). B3 Konya: Akşehir, Cankurtaran, Sultan dağları, 1800 m, 9.vii.1986, *Y.Akman 14164* (ANK). *Silene caramanica* var. *caramanica*; C4 Konya: Karapınar, Karacadağ, Durantepe, 1450 m, 23.vi.1982 *H.Dural 1186* (KNYA). *Silene doganii*: C6 Osmaniye: Amanos Dağları, Zorkun Yaylası, Keldazı tepesi, 1750 m, 36°58.95'N, 36°24.22'E, 5.vii.2001, *A.Duran 5759 & Y.Menemen* (holotype: ADO; isotypes: ANK, GAZI, HUB).

Distribution and suggested conservation status: *Silene bitlisensis* is an endemic species known only from the type gathering in east Anatolia (Bitlis Province), and is an Irano-Turanian element. This species must be classified as critically endangered (CR) according to the World Conservation Union (IUCN) categories (IUCN, 2001).

Ecology: *Silene bitlisensis* grows on stony slopes at 1650–1700 m with *Grammosciadium pterocarpum* Boiss., *Helichrysum graveolens* (Bieb.) Sweet, *H. plicatum* DC. ssp. *plicatum*, *Inula heterolepis* Boiss., *Alkanna froedinii* Rech.fil., *Onosma procerum* Boiss., *Paracaryum strictum* (C.Koch) Boiss., *Rindera lanata* (Lam.) Bunge var. *canescens* (A.DC.) Kusn., *Aethionema membranaceum* DC., *Onobrychis stenostachya*

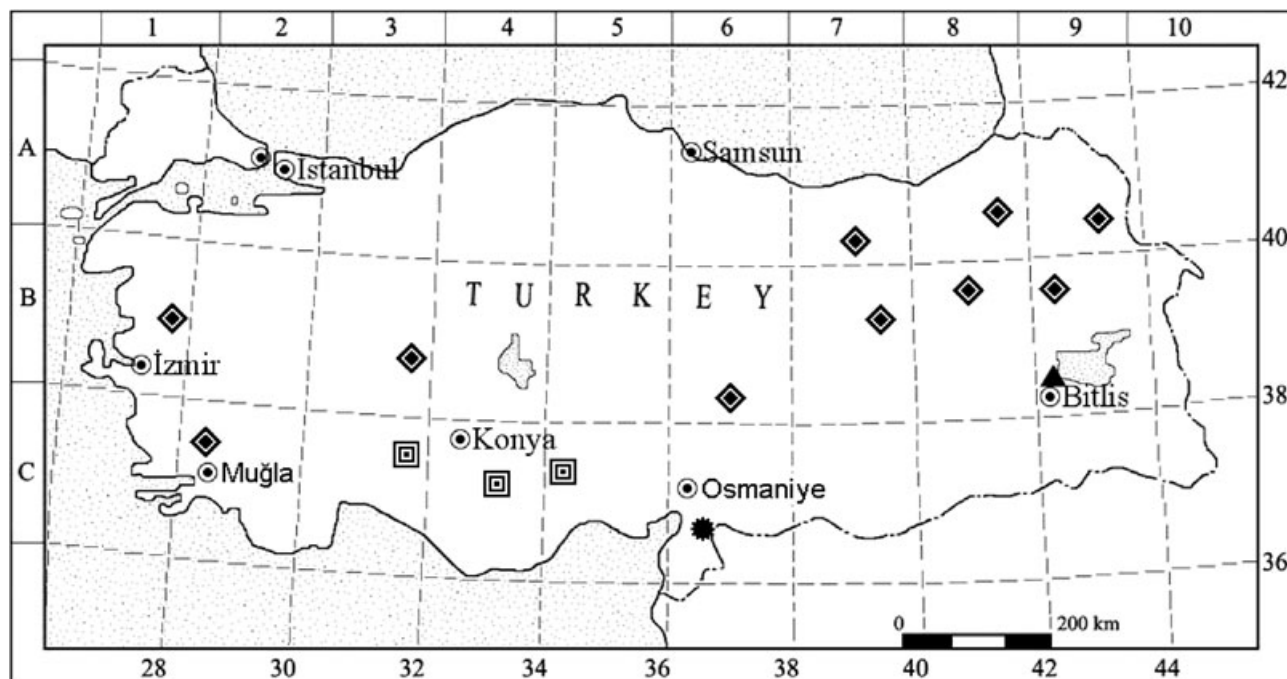


Figure 2. Distribution map of *Silene bitlisensis* O.Tugay & Ertugrul (▲), *S. caramanica* Boiss. & Heldr. var. *ilarslanii* Aytac & Dural (◻), *S. bupleuroides* L. ssp. *staticifolia* (Sibth. & Sm.) Chowdh., (◆) and *S. doganii* A.Duran & Y.Menemen (★) in Turkey.

Table 1. Diagnostic characters of *Silene bitlisensis* O.Tugay & Ertugrul, *S. bupleuroides* L. ssp. *staticifolia* (Sibth. & Sm.) Chowdh., and *S. caramanica* Boiss. & Heldr. var. *ilarslanii* Aytac & Dural

Character	<i>S. bitlisensis</i>	<i>S. caramanica</i> var. <i>ilarslanii</i>	<i>S. bupleuroides</i> ssp. <i>staticifolia</i>
Basal leaves	Spathulate-ob lanceolate, 10–18 × 3–4 mm	Linear-lanceolate, 30–60 × 4–8 mm	Oblanceolate-linear, 20–40 × 2–5 mm
Lower and middle cauline leaves	Oblanceolate-elliptic, acuminate, 18–30 × 2–5 mm	Linear-lanceolate, acute, 20–60 × 5–8 mm	Linear-lanceolate, acute, 10–15 × 1–2 mm
Bracts	Subulate	Linear-lanceolate	Ovate
Calyx	33–40 mm long, teeth 2–3 mm long	22–30 mm long, teeth 5–6 mm long	20–28 mm long, teeth 1–2 mm long
Petals	Cream, 28–30 mm long	Ivory white, 26–33 mm long	White, 17–24 mm long
Anthophore	25–28 mm long	10–15 mm long	10–18 mm long

Freyn ssp. *krausei* (Sirj.) Hedge, *Globularia trichosantha* Fisch. & Mey., and *Linaria simplex* (Willd.) DC.

DISCUSSION AND CONCLUSION

Silene bitlisensis is closely allied to three taxa: *S. bupleuroides* ssp. *staticifolia*, *S. caramanica* var. *ilarslanii*, and *S. doganii*.

Silene bitlisensis is included in the section *Sclerocalycinae* Boiss., in which all taxa have large flowers and calyx glabrous, rather firm in texture, smooth, the veins usually rather obscure. The anthophores of

S. bitlisensis are conspicuously long, which separates it easily from the other species of the section.

Silene bitlisensis is closely related to *S. caramanica* var. *ilarslanii*, differing in its hairiness, leaf, and floral features as follows (see Table 1): stem glabrous (not puberulent below); basal leaves 10–14 mm (not 30–60 mm), glabrous (not papillose-puberulent), spatulate-ob lanceolate (not linear-lanceolate); calyx 33–40 mm (not 22–30 mm); teeth 2–3 mm (not 5–6 mm); petals cream with green veins (not ivory white with pink veins); anthophore 25–28 mm (not 10–15 mm).

Silene bitlisensis is similar to *S. bupleuroides* ssp. *staticifolia* in habit, but clearly differs as follows: subulate bracts (not ovate or long-acuminate), not enclosing the flower buds (as opposed to enclosing the flower buds); calyx 33–40 mm (not 20–28 mm); petals cream (not white); anthophores 25–28 mm (not 10–18 mm).

Silene bitlisensis clearly differs from *S. doganii* as follows: herbaceous (not suffrutescent); lower and middle cauline leaves oblanceolate-elliptic (not narrowly oblanceolate-linear), 18–30 × 2–5 mm (not 10–15 × 4–6 mm); anthophore 25–28 mm (not 8–11 mm). Therefore, the plants in Bitlis are regarded as a species new to science.

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