

A New Species of *Silene* L. (Caryophyllaceae) from South Anatolia, Turkey

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Received: 07.12.2006

Accepted: 12.12.2007

Abstract: *Silene duralii* Y. Bağcı sp. nov. from Ermenek-Kazancı (C4: Karaman province) is described and illustrated. It is closely related to *S. capillipes* Boiss. & Heldr., from which it differs mainly in its hairiness, leaves, and floral features. Diagnostic morphological characters are discussed and the diagnostic key for related *Silene* L. species, which are widespread in Turkey, is reorganized. The geographical distribution of the new species and other related species were mapped. Notes are also presented on its ecology, and biogeographical and conservation status. Chromosome count for *S. duralii* was $2n = 24$. In addition, the seed coat surface of *S. capillipes* and *S. duralii* were examined by SEM.

Key Words: *Caryophyllaceae*, *Silene*, Karaman, *Macranthae*, taxonomy

Türkiye'nin Güney Anadolu Bölgesinden Yeni Bir *Silene* L. (Caryophyllaceae) Türü

Özet: Kazancı (C4 Karaman) civarından toplanan *Silene duralii* Y. Bağcı yeni türü tanımlandı ve resimlendi. Yeni tür, benzerlik gösterdiği *Silene capillipes* Boiss. & Heldr. türünden tüylülük, yaprak ve çiçek özellikleri bakımından farklıdır. Ayırt edici morfolojik özellikleri tartışıldı ve Türkiye'de yetişen yakın *Silene* türleri için verilen teşhis anahtarları yeniden düzenlendi. Yeni türün ve benzer diğer türün coğrafik dağılımı haritalandı. Aynı zamanda yeni türün ekolojisi, biyocoğrafisi ve koruma statüsü sunuldu. *S. duralii* türünün kromozom sayısı $2n=24$ olarak tespit edildi. İlave olarak, *S. capillipes* ve *S. duralii* türlerinin tohum yüzeyleri Taramalı Elektron Mikroskopuyla incelendi.

Anahtar Sözcükler: *Caryophyllaceae*, *Silene*, Karaman, *Macranthae*, taksonomi

Introduction

Silene L. is one of the largest plant genera in the world, with c. 700 species, of which almost half 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 et al., 1988; Tan & Vural, 2000).

The author collected interesting specimens from Ermenek, Kazancı district, during field trips in the summer of 2005 and 2006. These were compared to 2 specimens of related species in the herbarium of KNYA and to records in the literature (Chater & Walters, 1964; Zohary, 1966; Coode & Cullen, 1967; Meikle, 1977; Davis et al., 1988; Greuter 1995, 1997; Vural & Adıgüzel, 1996; Yıldız & Çirpıcı, 1996; Tan & Vural, 2000; Vural & Dönmez, 2002; Duran & Menemen, 2003; Deniz & Düşen, 2004; Aytaç & Duman, 2004).

Silene capillipes Boiss. & Heldr. specimens were examined in the herbarium of KNYA. The studies showed that the specimens are representatives of a species new to science (Figure 1).

A map is provided (Figure 2) showing the distribution of both *S. duralii* and *S. capillipes* based on the localities where they were found, and the citations of Coode and Cullen (1967). The authors of plant names follow Brummitt & Powell (1992).

Species Description

Silene duralii Y. Bağcı Sp. Nov. (Figures 1 and 3)
(Sect. *Macranthae* (Rohrb.) Chowdh.)

Type: Turkey. C4: Karaman, Ermenek-Kazancı, Sariova Plateau, opposite Kartal Kaya, (Salur Mountain), mountain steppe, 1750-1770 m, lat 36°28.546'N, long

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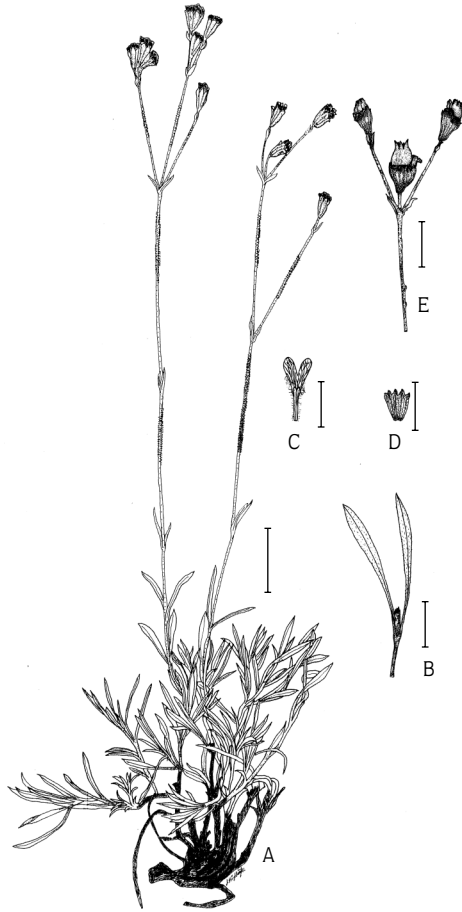


Figure 1. *Silene duralii* Y. Bağcı sp. nov. A: habit, B: leaf, C: petal, D: calyx; E: Capsule (A depicted from holotype; B, C, D, E from paratype; A scale-bar= 2 cm; B, C, D, E scale bar= 1 cm).

32°43.904'E, 16.vi.2006, Y. Bağcı 3476. (holotype: KNYA, isotypes: GAZI, HUB, Hb. Yıldırımli)



Figure 3. *Silene duralii* in the wild- in flower.

Diagnosis: Planta 22-34 cm elata, caespitose, perenni. Folio basali 10-32 × 1-3 mm, oblanceolato. Anthophoro 1.5-2 mm longo. Capsula 6-11(-12) mm longa, exserta ex calyce.

Description: Caespitose perennial, bearing sterile shoots with simple and tufted leaves. Flowering stems 22-34 cm tall, slender, terete, c. 1-1.5 mm diameter, canescent below, viscid above, greenish and densely leafy at the base, much branched from the base. Basal leaves narrowly oblanceolate, 10-32 × 1-3 mm (including petiole), canescent and hispidulous, acuminate. Cauline leaves gradually decrease towards flowering part, 8-30 × 1-2(-3) mm; lower cauline leaves are similar to basal leaves; middle and upper cauline leaves linear-subulate, acute to acuminate, pubescent. Nodes swollen; internodes 1.3-3.5 cm long below, up to 7.3 cm long above. Inflorescence in compound dichasia or in a widely

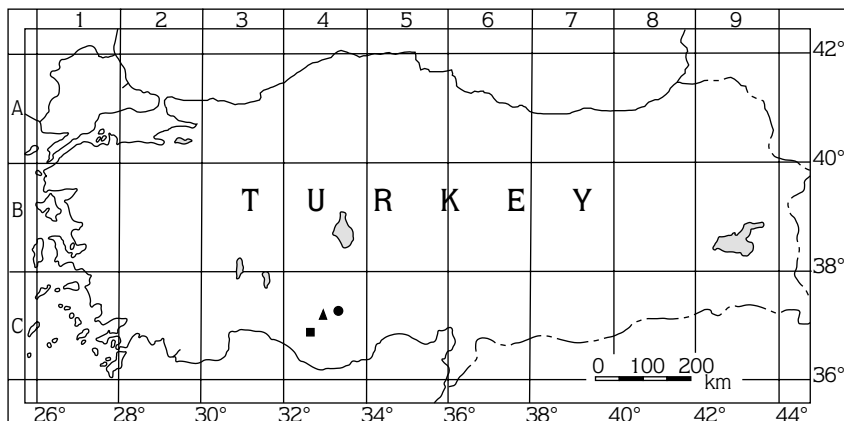


Figure 2. *Silene duralii* (■), *S. capillipes*, (●), and its type locality (▲).

branched compound dichasium, viscid, glaucous. Bracts 3-6 mm, acuminate, with scarios margin and ciliate; bracteoles 2-3 mm long, acuminate, with scarios margin and ciliate. Pedicels 2-10 mm long, rarely viscid or glabrous. Calyx (6-) 7-9 mm long, glabrous, purplish, 10 veined, veins definite; teeth 1.2-2.5 mm long, ovate-obtuse, with usually minutely ciliate margin. Petals 10-14 mm long, longer than calyx, pink, limb 6-7 mm long, deeply bifid, \pm lobes 2.5-4 mm long, \pm obtuse; coronal scales present, 0.5-1 mm long; claw ciliate, 6-7 mm long, staminal filaments glabrous; styles 3. Capsule ovoid, exserted from the calyx, 6-11(-12) mm long. Anthophore glabrous, 1.5-2 mm long.

Fl. & Fr. 6-7, rocky places, mountain steppe, 1750-1770 m.

Seed Characteristics: *S. duralii* and *S. capillipes* seed coats were examined in detail. The seeds of *S. duralii* are

brown, semi-reniform, and on average 1.5-2 mm long \times 1-1.7 mm wide. The surface ornamentation is granulate. The seeds of *S. capillipes* are dark brown, reniform, and on average 0.4-0.7 mm long \times 0.3-0.4 mm wide. The surface ornamentation is densely pusticulate (Figure 4).

Representative Specimen Examined: (Paratype)–*Silene duralii*: Turkey. C4 Karaman: Ermenek, Kazancı, Sarıova Plateau, opposite Kartal Kaya (Salur Mountain), mountain steppe, 1750-1770 m, 36°28.546' N, 32°43.904' E, 11.vi.2005, Y. Bağcı 3144 & Ertuğrul (KNYA).

Specimens Examined: *Silene capillipes*: C4 Karaman: Ermenek-Tekeçatı, Kamışdere, rocky crevices, 1400 m, 26.08.2002, Duran 7369; (KNYA), C4 Karaman: Ermenek-Tekeçatı, Kamışdere, rock crevices, 1400 m, 20.08.2004, Bağcı 3085 & Duran (KNYA).

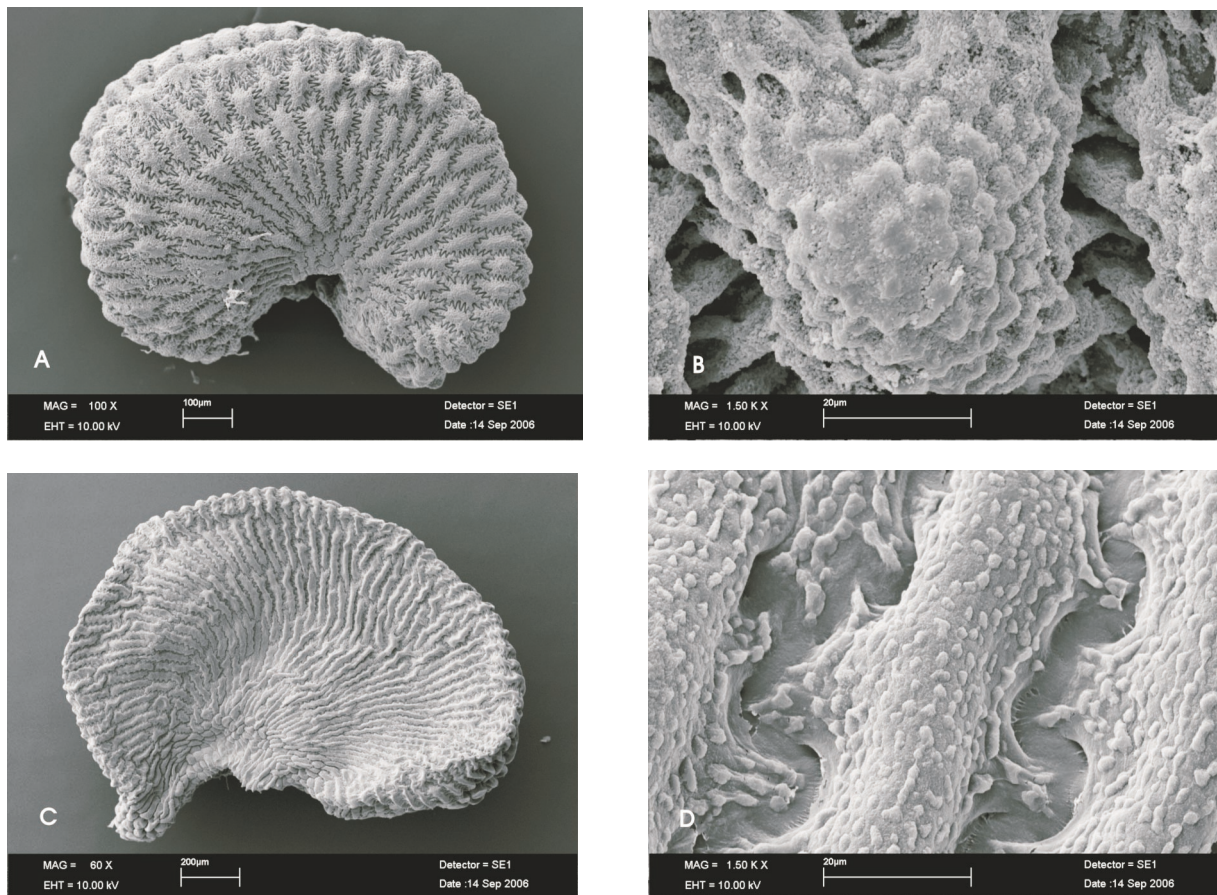


Figure 4. SEM photographs of the seed coat. A and B: *Silene capillipes* (A:General view; B: Seed coat surface– C and D *Silene duralii* (C: General view; D: Seed coat surface).

Group B

The Turkish species taxa in *Silene duralii* can be identified as follows:

- 16. Petal claw ciliate
 - 17. Anthophore 5-6 mm, capsule included in the calyx79. *capillipes*
 - 17. Anthophore 1.5-2 mm, capsule exerted from the calyx79a. *duralii*
- 16. Petal claw glabrous50. *pharnaceifolia*

Note: *Silene duralii* is an endemic species restricted to the Ermenek, Kazancı, Sariova Plateau, opposite Kartal Kaya (Salur Mountain), mountain steppe, South Anatolia, and is an E. Medit. 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, *Silene duralii* grows in rocky places on mountain steppes at 1750-1770 m with *Astragalus angustifolius* Lam. subsp. *angustifolius*, *Genista involucrata* Spach., *Verbascum cherianthifolium* Boiss., *Acantholimon* sp., *Thymus* sp., *Alyssum* sp., and *Marrubium globosum* Montbret & Aucher.

Etymology: Named in honour of the Turkish botanist, Associate Professor Hüseyin Dural (Biology Department, Selçuk University).

Discussion and Conclusion

Silene duralii is closely related to *Silene capillipes*. It differs from *S. capillipes* by its taller stem, smaller anthophore, and narrower leaves. More differentiating characters are given Table 1.

A chromosome count of *Silene duralii* was carried out and the chromosome number is $2n = 24$ (Figure 5).

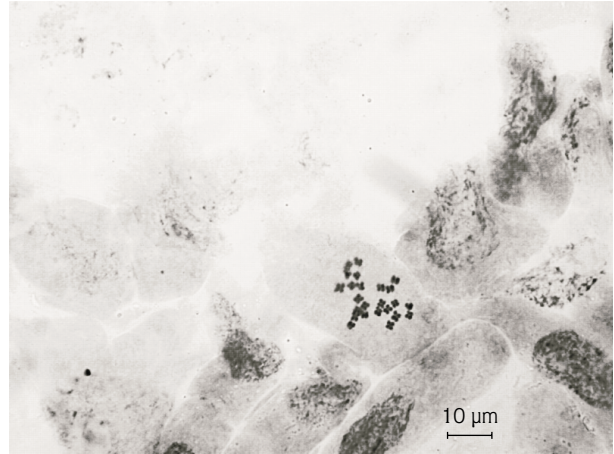


Figure 5. Chromosome number of *Silene duralii*.

Acknowledgements

I would like to thank Associate Professor Kuddisi Ertuğrul for his interest, Associate Professor Ahmet Duran for helping with the Latin diagnosis, Assistant Professor Dr. Esra Martin for studying the chromosomes, and Associate Professor Ahmet Aksoy for his support during the seed coat studies.

Table 1. Diagnostic characters of *Silene duralii* Y.Baççı sp. nov. and *S. capillipes* Boiss. & Heldr.

Characters	<i>Silene duralii</i>	<i>Silene capillipes</i>
Habit	Caespitose	Usually caespitose
Stem	22-34 cm	10-15 cm (-25 cm)
Stem indumentum	canescent below	hirsute below
Basal leaves	10-32 × 1-3 mm, narrowly oblanceolate	10-16 × 5-9 mm, spatulate
Bracts	3-6 mm long	3-5 mm long
Calyx	(6-)7-9 mm long	6-9 mm long
Petals	10-14 mm	10-12 mm
Anthophore	1.5-2 mm	5-6 mm
Capsule	Exserted from the calyx	Included in the calyx
Seeds	1.5-2 × 1.1-1.7 mm	0.5-0.7 × 0.3-0.7 mm
Ecology	mountain steppe	Rock crevices

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