

Silene hamzaoglui (Caryophyllaceae), a new species from Çekerek (Yozgat, Turkey)

Ümit BUDAK*, Murat KOÇ

Department of Biology, Faculty of Science and Arts, Bozok University, 66200, Yozgat - TURKEY

Received: 11.06.2010

Accepted: 27.12.2010

Abstract: *Silene hamzaoglui* Budak sp. nova is described as a new species from Çekerek (Yozgat, Turkey). The specimen was collected from calcareous rocky places, at an altitude between 1140 and 1180 m. The new species is similar to *Silene duralii* Y.Bağcı and *Silene capillipes* Boiss. & Heldr. The differences among these 3 species are discussed.

Key words: *Silene*, *Macranthae*, systematics, taxonomy

Çekerek'ten (Yozgat/Türkiye) yeni bir tür *Silene hamzaoglui* (Caryophyllaceae)

Özet: *Silene hamzaoglui* Budak sp. nova Çekerek'ten yeni bir tür olarak tanımlandı (Yozgat/Türkiye). Bitki kalkerli kayalık yerlerden, 1140-1180 metreler arasından toplandı. Yeni tür *Silene duralii* Y.Bağcı ve *Silene capillipes* Boiss. & Heldr. türlerine yakındır. Türler arasındaki farklar tartışıldı.

Anahtar sözcükler: *Silene*, *Macranthae*, sistematik, taksonomi

Introduction

Silene L. is the largest genus in the family Caryophyllaceae. It comprises ca. 700 species that are mainly found in N temperature regions, Africa, and South America. Among those, ca. 600 species are found in Eurasia (Melzheimer, 1988; Bittrich, 1993). South-west Asia is one of the main centres of diversity for the genus, which is represented by 146 species in Turkey (Coode & Cullen, 1967; Davis et al., 1988; Greuter, 1995; Tan & Vural, 2000; Duran & Menemen, 2003; Deniz & Düşen, 2004; Genç et al., 2007; Bağcı et al., 2007; Bağcı, 2008; Tugay &

Ertuğrul, 2008; Aksoy et al., 2008; Kandemir et al., 2009; Yıldız & Dadandı, 2009; Özhatay et al., 2009; Hamzaoğlu et al., 2010; Yıldız & Erik, 2010; Yıldız et al., 2010).

The genus *Silene* is divided into 31 sections in Turkey. Among these, the section *Macranthae* is endemic, and recent studies show that it includes 4 species (Coode & Cullen, 1967; Davis et al., 1988; Bağcı, 2008).

The authors collected some interesting *Silene* specimens from Çekerek (Yozgat, Turkey). These specimens were compared to the specimens of related

* E-mail: ubudak1@yahoo.com

species in the herbaria of ANK and GAZI, and to the records in the literature (Rechinger, 1964; Chater & Walters, 1964; Zohary, 1966; Coode & Cullen, 1967; Pignatti, 1982; Shishkin, 1985; Melzheimer, 1988; Greuter, 1997). The results of this study showed, for the first time, that these specimens are representatives of a new species (Figures 1-2).

Species description

Silene hamzaoglui Budak **sp. nova** (Figures 1-2).
(Sect. *Macranthae* (Rohrb.) Chowdh.)

Type: Turkey. **B5** Yozgat: Çekerek, between Kurtağlı and Fakıdağlı village, 1140-1180 m, calcareous rocky places, 40°02'83"N, 35°34'82"E,

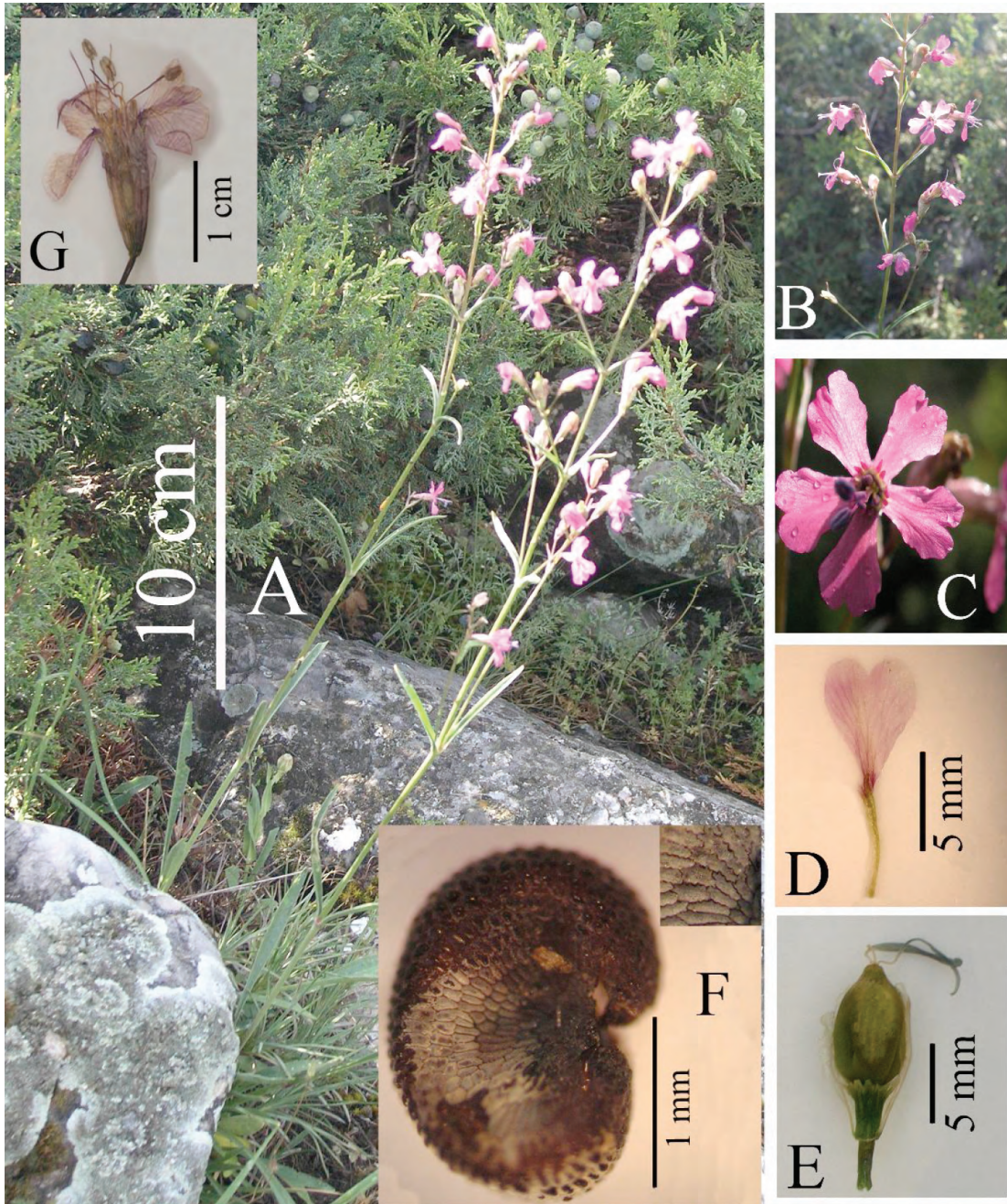


Figure 1. *Silene hamzaoglui*: A-habit, B-inflorescence, C-flower, D- petal, E-fruit and anthophore, F-seed, G-calyx.

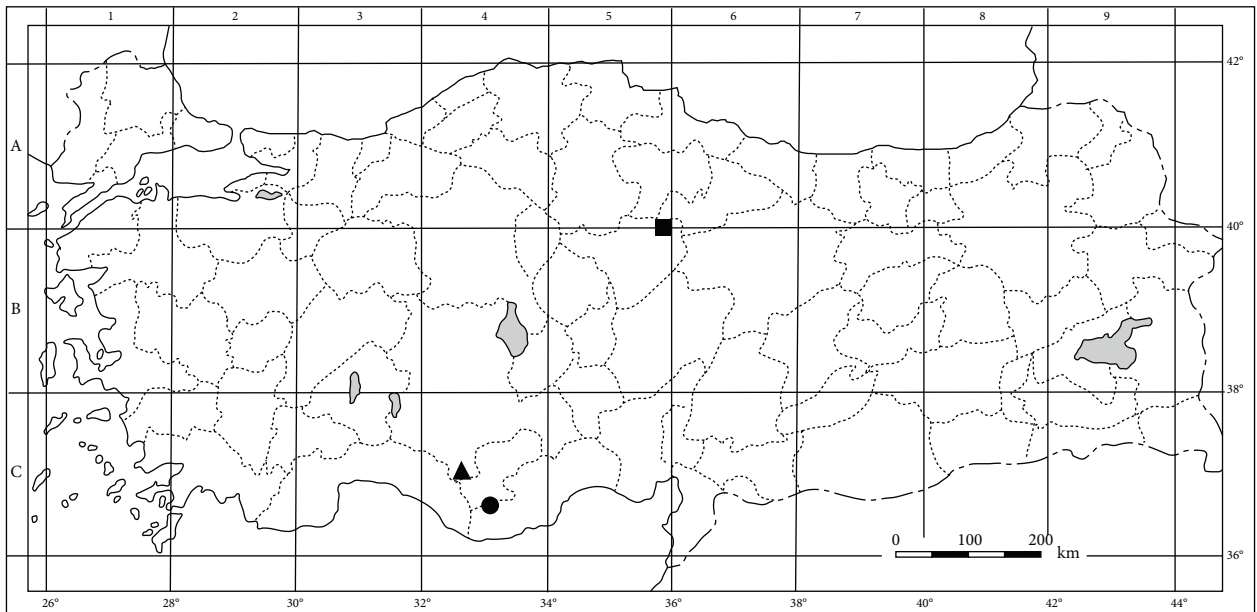


Figure 2. Distribution of *Silene hamzaoglu* (■), *Silene duralii* (▲), and *Silene capillipes* (●) in Turkey.

22.v.2010, Budak & M.Koç 941 (holotype: Bozok Univ. Biology Dept. Herbarium, isotypes: Bozok Univ. Biology Dept. Herbarium, ANK, GAZI).

Folio basali 3-17 × 0.2-0.9 cm. *Bractea* 0.7-3.5 cm *longa*. *Inflorescentis* 8-27-flore. *Anthophoro* 2.5-3.5 mm *longo*. *Petalo limbo* ad 1/10-1/7 *bifido*.

Perennial, with sterile shoots at the base. Flowering stems 30-55 cm tall, erect, 1.5-3 mm diameter, hirsute below, viscid above, densely leafy at the base. Basal leaves petiolate, linear-elliptic to linear-oblongate, 3-17 × 0.2-0.9 cm (including petiole), glabrescent to retrorsely hirsute on both surfaces, apex acute, base attenuate, 3-veined. Lower cauline leaves sessile, smaller than basal leaves, 3-9.5 × 0.3-0.9 cm; middle and upper cauline leaves linear to linear-lanceolate, 1.5-6.5 × 0.2-0.5 cm, apex acute-acuminate, margin long ciliate at the base. Nodes 2-5, swollen; internodes 2-10 cm long. Inflorescence lax compound dichasia, 8-27-flowered. Bracts similar to upper cauline leaves, 0.7-3.5 cm long, sparsely canescent with scarious margin; bracteoles similar to bracts but smaller, 5-8 mm long. Pedicels 3-8 mm long, viscid or glabrous. Calyx 10-veined, 6-10 mm long, sparsely canescent along on the veins, veins ± definite, purplish-pink; teeth ovate-obtuse with scarious and ciliate margin, 1.2-2 mm long. Petals 10-11 mm long, pink; limb 5-6

mm long, apex emarginate, lobes 0.5-0.7 mm long, coronal scales present, 0.7-1 mm long; claw 5-5.5 mm long, margin ciliate. Filaments glabrous. Capsule ± ovoid, 7-11 mm long, exserted from the calyx; styles 3. Anthophore 2.5-3.5 mm long, glabrous. Seed semi-reniform, 1.7-2 × 0.7-1 mm, ornamentation granulate.

Fl. & Fr. 5-6, calcareous rocky places, 1140-1180 m.

Specimens examined: –*Silene duralii*: Turkey. C4 Karaman: Ermenek-Kazancı, Sarıova Plateau, opposite Kartalkaya, (Salur Mountain), mountain steppe, 1750-1770 m, 36°28.546'N, 32°43.904'E, 16.vi.2006, Y.Bağcı 3476 (isotypes: GAZI, ANK).

–*Silene capillipes* Boiss. & Heldr.: Turkey. C4 Karaman: Ermenek-Tekeçatı, Kamışdere, rock crevices, 1400 m, 20.08.2004, Y.Bağcı 3085 & Duran (KNYA).

Conservation status: *Silene hamzaoglu* is an endemic species known only from the type gathering in central Anatolia (Çekerek, Yozgat), and is an Irano-Turanian element. Since the population of this species is located in less than 100 km² in a single location, this species must be classified as critically endangered [CR (B1a)] according to the World

Conservation Union (IUCN) categories (IUCN, 2001).

Ecology: *Silene hamzaoglui* grows in calcareous rocky places at 1140-1180 m with *Quercus pubescens* Willd., *Minuartia anatolica* (Boiss.) Woronow var. *anatolica*, *Minuartia anatolica* (Boiss.) Woronow var. *tetrasticha* McNeill, *Minuartia meyeri* (Boiss.) Bornm., *Vicia faba* L., *Verbascum cheiranthifolium* Boiss. var. *cheiranthifolium*, *Draba bruniifolia* Stev. subsp. *heterocoma* (Fenzl) Coode & Cullen var. *heterocoma*, and *Arenaria serpyllifolia* L.

Etymology: The species is named in honour of the eminent Turkish botanist Prof. Dr. Ergin Hamzaoğlu (Gazi University, Ankara).

Discussion and conclusion

Silene hamzaoglui is included in the section *Macranthea* because it is perennial, its inflorescence

involves single or compound dichasia, its calyx is usually hairy, and the petals are bifid. It contains a short anthophore; thus, it is closely related to *Silene duralii* and *Silene capillipes*. Differentiating characters are given in the Table. *Silene duralii* and *Silene capillipes* are distributed in South Anatolia and are endemic (Bağcı, 2008) (Figure 2).

In this study, with the addition of this new species, the number of species in the section *Macranthea* is increased from 4 to 5. Also the number of species of *Silene* in Turkey is increased from 146 to 147.

Acknowledgements

We are indebted to Bozok University for its financial support (Project no: AFFZ-2009-01) and we also thank GAZI, ANK, and KNYA for letting us study their *Silene* specimens.

Table. Diagnostic characters of *Silene hamzaoglui*, *Silene duralii*, and *Silene capillipes*.

	<i>Silene hamzaoglui</i>	<i>Silene duralii</i>	<i>Silene capillipes</i>
Habit	not caespitose	caespitose	usually caespitose
Stems	30-55 cm	22-34 cm	10-15 (-25) cm
Basal leaves	3-17 × 0.2-0.9 cm	1-3.2 × 0.1-0.3 cm	1-1.6 × 0.5-0.9 cm
Bracts	0.7-3.5 cm	0.3-0.6 cm	0.3-0.5 cm
Bracteoles	5-8 mm	2-3 mm	2-4 mm
Flowers per stem	8-27	1-8 (-9)	3-8
Petals	emarginate, lobes of limbs 0.5-0.7 mm long, divided to ca. 1/10-1/7	deeply bifid, lobes of limbs 2.5-4 mm long, divided to ca. 1/2-2/3	deeply bifid, lobes of limbs 2.5-4 mm long, divided to ca. 1/2-2/3
Anthophore	2.5-3.5 mm	1.5-2 mm	5-6 mm
Capsule	exserted from the calyx	exserted from the calyx	included in the calyx
Seed	1.7-2 × 0.7-1 mm	1.5-2 × 1.1-1.7 mm	0.5-0.7 × 0.3-0.7 mm

References

Aksoy A, Hamzaoğlu E & Kılıç S (2008). A new species of *Silene* L. (Caryophyllaceae) from Turkey. *Bot J Linn Soc* 158: 730-733.

Bağcı Y (2008). A new species of *Silene* L. (Caryophyllaceae) from South Anatolia, Turkey. *Turk J Bot* 32: 11-15.

- Bağcı Y, Uysal T, Ertuğrul K & Demirelma H (2007). *Silene kucukodukii* sp. nov. (Caryophyllaceae) from south Anatolia, Turkey. *Nord J Bot* 25: 306-310.
- Bittrich V (1993). Caryophyllaceae. In: Kubitzki K, Rohwer J & Bittrich V (eds.), *The Families and Genera of Vascular Plants*, Vol. 2, Magnoliid, Hamamelid and Caryophyllid Families, p. 233. Springer Verlag, Berlin, Germany.
- Chater AO & Walters SM (1964). *Silene* L. In: Tutin TG, Heywood VH, Burges NA, Valentine DH, Walters SM & Webb DA (eds.), *Flora Europaea*, Vol. 1, pp. 158-181, Cambridge: Cambridge Univ Press.
- Coode MJE & Cullen J (1967). *Silene* L. In: Davis PH (ed.), *Flora of Turkey and the East Aegean Islands*, Vol. 2, pp. 179-242, Edinburgh: Edinburgh Univ Press.
- Davis PH, Mill RR & Tan K (1988). *Silene* L. In: Davis PH, Mill RR & Tan K (eds.), *Flora of Turkey and the East Aegean Islands*, Vol. 10 (Suppl. 1), pp. 76-81, Edinburgh: Edinburgh Univ Press.
- Deniz İG & Düşen OD (2004). *Silene sumbuliana* (Caryophyllaceae), a new species from SW Anatolia, Turkey. *Ann Bot Fenn* 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.
- Genç GE, Kandemir A & Genç İ (2007). A new species of *Silene* (Caryophyllaceae) from east Anatolia, Turkey. *Nord J Bot* 25: 58-63.
- Greuter W (1995). *Silene* L. (Caryophyllaceae) in Greece: a subgeneric and sectional classification. *Taxon* 44: 543-581.
- Greuter W (1997). *Silene* L. In: Strid A & Tan K. (eds.), *Flora Hellenica*, Vol. 1, pp. 239-323, Koenigstein: Koeltz Scientific Books.
- Hamzaoğlu E, Aksoy A & Budak Ü (2010). A new species of *Silene* (Caryophyllaceae) from Turkey. *Turk J Bot* 34: 47-50.
- IUCN (2001). *IUCN Red List Categories and Criteria: Version 3.1. IUCN Species Survival Commission*. IUCN, Gland, Switzerland and Cambridge, UK.
- Kandemir A, Genç GE & Genç İ (2009). *Silene dumanii* (Caryophyllaceae), a new species from East Anatolia, Turkey. *Ann Bot Fenn* 46: 71-74.
- Melzheimer V (1988). *Silene* L. In: Rechinger KH (ed.), *Flora Iranica*, Vol. 163, pp. 341-508, Austria: Graz.
- Özhatay N, Kültür Ş & Aslan S (2009). Check-list of additional taxa to the Supplement Flora of Turkey IV. *Turk J Bot* 33: 191-226.
- Pignatti S (1982). *Silene* L. In: Pignatti S (ed.), *Flora d'Italia*, Vol. 1, pp. 238-258, Bologna: Edagricole.
- Rechinger KH (1964). *Silene* L. In: Rechinger KH (ed.), *Flora of Lowland Iraq*, pp. 235-240, Austria: Weinheim.
- Shishkin BK (1985). *Silene* L. In: Shishkin BK (Vol. ed.), *Flora of the U.S.R.R.*, Vol. 6, pp. 442-528, Moskva-Leningrad: Bishen Singh Mahendra Pal Singh and Koeltz Scientific Books (English version).
- Tan K & Vural M (2000) *Silene* L. In: Güner A, Özhatay N, Ekim T & Başer KHC (eds.), *Flora of Turkey and the East Aegean Islands*, Vol. 11 (Suppl. 2), pp. 50-53, Edinburgh: Edinburgh Univ Press.
- Tugay O & Ertuğrul K (2008). A new species of *Silene* (Caryophyllaceae) from east Anatolia, Turkey. *Bot J Linn Soc* 156: 463-466.
- Yıldız K & Dadandı MY (2009). *Silene cirpici* (Caryophyllaceae), a new species of from Turkey. *Ann Bot Fenn* 46: 464-468.
- Yıldız K & Erik S (2010). *Silene aydosensis* (Caryophyllaceae), a new species from Anatolia, Turkey. *Ann Bot Fenn* 47: 151-155.
- Yıldız K, Çırpıcı A & Dadandı MY (2010). *Silene demirizii* sp. nov. and *S. marschalli* subsp. *anamasi* subsp. nov. (Caryophyllaceae) from Turkey. *Nord J Bot* 28: 332-340.
- Zohary M (1966). *Silene* L. In: Zohary M (ed.), *Flora Palaestina*, Vol. 1 (Text), pp. 81-100, Jerusalem: Israel Academy of Sciences and Humanities.