

## A new species of *Gypsophila* and a new name for *Silene* (Caryophyllaceae) from Turkey

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**Abstract:** *Gypsophila turcica* Hamzaoglu is described as a new species. The specimen was collected from gypsaceous hills, at an altitude between 1755 and 1835 m from Zara District (Sivas Province). The new species is similar to *Gypsophila festucifolia* Hub.-Mor. The differences between these 2 taxa are discussed. Moreover, *Silene choruhensis* Hamzaoglu nom. nova should replace *S. ispirensis* A.P.Khokhr. 1997, which is an illegitimate name as a younger homonym of *S. ispirensis* Boiss. 1856.

**Key words:** *Gypsophila*, homonym, nomenclature, *Silene*, taxonomy

### Türkiye'den *Gypsophila* cinsinin yeni bir türü ve *Silene* cinsinden yeni bir isim (Caryophyllaceae)

**Özet:** *Gypsophila turcica* Hamzaoglu yeni bir tür olarak tanımlandı. Bitki Zarahdan (Sivas) jipsli tepelerden, 1755-1835 metreler arasında toplandı. Yeni tür *Gypsophila festucifolia* Hub.-Mor. türüne yakındır. Bu iki takson arasındaki farklar tartışıldı. Ayrıca, *Silene ispirensis* Boiss. 1856'nın kurallara aykırı daha genç bir adlandırması olan *S. ispirensis* A.P.Khokhr. 1997, *Silene choruhensis* Hamzaoglu nom. nova olarak değiştirildi.

**Anahtar sözcükler:** Adlandırma, *Gypsophila*, homonim, *Silene*, taksonomi

#### Introduction

*Gypsophila* L. is a predominantly Eurasian genus. It is not just among the largest genera of the subfamily Silenoideae, but also one of the most polymorphic ones. It occurs in the north-temperate part of the old world, mainly between the latitudes 30° and 60°. Most *Gypsophila* species are concentrated in quite a small part of the geographic area of distribution.

This part of the area, which may rightly be called the main variation centre of the genus, includes Turkey, Caucasia, northern Iraq, and northern Iran (Barkoudah, 1962). One hundred and fifty species are mostly found on steppes on dry slopes or sandy soil of temperate Eurasia, East Mediterranean and Irano-Turanian regions, Egypt, Arabia, Somalia; *G. australis* (Schltdl.) A.Gray is found in Australia and New Zealand (Bittrich, 1993).

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In Turkey, *Gypsophila* has 55 species in 10 sections (Huber-Morath, 1967; Davis et al., 1988; Ataşlar, 2000; Ataşlar & Ocak, 2005). *Gypsophila* sect. *Rokejeka* (Forssk.) A. Braun has 19 species in Turkey. The section includes tall and perennial species with inflorescence a rich, lax, diffuse panicle, with campanulate calyx and with globose capsule. The new species described here belongs in the section *Rokejeka* and raises the number of *Gypsophila* species in Turkey to 56.

The author collected some interesting *Gypsophila* specimens from Zara District (Sivas Province, Inner Anatolia). These specimens were compared with the specimens of related taxa in the herbarium of GAZI and Bozok University Herb. (Yozgat), and with the records in the literature (Barkoudah et al., 1964; Rechinger, 1964; Zohary, 1966; Huber-Morath, 1967; Shishkin, 1985; Rechinger, 1988; Ataşlar et al., 2009). The results of this study showed, for the first time, that these specimens are representatives of a new species (Figure).

### Species description

*Gypsophila turcica* Hamzaoglu sp. nova (Figure)

**Type:** Turkey. B6 Sivas: Zara, between Çaypınar and Alişanağılı villages, 1835 m, gypsaceous hills, 14.vii.2010, *Hamzaoglu* 5853 (holotype: GAZI, isotypes: GAZI, ANK, Bozok Univ. Herb.).

**Diagnosis:** Affinis *G. festucifoliae* sed caulibus 10-40 cm longis (non 40-70 cm longis), foliis succulentis, 25-75 × 1-2 mm (non succulentis, 10-30 × 0.5-1 mm), pedicellis 3-6 mm longis (non 5-12 mm longis), petalis emarginatis (non truncatis) differt.

**Description:** Tufted perennial, with a woody rhizome, ± glaucous. Stems numerous, erect, 10-40 cm, 1.5-2 mm diameter at the base, glabrous. Leaves fleshy, glabrous and glaucous, linear-acicular, circular in cross-section, 25-75 × 1-2 mm, straight, acute, ± spiny, mainly congested at the stem base. Inflorescence forming a lax ± broad panicle, many-flowered. Bracts lanceolate, 3-5 mm, narrowly scarios at margins, glabrous or sparsely glandular-hairy. Peduncles 5-15 mm, sparsely to densely glandular-hairy. Bracteoles ovate-lanceolate, 2-3 mm, broadly scarios and glandular-hairy at margins. Pedicels 3-6 mm, densely glandular-hairy. Calyx campanulate, densely glandular-hairy, 2.5-

3 mm, divided to 1/2; teeth triangular-lanceolate, 1.2-1.5 mm, acute to acuminate, broadly scarios at margins. Petals pinkish-white, oblong-cuneate, 3.5-4.5 mm, emarginate. Capsule subglobose-ovoid, c. 2 mm, included in the calyx. Seeds brownish, orbicular-reniform, 2-4 in each capsule, c. 1.5 × 1 mm, tubercles obtuse.

**Additional specimen examined (paratypes):** Turkey. B6 Sivas: Zara, Bağlama village, 1755 m, gypsaceous hills, 14.vii.2010, *Hamzaoglu* 5841 (GAZI, ANK, Bozok Univ. Herb.).

**Representative specimens examined:** *Gypsophila festucifolia* – Turkey. B6 Sivas: Hafik, Benlikaya köyü üstü, 1478 m, 20.vii.2008, *A.Güner* 14982-b et al. (GAZI); Kangal-Gürün arası, Mancılık köyü doğusu, 1640 m, 10.vii.2007, *Z.Aytaç* 9071, *S.Aslan* & *M.E.Uzunhisarcıklı* (GAZI); Kangal-Sivas-Gürün yol ayrımının Gürün tarafı, 1605 m, 17.vii.2010, *Hamzaoglu* 5888 (Bozok Univ. Herb.); Kayseri: Pınarbaşı, Hilmiye-Üçpınar arası, 1670 m, 06.viii.2003, *Z.Aytaç* 8627 & *H.Altmözü* (GAZI); Kayseri: Pınarbaşı, Yarhisar-Uzunpınar köyleri arası, 4. km, 1730 m, 12.vii.2008, *Hamzaoglu* 5201 (Bozok Univ. Herb.); Sarız, Yeşilkent (Yalak), Binboğa Dağı, Tekkekaya mevki, 1800-2200 m, 04.viii.1991, *Z.Aytaç* 4294 & *H.Duman* (GAZI); Adana: Tufanbeyli, Üçkonak-Arslantaş arası, Tahtalı Dağları, 1880 m, 15.vii.2008, *Hamzaoglu* 5236 & *Aksoy* (Bozok Univ. Herb.).

**Conservation status:** *Gypsophila turcica* is an endemic species and only known from 2 close populations from Zara District (Sivas Province), Inner Anatolia. Moreover, it is an Irano-Turanian element. This species must be classified as critically endangered [CR (B2a)] according to the World Conservation Union (IUCN) categories (IUCN, 2001).

**Ecology:** *Gypsophila turcica* grows on gypsaceous hills at 1755-1835 m with *Scorzonera aucherana* DC., *Minuartia anatolica* (Boiss.) Woronow var. *scleranthoides* (Boiss. & Noë) McNeill, *Thymus cappadocicus* Boiss., *Gypsophila heteropoda* Freyn & Sint. subsp. *minutiflora* Barkoudah, *Achillea sintenisii* Hub.-Mor., *Paracaryum racemosum* (Schreb.) Britten var. *racemosum*, *Helichrysum noeianum* Boiss., and *Allium sivasicum* Özhatay & Kollmann.



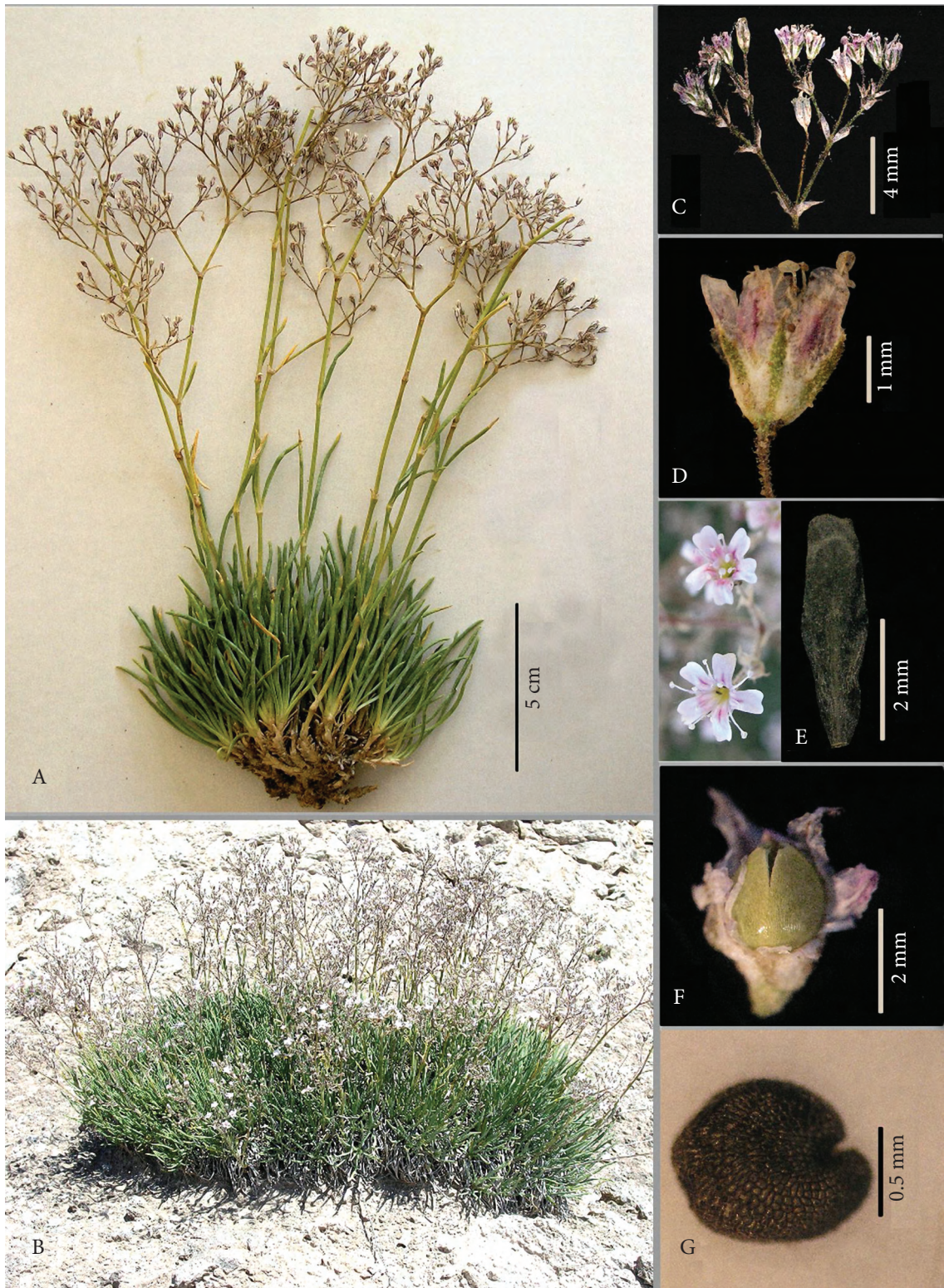


Figure. *Gypsophila turcica* sp. nova, A- habit, B- habitat and habit, C- inflorescence, D- flower, E- petal and flower, F- fruit and calyx, G- seed.

## Discussion and conclusion

*Gypsophila turcica* is closely related to *G. festucifolia*. It differs from *G. festucifolia* by its stems 10-40 cm tall, leaves fleshy, and petals emarginate. More differentiating characters are given in the Table. Both these species are distributed in Inner Anatolia and are endemic (Huber-Morath, 1967).

*Silene choruhensis* Hamzaoglu, **nom. nova**

**Typonym:** *Silene ispirensis* A.P.Khokhr. in Byull. Mosk. Obshch., Ispyt. Prir., Biol., 102(4): 46 (1997), *nom. illeg., non* Boiss. & A.Huet in Boiss., Diagn. Ser. 2(5): 55 (1856).

**Type:** Turkey. A8 Erzurum: İspir declivia sicca lapidosa in valle fluminis Çoruh nehri, 11.vi.1995, A.P.Khokhrjakov, M.T.Mazurenko & H.Vreeman s.n. (holotype: MW, isotype: MW).

*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 (Melzheimer, 1988). South-west Asia is one of the main centres of diversity for the genus, which is represented by 148 species in Turkey (Coode & Cullen, 1967; Davis et al., 1988, Greuter, 1995; Tan

& Vural, 2000; Özhatay & Kültür, 2006; Özhatay et al., 2009; Bağcı et al., 2007; Aksoy et al., 2008; Bağcı, 2008; Tugay & Ertuğrul, 2008; Kandemir et al., 2009; Yıldız & Dadandı, 2009; Hamzaoglu et al., 2010; Yıldız & Erik, 2010; Yıldız et al., 2010; Hamzaoglu et al., 2011).

*Silene ispirensis* Boiss. & A.Huet (1856) is given as a synonym under the species *S. montbretiana* Boiss. in *Flora of Turkey and the East Aegean Islands*, but it is a valid name (Boissier, 1856; Coode & Cullen, 1967). The same epithet is given (i.e. *ispirensis*) to a *Silene* species published later and a homonym is constituted (Khokhrjakov, 1997). To prevent confusion, the species published by Khokhrjakov is re-named *Silene choruhensis* by considering the type address, Çoruh River (ICBN, Art. 53.1) (McNeill et al., 2006). This species is an endemic of north-eastern Turkey (Erzurum, İspir).

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Table. Diagnostic characters of *Gypsophila turcica* and *G. festucifolia*.

Characters	<i>G. turcica</i>	<i>G. festucifolia</i>
Habitat	gypsaceous hills	calcareous or limestone slopes
Stems	10-40 cm	40-70 cm
Leaves	fleshy, circular in cross-section, 25-75 × 1-2 mm,	not fleshy, semicircular to triquetrous in cross-section, 10-30 × 0.5-1 mm
Bracts	3-5 mm	2-3 mm
Pedicels	3-6 mm	5-12 mm
Calyx	always glandular-hairy	glabrous or glandular-hairy
Petals	emarginate	truncate



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