

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

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Silene doganii A.Duran & Y.Menemen **sp. nov.** from the Amanos Mountains (C6: Osmaniye-Turkey) is described and illustrated. It is closely related to *S. caramanica* Boiss. & Heldr., from which it differs mainly in its habit, hairiness, leaf and floral features. © 2003 The Linnean Society of London, *Botanical Journal of the Linnean Society*, 2003, 143, 109–113.

ADDITIONAL KEYWORDS: Anatolian Diagonal – Mediterranean – taxonomy.

INTRODUCTION

Silene L. is one of the largest plant genera in the world with c. 700 species, almost half of which grow in the Mediterranean region. South-west Asia is one of the main centres of diversity for the genus, which is represented by 135 species in Turkey (Coode & Cullen, 1967; Davis, Mill & Tan, 1988; Tan & Vural, 2000).

The authors collected interesting specimens from the Amanos Mountains during a field trip in the summer of 2001. These have been compared to many specimens of supposedly related species in the Herbaria of ADO, ANK, GAZI and HUB and to records in the literature (Chater & Walters, 1964; Zohary, 1966a, b; Coode & Cullen, 1967; Täckholm, 1974; Meikle, 1977; Davis *et al.*, 1988; Greuter, 1995, 1997; Vural & Adıgüzel, 1996; Yıldız & Çırpıcı, 1996; Tan & Vural, 2000).

Ten *S. caramanica* Boiss. & Heldr., three (two from material and one photo) *S. bupleroides* L. ssp. *staticifolia* (Sibth. & Sm.) Chowdhuri and 12 *S. haradjianii* Chowdhuri specimens were examined in the herbaria of ADO, ANK, GAZI and HUB during the course of this project. The studies showed that these specimens are representatives of a species new to science (Fig. 1).

A map is provided (Fig. 2) showing the distribution of both *S. doganii* A.Duran & Y.Menemen sp. nov. and

S. caramanica Boiss. & Heldr. based on the localities where we found specimens and the citations of Coode & Cullen (1967). The authors of plant names follow Brummitt & Powell (1992).

DESCRIPTION

SILENE DOGANII A.DURAN & Y.MENEMEN **SP. NOV.**
(Sect. *Sclerocalycinae* Boiss.)
(Fig. 1)

Type: Turkey. C6 Osmaniye: Amanos Dağları, Zorkun Yaylası, Keldazi 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).

Planta 30–60 cm, suffrutescens, perennis. Folia basalia 10–15 × 4–6 mm, carnosae, oblanceolatae. Folia caulina margine viridia (non scariosa). Calyx 22–24 mm longus. Petalum violaceum. Anthophoreum glabrum, 8–11 mm longum.

Description: A loosely tufted aerial suffruticose perennial, bearing short vegetative shoots with simple and apically tufted leaves. FLOWERING STEMS 30–60 cm tall, slender, terete, c. 1 mm in diam., glabrous, glaucous, viscid above, tinged purple and densely leafy at the base, much branched from the base. LEAVES dimorphic, basal leaves ± fleshy, oblanceolate, 10–15 × 4–6 mm (incl. petiole), glabrous, with minutely ciliate margin especially at the base, acuminate; young

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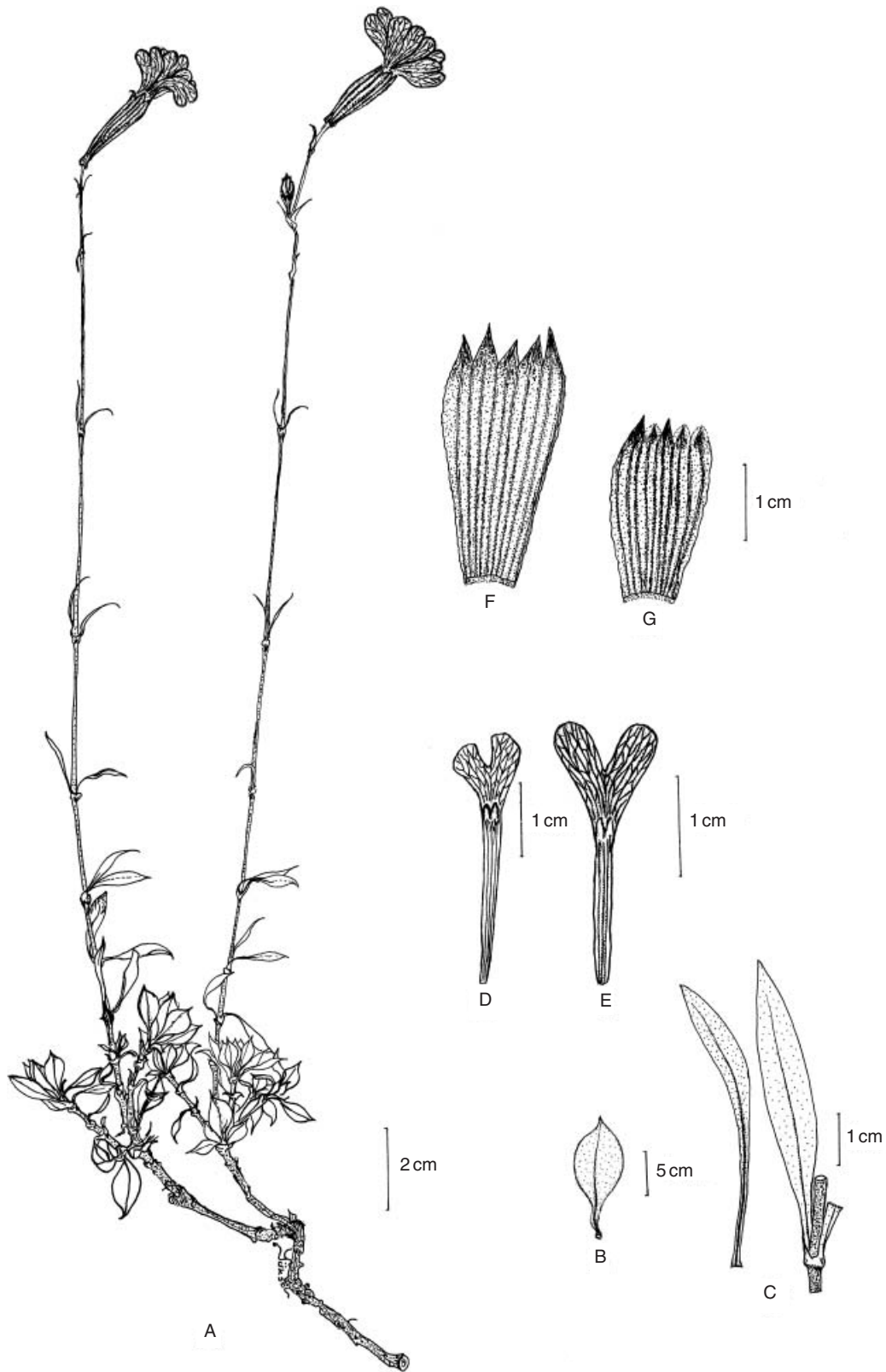


Figure 1. *Silene doganii* A.Duran & Y.Menemen **sp. nov.** A, habit; B, leaf; C, leaves; D, petal; E, petal; F, calyx; G, calyx. *S. caramanica* Boiss. & Heldr.

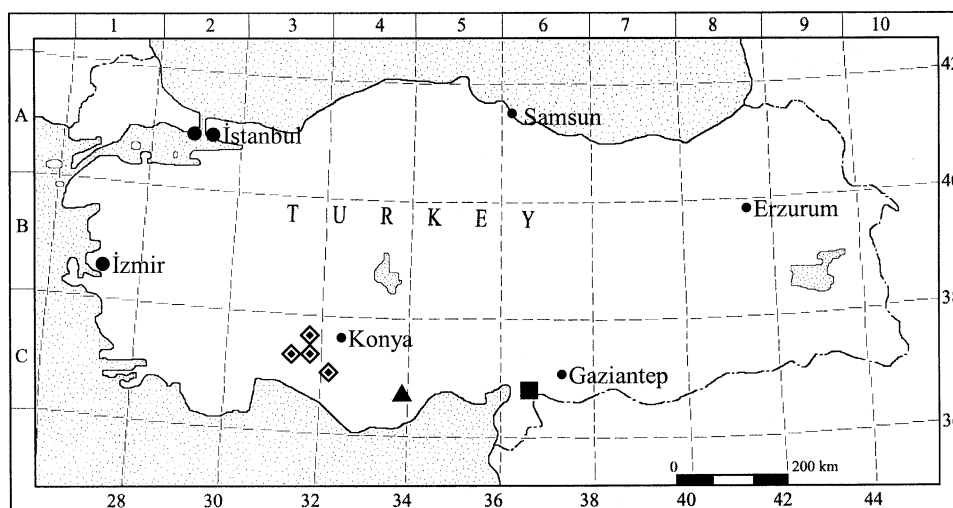


Figure 2. *Silene doganii* A.Duran & Y.Menemen **sp. nov.** (■), *S. caramanica* Boiss. & Heldr. (◊) and its type locality (▲).

Table 1. Diagnostic characters of *Silene doganii* A.Duran & Y.Menemen **sp. nov.** and *S. caramanica* Boiss. & Heldr.

Characters	<i>S. doganii</i>	<i>S. caramanica</i>
Habit	suffrutescent perennial	herbaceous perennial
Stem	entirely glabrous, viscid above	sparsely puberulous below, not viscid above
Leaves	crowded at the base, dimorphic, glabrous	crowded at the base and up to the middle part of stem, monomorphic, papillose-puberulous
Basal leaves	±fleshy, oblanceolate, 10–15 mm long (incl. petiole), 4–6 mm wide, dark purple when older	not fleshy, linear-lanceolate, 30–60 mm long (incl. petiole), 4–8(–15) mm wide, yellowish green when older
Lower and middle cauline leaves	narrowly oblanceolate to linear, 8–17 × 0.6–3 mm	linear-lanceolate, 20–60 × (4–)5–8 mm
Bracts	4–6 mm, viscid	7.5–10 mm, not viscid
Calyx	22–24 mm long, with alternately triangular-acute and ovate to subulate teeth, 2–3 mm long	22–30 mm long, with triangular-acute teeth, 5–6 mm long
Petals	violet, 24–28 mm long	ivory white with pink veins, 26–33 mm long
Anthophore	8–11 mm	10–15 mm

leaves glaucous green, older leaves dark purple. Cauline leaves gradually decrease towards flowering part, 8–17 × 0.6–3 mm; lower and middle cauline leaves narrowly oblanceolate to linear, narrowed into petiole, with green (not scarious) margin, acute to acuminate, wholly glabrous, glaucous green. Upper cauline leaves very narrowly lanceolate to subulate. NODES swollen; internodes 1–2 cm long below, up to 8 cm long above. INFLORESCENCE reduced to single flower or racemose, glabrous, glaucous. BRACTS 4–6 mm, subulate, viscid, glabrous, with scarious minutely ciliate margin. PEDICELS 5–30 mm long, viscid, glabrous, glaucous. CALYX 22–24 mm long, gla-

brous, glaucous, partly green and purple, constricted around anthophore; 10 nerved, or sometimes obscured; teeth 2–3 mm long, alternately triangular-acute and ovate to subacute, minutely ciliate-villous with scarious margin. PETALS 24–28 mm long, longer than calyx, violet; limb 9–12 mm long, deeply bifid; lobes 4–6 mm long, ±oblong; coronal scales present, c. 1.5 mm long; claws glabrous, 15–16 mm long, with scarious margin; staminal filaments glabrous; styles 3. Capsule immature, ±oblong, included in the calyx, 12–15 mm long. Anthophore glabrous, 8–11 mm long.

Fl. 6–7, granite rocky places, forest-steppe ecotone, 1750–1800 m.

Paratype: Turkey. C6 Osmaniye: Amanos Dağları, Zorkun Yaylası, Keldazi tepesi, 1750 m, 36°58.95'N, 36°24.22'E, 16.viii.2001, A.Duran 5846 & Y.Menemen (ADO).

Specimens examined: *S. caramanica*; C5 Konya: Ereğli, Aydos Dağı, Aktoprak, 1700 m, 28.viii.1973, Erik 2614 (HUB). C3 Antalya: Akseki, Çukurköy Y., Teke ağnağı mevkii, 1840–1950 m, 18.vii.1995, A.Duran 2899 (GAZI). C3 Antalya: Akseki, Çukurköy Y., Hacıbeyin Eşmesi, 2000 m, 5.vii.1996, A.Duran 4090 (GAZI). C3 Antalya: Akseki, Çukurköy Y., Toptaş mevkii, 2050 m, 6.vii.1996, A.Duran 4097 (GAZI, ADO). C4 Antalya: Gündoğmuş, Geyik Dağı, 2300–2500 m, Dural 3916 & İlarşlan (GAZI). — *Silene buplerooides* ssp. *staticifolia*; Turkey. B1 Manisa: M. Sipylos Magnesia [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). — *S. haradjianii*: C6 Hatay: Dörtüol, Amanos Dağları, Topraktaş Yaylası, Mıgır zirvesi, 1700–2000 m, 17.vii.2002, Y.Menemen 1280, A.Duran & Hamzaoglu (ADO).

Notes: *Silene doganii* is an endemic species, restricted to the Amanos Mountains, South Anatolia, (C6: Osmaniye province, above Zorkun) and an East Mediterranean (mt.) element.

Conservation status: Known only from the type locality; requires classification as Critically Endangered (CR) according to the most recent IUCN (2001) categorization.

Ecology: Flowering in June and July. *Silene doganii* grows in granite rocky places of forest-steppe ecotone at 1750–1800 m with *Cedrus libani* A.Rich., *Berberis crataegina* DC. *Fagus orientalis* Lipsky, *Alyssum oxycarpum* Boiss. & Bal., *Hesperis* sp., *Thurya capitata* Boiss. & Bal., *Silene spergulfolia* (Desf.) Bieb., *Genista albida* Willd., *Cytisopsis dorycnifolia* Jaub. & Spach ssp. *dorycnifolia*, *Hypericum* sp., *Ferula elaeochytris* Korovin, *Salvia tomentosa* Mil., *Salvia cryptantha* Montbret & Aucher ex Benth., *Anthemis* sp., *Centaurea* sp., *Onosma* sp., *Allium* sp.

Etymology: Named in honour of the eminent Turkish botanist Prof. Dr Musa Doğan (Biology Department, ODTÜ), an expert on Turkish Poaceae.

DISCUSSION AND CONCLUSION

Silene doganii is closely allied to three species: *S. caramanica*, *S. haradjianii* and *S. buplerooides* ssp. *staticifolia*.

It clearly differs from *S. haradjianii* in being suffrutescent (not herbaceous) and having 10–15 mm long, 4–6 mm wide basal leaves (not 13–25 mm long, up to 11 mm wide), lower and middle cauline leaves narrowly oblanceolate to linear (not lanceolate), 10–15 × 4–6 mm (not 12–25 × 4–8 mm), anthophore glabrous (not hairy) and single flowered or racemose (not lax panicle) inflorescence.

Silene buplerooides ssp. *staticifolia* differs from *S. doganii* in its herbaceous habit, linear-lanceolate, not fleshy basal leaves, creamy white to pale pink or greenish yellow to purplish brown petals, with linear spatulate lobes of limbs (Greuter, 1997).

Silene doganii is much more closely related to *S. caramanica* than it is to the first two species, differing in its habit, hairiness, leaf and floral features (see Table 1) as follows: suffruticose (not herbaceous) habit; c. 1 mm diam. (not 1.5–2 mm), glabrous (not puberulent below) stem which is viscid above; basal leaves 10–15 mm long (not 30–60 mm), glabrous (not papillose-puberulent), oblanceolate (not linear-lanceolate), bracts 4–6 mm long (not 7.5–10 mm); calyx teeth 2–3 mm long (not 5–6 mm), alternately triangular-acute and ovate-rounded (not all triangular-acute); petals 24–28 mm long (not 26–33 mm), violet (not ivory white with pink veins); anthophore 8–11 mm long (not 10–15 mm). Therefore, the Amanos plants are regarded as a species new to science.

Three *S. caramanica* records are cited in *Flora of Turkey* (Coode & Cullen, 1967). One is from the type locality, between Karaman and Ermenek, the others are from the Amanos range, from which the new species is described. During fieldwork in the area in 2001 and 2002, the authors did not come across any *S. caramanica* specimens. It is possible that the recorded specimens might belong to the new species.

A chromosome count of *S. doganii* has not been carried out, but the chromosome number of both *S. chlorifolia* Sm. and *S. buplerooides* L. ssp. *buplerooides* is $2n = 24$ in Sect. *Sclerocalycinae* Boiss. (Yıldız & Çirpıcı, 1996; Greuter, 1997).

The Amanos mountain range is an interesting area, occupying an intersection of the Mediterranean phytogeographical region and the Anatolian Diagonal, with many Euro-Siberian phytogeographical region enclaves. The area is very rich in endemic plants. The concept of the Diagonal was first proposed by P. H. Davis, who defined it as an oblique belt running from the north-east south to the Anti-Taurus: it then divides into two, with one branch to the Amanos (Amanos Dağları), the other to the Cilician Taurus (Davis, 1971). Thirty-three per cent of the total species growing in Turkey are found along the Diagonal, while 5% are more or less restricted to it. One explanation for the present richness of the species is neo-

endemism and distribution patterns of the plants related to the Diagonal (Ekim & Güner, 1986). Of 15 *Silene* species reported from Amanos Mountains, two are local endemics (Coode & Cullen, 1967; Davis *et al.*, 1988; Güner *et al.*, 2000).

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