



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

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Abstract

Silene section *Cryptoneura* (Caryophyllaceae) and *S. ertekinii* from Western Antalya, Turkey, are described as new taxa on the basis of morphological and molecular investigations. Nuclear *ITS* and chloroplast *rps16* DNA sequences clearly support the recognition of the new section. Inclusiveness and characterization of the new section is discussed and described, and a key for the included species is provided. Diagnostic characters of the new species *S. ertekinii* are given and its relation to the other species of the section is discussed.

Key words: Section *Atocion*, *Silene ertekinii*, *S. cryptoneura*, *S. salamandra*, *S. insularis*, taxonomy

Introduction

Silene Linnaeus (1753: 416) (Caryophyllaceae Juss.) is a genus of about 700 species and one of the largest and most widely distributed genera across the globe (Melzheimer 1980, Zhou *et al.* 2001, Morton 2005). The main center of diversity is Eurasia, especially in the Mediterranean and SW Asia (Greuter 1995, Oxelman & Lidén 1995). Anatolia is one of the richest *Silene* species hosting areas with 165 taxa listed in the *Flora of Turkey and East Aegean Islands* (Coode & Cullen 1967) plus several recent additions [e.g., Davis *et al.* (1988), Tan & Vural (2000), Vural & Dönmez (2002), Duran & Menemen (2003), Aytaç & Duman (2004), Deniz & Düşen (2004), Özgökçe *et al.* (2005), Genç *et al.* (2007), Tugay & Ertuğrul (2008), Bağcı (2008), Kaya & Ertekin (2009), Yıldız & Dadandı (2009), Hamzaoğlu *et al.* (2010), Yıldız & Erik (2010), and Budak & Koç (2011)].

As part of the global revision by Chowdhuri (1957), *Silene* was classified into 44 sections. This classification has been followed by several recent authors (e.g., Coode & Cullen 1967, Melzheimer 1980, Chater *et al.* 1993). More recently, Lazkov (2003) presented a revision where many species not treated by Chowdhuri (l.c.) were included and the genus organized into 43 sections and 86 series. However, molecular studies (e.g., Oxelman & Lidén 1995, Desfeux & Lejeune 1996, Oxelman *et al.* 1997, Oxelman *et al.* 2001, Eggens *et al.* 2007, Popp & Oxelman 2007, Petri & Oxelman 2011, Rautenberg *et al.* 2012) have showed that both classifications are highly incongruent with phylogenetic relationships.

Chowdhuri (1957) classified some annual Mediterranean taxa into the sect. *Atocion* Otth (1824: 383), which was divided into three subsections: *Rubellae* (Battandier 1888: 137) Chowdhuri (1957: 245), *Atocion* (Otth) Gürke (1899: 315) (= subsect. *Delicatulae* Chowdhuri nom. illeg. according to Art. 22.1 of ICN, McNeill *et al.* 2012), and *Divaricatae* (Battandier 1888: 138) Chowdhuri (1957: 245). The widespread East Mediterranean species *S. aegyptiaca* (Linnaeus 1753: 415) L. fil (1782: 241), and the two narrowly distributed *S. insularis* Barbey (1886: 220, endemic to Karpathos island in the Aegean Sea) and *S. delicatula* Boissier (1843: 41, Cilician Turkey) were included in subsect. *Atocion*. Coode & Cullen (1967) added *S. cryptoneura* Stapf (1886: 352), *S. sordida* Huber-Morath & Reese (1943: 43), and *S. salamandra* Pampanini (1927: 371) to sect. *Atocion*, without subsectional assignment. *Silene salamandra* was treated as a variant of *S. aegyptiaca* by Coode & Cullen (1967), but Carlström (1986) showed that *S. salamandra* is different from *S. aegyptiaca*, and very similar to *S. cryptoneura*.

TABLE 1. Comparison of *S. ertekinii* to *S. cryptoneura* and *S. sumbuliana*. Information for *S. sumbuliana* is taken from Deniz & Düşen (2004) except for the seed hilum structure, which is based on our own observations on seeds put to our disposal. Observations for *S. ertekinii* and *S. cryptoneura* were summarized after examinations of all the relevant specimens registered in BoxTax Database (Oxelman *et al.* 2013).

	<i>S. ertekinii</i>	<i>S. cryptoneura</i>	<i>S. sumbuliana</i>
Stem	Erect to slightly ascending	Procumbent-ascending to erect	Ascending or erect, slender, terete
Indumentum	Densely pubescent with multicellular glandular hairs	Densely pubescent with multicellular glandular hairs	Antrorsely pubescent or with spreading glandular hairs
Leaves	Basal leaves spatulate, cauline leaves spatulate to oblong-ob lanceolate	Basal leaves spatulate, cauline leaves spatulate to oblong-ob lanceolate	Basal and lower leaves spatulate, distinctly petiolate, upper leaves oblong-spatulate
Inflorescence	Lax compound dicashium, pedicels upright	Lax compound dicashium, pedicels drooping or upright	Flowers in lax compound dichasia
Alar flower	Distinctly pedicellate, pendent to erect	Distinctly pedicellate, drooping	Erect and distinctly pedicellate
Calyx	(8–)11–15 × 1.5–4 mm (up to 5.5 mm in fruit), narrowly clavate in fruit	(8–)12–18 × 2–6 mm (up to 10 mm in fruit)	(8–)10–17 mm, tubular at anthesis, clavate in fruit.
Petals	Limb entire with one conspicuous vein, apex rhomboid	Limb entire with three conspicuous veins, apex flat or minutely emarginate	Entire or minutely emarginate
Antophore	Hairy, (2–)5–8 mm	Hairy, (2–)4–5(–6) mm	Densely villose, 4.5–5.5 mm
Seeds	Globular to subglobose, rounded at hilum	Globular to subglobose, hilum rectangular with two of the opposite sides twisted	Subglobose to globose, colliculate, dark brown or blackish brown. Two of the opposite sides twisted at hilum
Distribution	Distributed on Eastern slopes of Bey Dağları, Antalya	Distributed between West-South of the Bey Dağları Antalya, and Eastern Muğla	Distributed in a 10 km ² area in the Elmalı Antalya, Çamkuyu, top of the Avlankuzu Mountain on the west side of Bey Dağları

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