

## *Silene dumanii* (Caryophyllaceae), a new species from East Anatolia, Turkey

Ali Kandemir<sup>1</sup>, Gülay Ecevit Genç<sup>2</sup> & İlker Genç<sup>2</sup>

<sup>1)</sup> Atatürk University, Faculty of Erzincan Education, Department of Science, 24030 Erzincan, Turkey

<sup>2)</sup> Istanbul University, Faculty of Pharmacy, Department of Pharmaceutical Botany, Beyazıt, 34452 Istanbul, Turkey

Received 30 Jul. 2007, revised version received 13 Nov. 2007, accepted 13 Nov. 2007

Kandemir, A., Ecevit Genç, G. & Genç, İ. 2009: *Silene dumanii* (Caryophyllaceae), a new species from East Anatolia, Turkey. — *Ann. Bot. Fennici* 46: 71–74.

*Silene dumanii* Kandemir, G. Ecevit Genç & İ. Genç *sp. nova* (Caryophyllaceae) from East Anatolia (Turkey) is described and illustrated. Diagnostic characters, detailed illustrations and taxonomic comments on the species as well as its geographical distribution are given.

Key words: Caryophyllaceae, new species, *Silene*, taxonomy

*Silene* is one of the larger genera of flowering plants in the world, comprising ca. 750 species. Southern Balkan Peninsula and SW Asia are two of the main centres of diversity of the genus (Greuter 1995). In Turkey it is represented by 31 sections and 144 taxa, 42% of which are endemic (Coode & Cullen 1966, Davis *et al.* 1988, Tan & Vural 2000, Vural & Dönmez 2002, Duran & Menemen 2003, Aytaç & Duman 2004, Özhatay & Kültür 2006, Deniz & Düşen 2004, Özgökçe *et al.* 2005).

Some plant specimens belonging to *Silene* were collected during investigation of the flora of Esence Mountains, supported by Turkish Scientific and Technical Research Council (TUBITAK), in the flowering period and during “The Important Plant Area Project Along Baku-Tiflis-Ceyhan Pipeline”, carried out by Istanbul University, from Keşiş Mountain (Turkey: B7 Erzincan) in the fruiting period. They could not be identified by using the keys in *Flora of Turkey and the East Aegean Islands* and *Flora Iranica*

(Coode & Cullen 1966, Melzheimer 1983–1987, Davis, Mill & Tan 1988, Tan & Vural 2000). The new specimens were also compared with relevant specimens in several herbaria (K, E, ISTE, GAZI, ANK). The seeds and pollen grains were examined palynologically with the light microscope and scanning electron microscope (SEM) and were measured to obtain some morphological data (Figs. 1 and 2).

***Silene dumanii*** Kandemir, G. Ecevit Genç & İ. Genç, *sp. nova* (Figs. 1–4)

*Planta non valida lignatilis ad basim, foliis basalibus spatulato-obovatis, pubescentibus et, foliis caulinis ovato-ellipticis, 5–14 mm latis, calyce 8–11.5 mm, petali limbis fere divisus ad basim, fructu subovoideo.*

TYPE: Turkey. B7 Erzincan: Keşiş Mountain, Yedigöller, 2100 m, 29.VI.2002 A. Kandemir (holotype ISTE 83460;

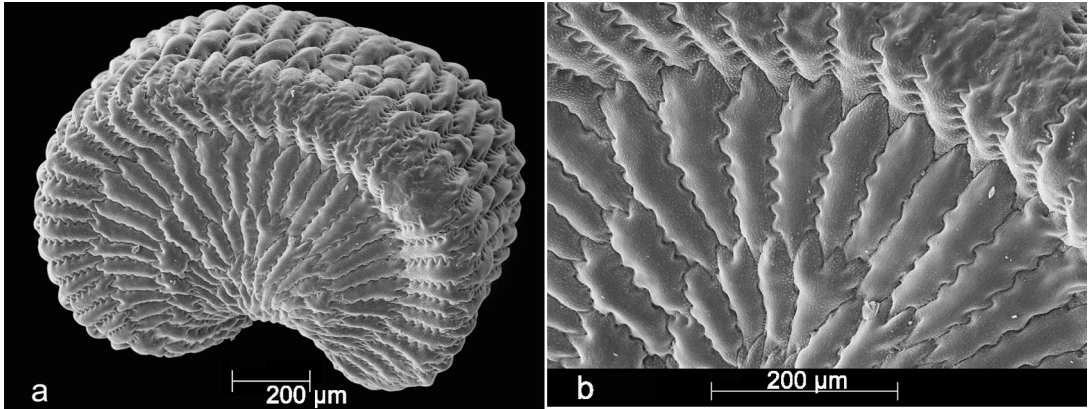


Fig. 1. Seed (SEM) of *Silene dumanii* (ISTE 83766). — a: General view. — b: Surface.

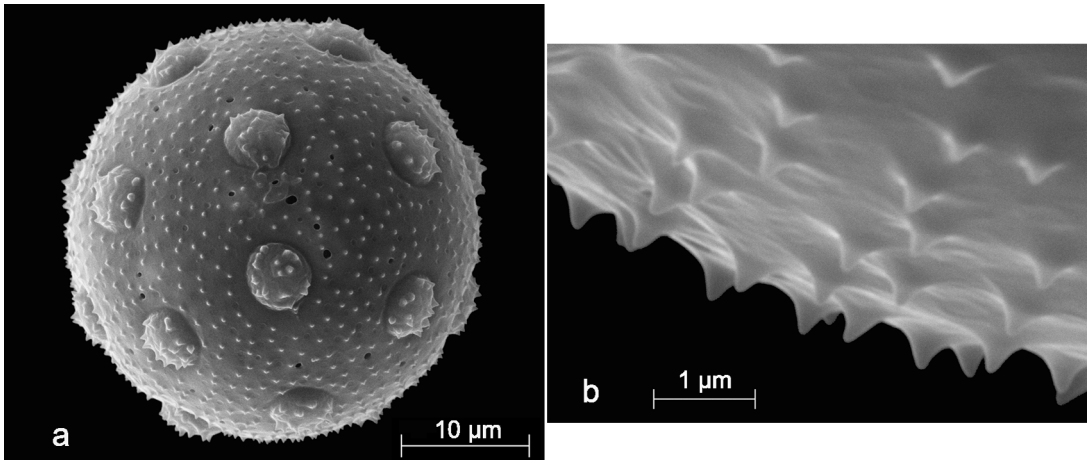


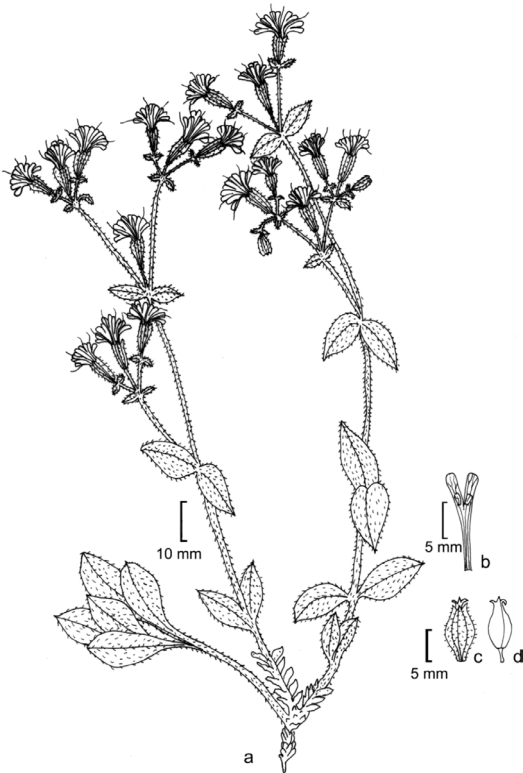
Fig. 2. Pollen grain (SEM) of *Silene dumanii* (from the holotype). — a: General view. — b: Surface.

isotypes ANK!, GAZI!). — PARATYPES: Turkey. B7 Erzincan: Keşiş Mountain, Yedigöller, 2595 m, 15.VIII.2004 A. *Kandemir* (ISTE 83761!), and same place, 2759 m 11.IX.2005 A. *Kandemir* (ISTE 83766!).

ETYMOLOGY. Named in honour of the eminent Turkish Botanist Prof. Dr. Hayri Duman (Biology Department, Arts and Science Faculty of Gazi University in Turkey).

Perennial herbs. Flowering stems 9–20 cm tall, erect, ca. 1–2 mm in diam., green, glandular, retrorsely pilose. Leaves dimorphic; sterile and basal leaves spatulate to obovate, long petiolate, obtuse or mucronulate at apex, 35–50 mm, pubescent, glandular, especially leaf margins; cauline leaves ovate to elliptic, mucronulate or acute at apex, sessile 11–36 × 5–14 mm. Bracts similar to cauline leaves but clearly smaller, glandular. Flowers 3–5 in a dichasium or raceme of dichasium,

main axis terminating in a flower, rarely monochasium above, alar pedicels ca. 11 mm. Calyx purplish, 8–11.5 mm with 10 prominent nerves, viscid, with a densely glandular hairs, inflated and slightly constricted around anthophore in fruit; teeth 1 mm long, triangular, margins hairy. Petal whitish, 11–16 mm; limb 3–4 mm, divided almost base; claw pilose, dilated above; coronal scales oblong-linear, ca. 2 mm. Stamens glabrous, 13–19 mm; anthers 1 mm, protruding from calyx. Ovary ca. 3.5 mm, glabrous. Style 3, ca. 14 mm. Anthophore to 3 mm long, pilose. Capsule subovoid, glabrous, 8–10 mm; teeth acute, curved, as long as calyx or slightly exerted. Seeds 1.0 × 0.7 mm, brown, rounded-reniform (Fig. 1a). Number of suture point per plate 4–18, suture outline serrate or sinuous (Fig. 1b). Flowering

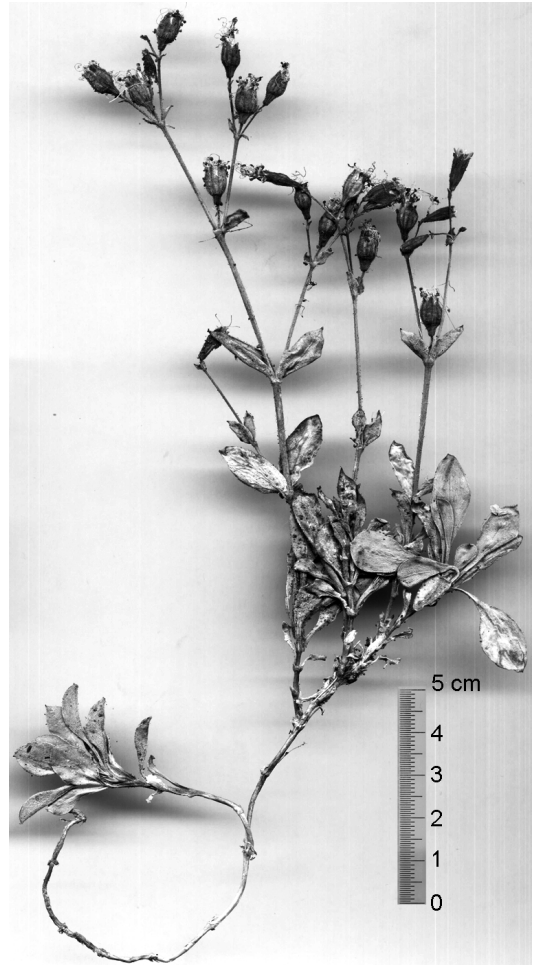


**Fig. 3.** *Silene dumanii* (from the holotype). — **a:** Habit. — **b:** Petal. — **c:** Mature capsule. — **d:** Calyx upon fruiting.

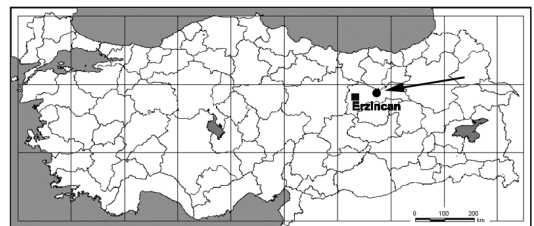
May–August. Pollen grains spheroidal, pantoporate. Pore number 28 to 32, pollen diameter  $38.16 \pm 1.93 \mu\text{m}$ . Pore shape isodiametric and rounded, pore diameter  $7.3 \pm 0.62 \mu\text{m}$ . Distance between two pores  $6.79 \pm 0.99 \mu\text{m}$ , thickness of exine  $2.43 \pm 0.51 \mu\text{m}$  (Fig. 2).

**HABITAT ECOLOGY.** The plant grows in screes at 2100–2600 m altitude with *Allium balansae*, *Cerastium cerastoides*, *Cochlearia sintenisii*, *Galium papilliferum*, *Heracleum pastinacifolium* subsp. *incanum*, *Nepeta lamiifolia*, *Onosma liparioides*, *Silene azirensis*, *Veronica montbretii*, *Viola odontocalycina*, *Hesperis breviscapa*, *Ricotia aucheri*, *Heldreichia rotundifolia*, *Crepis frigida*, *Psathyrostachys fragilis* and *Vicia alpestris* subsp. *hypoleuca*. The new species is known from only one population at the type locality (Fig. 5).

The Kesis Mountain mostly consists of serpentine rocks (Akkan 1964). It is located in the Esence Mountain range, which is one of the cen-



**Fig. 4.** Paratype of *Silene dumanii* (ISTE 83766).



**Fig. 5.** Distribution of *Silene dumanii* in Turkey. Location indicated with arrow.

tres of endemic plants on the Anatolian Diagonal (Ekim *et al.* 2000).

We cannot place the species in any section. It somewhat resembles Sect. *Auriculatae*, but it has no auriculate structures on petals that are diagnostic of that section.

## Acknowledgements

The plant specimens were collected during the course of the flora of Esence Mountains (B7 Erzincan) Project, supported by the Turkish Scientific and Research Council (TUBITAK) and Important Plant Area Projects, along the BTC Pipeline, supported by BTC Co. and carried out by the Istanbul University. Many thanks are due to Dr. Hayri Duman for his help with the Latin diagnosis. We also thank the Atatürk University Scientific Research Fund. The visit of the first author to K and E herbaria was supported by this fund (BAP 2005-131). We thank Dr. Neriman Özhatay and Dr. Emine Akalin for their help and suggestions. Thanks to the curators of the following herbaria (K, E, ISTE, GAZI, ANK).

## References

- Akkan, E. 1964: *Erzincan Ovası ve Çevresinin Jeomorfolojisi*. — Ankara Üniversitesi Basımevi, Ankara.
- Aytaç, Z. & Duman, H. 2004: Six new taxa (Caryophyllaceae) from Turkey. — *Ann. Bot. Fennici* 41: 213–223.
- Chowdhuri, P. K. 1975: Studies in the genus *Silene* L. — *Notes Royal Bot. Garden Edinburgh* 22: 221–278.
- Coode, M. J. E. & Cullen J. 1966: *Silene* L. — In: Davis, P. H. (ed.), *Flora of Turkey and the East Aegean Islands* 2: 179–242. Edinburgh Univ. Press, Edinburgh.
- Davis, P. H., Mill, R. & Tan, K. 1988: *Flora of Turkey and the East Aegean Islands* 10: 76–81. — Edinburgh Univ. Press, Edinburgh.
- Deniz, İ. G. & Düşen, O. D. 2004: *Silene sumbuliana* (Caryophyllaceae), a new species from SW Anatolia, Turkey. — *Ann. Bot. Fennici* 41: 293–296.
- Duran, A. & Menemen, Y. 2003: A new species of *Silene* (Caryophyllaceae) from south Anatolia, Turkey. *Bot. J. Linn. Soc.* 143: 109–113.
- Ekim, T., Koyuncu, M., Vural, M., Duman, H., Aytaç, Z. & Adıgüzel, N. 2000: *Turkish plants Red Data Book*. — Doğal Hayatı Koruma Derneği, Ankara.
- Greuter, W. 1995: *Silene* L. (Caryophyllaceae) in Greece: a subgeneric and sectional classification. — *Taxon* 44: 543–581.
- Melzehimer, V. 1983–1987: *Silene*. — In: Rechinger, K. H. (ed.), *Flora Iranica* 163: 341–508. Akad. Druck & Verlagsanst., Graz.
- Özhatay, N. & Kültür, Ş. 2006: Check-list of additional taxa to the *Supplement Flora of Turkey III*. — *Turkish J. Bot.* 30: 281–316.
- Özgökçe, F., Tan, K. & Stevanovic, V. 2005: A new subspecies of *Silene acaulis* (Caryophyllaceae) from East Anatolia, Turkey. — *Ann. Bot. Fennici* 42: 143–149.
- Tan, K. & Vural, M. 2000: *Silene* L. — In: Güner, A., Özhatay, N., Ekim, T. & Başer, K. H. C. (eds.), *Flora of Turkey and the East Aegean Islands* 11: 50–53. Edinburgh Univ. Press, Edinburgh.
- Vural, M. & Dönmez, A. 2002: Two new taxa of *Silene* (Caryophyllaceae) from Turkey. — *Ann. Bot. Fennici* 39: 153–158.