

Lectotypifications of *Cerastium siculum*, *C. densiflorum*, and *C. aggregatum*, and taxonomic notes on *C. siculum* (Caryophyllaceae)

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Abstract: Nomenclatural notes on *Cerastium siculum* Guss. (Caryophyllaceae), a species described from Sicily and occurring in the central western region of the Mediterranean basin, are discussed. The names *C. aggregatum* Durieu ex Brign., *C. densiflorum* Guss., and *C. siculum* are lectotypified here. The taxonomic independence of *C. siculum* from *C. semidecandrum* L. and the other taxa of *Cerastium* L. sect. *Orthodon* Ser. subsect. *Fugacia* Fenzl is confirmed, as well as the synonymy of *C. aggregatum* and *C. densiflorum*.

Key words: *Cerastium siculum*, *Fugacia*, lectotype, taxonomy, morphological characters

1. Introduction

Cerastium siculum Guss. (Caryophyllaceae) is an annual species belonging to *Cerastium* L. subgen. *Cerastium* sect. *Orthodon* Ser. subsect. *Fugacia* Fenzl (Pax and Hoffmann, 1934). This species was described by Giovanni Gussone in 1832 from several coastal localities in SE Sicily. It is reported from central western Mediterranean areas such as Algeria, Corsica, France, the Balearic Islands, Italy, Libya, Morocco, Sardinia, Sicily, and Spain (Marhold, 2011). However, its occurrence in Spain and the Balearic Islands has been reported in error, and in Sardinia it is questionable (Arrigoni, 1984; Valdés, 1984). A detailed report of its occurrence in France was proposed by Croze et al. (2016) and Traclet et al. (2016). A detailed distribution of the whole range based on field surveys and herbarium studies is in preparation.

The species in the herbaria is often confused with other similar taxa (e.g., *Cerastium glomeratum* Thuill., *C. pumilum* Curtis, *C. diffusum* Pers. spp., and *C. semidecandrum* L.).

In the course of research aimed at defining the distribution and ecology of *Cerastium siculum*, which is still largely unknown and whose population will be destroyed in France (where it has a regional protection), the original material of *Cerastium siculum* was studied in order to designate a type, study its morphological characters, and compare it with morphologically similar species. Indeed, a lot of misidentification exists in this subsection and designation of a type is essential.

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This contribution falls within the frame of the initiative “Italian Loci Classici Census” (Domina et al., 2012; Peruzzi et al., 2015), aimed at locating the original material of vascular plants described from Italy (e.g., Domina and Mazzola, 2011; Domina et al., 2013, 2016; Iamónico and Domina, 2015).

2. Materials and methods

In order to obtain reliable size intervals for a botanical criterion that discriminates *C. siculum* from other morphologically similar species, morphological measurements (length of calyx, length of pedicel, and length of fruit) were made on 35 samples of *C. siculum* with an electronic caliper (accuracy: 0.01 mm). The specimens stocked in the MARS, AIX, NICE, TLO, and Museum of Natural History herbaria were collected from all the distribution areas of the species between 1845 and 1995. We used morphological values available in the literature to compare these measurements to those of other close species (Castroviejo, 1990; Pignatti, 1982; Komarov and Shishkin, 1936).

For the lectotypification, we checked the herbarium of the first taxonomical authors (G. Gussone and C. Durieu de Maisonneuve) to find the types (if they exist). We were helped by a local curator. We also examined the type sheets in BOLO, FI, MPU, NAP, PAL, and K.

3. Results and discussion

3.1. Lectotypification

Cerastium siculum Guss. in: Suppl. Fl. Sicul. Prodr.: 137. 1832 (Figure 1).

Homotypic Syn. *C. pumilum* subsp. *siculum* (Guss.) Maire in Jahand. & Maire, Cat. Pl. Maroc: 197. 1932; *C. semidecandrum* subsp. *siculum* (Guss.) Arcang., Comp. Fl. Ital.: 97. 1882.

Type citation. “In arenosis, et inter segetes in maritimis; Terranova, Alicata, Comiso alla Berdia ed ai Scoglitti, S. Croce, Spaccaforno”.

Lectotype (designated here). Martio, Aprili, In herbosis arenosis maritimis / Petala bifida calyce breviora, pentandrum, Aprile - Terranova [manu Gussone] (NAP-Guss, Photo!); isolectotype: Terranova, Da Pasquale in Ag. 1866 (FI, Photo!) (Figure 1).

Three specimens are housed in NAP where the Gussone herbarium is kept. All three bear labels with Gussone's handwriting. Two of these were collected in Terranova and one in Comiso alla Berdia; none of them are dated. A specimen collected by Gussone in Terranova is housed in FI. It was sent by Da Pasquale from NAP to the Herbarium Centrale Italicum in 1866. Another specimen from Comiso alla Berdia was sent by Gussone to Bertoloni in 1841 and is now housed in BOLO. Clearly, the specimens in FI and in BOLO are single individuals extrapolated from the specimens in NAP. A specimen by Gussone from Sicily from 1833 is housed in K (K000723546, Photo!).

Despite the fact that the specimens in NAP do not bear dates, in line with what has been stated by Domina and Mazzola (2009), bearing Gussone's notes on the plant morphology is considered, without a doubt, to indicate original material from which a lectotype can be designated.

In order to respect the author's original intent, the specimen selected here is the most complete one that fits the original description.

On the basis of the study of the original material it is possible to confirm the following heterotypic synonyms of *C. siculum*:

Cerastium densiflorum Guss., Fl. Sic. Prodr. Suppl. (1): 136. 1832 (Figure 2).

Homotypic Syn. *C. semidecandrum* subsp. *densiflorum* (Guss.) Arcang., Comp. Fl. Ital.: 97. 1882.

Type citation. “In campis calcareis submontanis inter segetes; Chiaromonte, Ragusa, Modica”.

Lectotype (designated here). Martio, Aprili, Inter segetes in calcareis submontosis / *C. densiflorum*,

Cerastium pentadrum [...] petala acute bifida calyce breviora, Martio, Chiaromonte [manu Gussone] (NAP-Guss, Photo!) (Figure 2); isolectotype: *Cerastium densiflorum*, Chiaromonte [manu Gussone] (PAL45740!).

Despite the fact that the specimen from Chiaromonte in NAP does not bear dates, according to Domina and Mazzola (2009) it is considered here to be original material, thus suitable for lectotypification. The specimen in Palermo consists of a single individual clearly extrapolated from the specimen in NAP.

Cerastium aggregatum Durieu ex Brign. in Flora 23(1): 123. 1840 (Figure 3).

Type citation. “Habitat ad litora mar. mediet.”

Lectotype (designated here). “Var. Toulon, autour des glacis du fort Lamalgue [France], 27.4.1839, Durieu 495 (MPU21844, Photo!)” (Figure 3).

These two taxa fall within the variability of *Cerastium siculum*. *C. densiflorum* has been described in the same publication as *C. siculum*, but taking into account the generalized use of the name *C. siculum* in the Mediterranean floras and the limited use of the name *C. densiflorum*, due to the poor knowledge of this taxon, for nomenclatural stability *C. siculum* is to be considered as the accepted name. *C. aggregatum* refers to the same taxon and was published 8 years after Gussone's name.

3.2. Description of *Cerastium siculum* based on the original material

Annual herb, erect, up to 12 cm tall, pale green at first, becoming golden yellow. Stems with glandular and eglandular hairs in same proportion. Leaves 3–15 × 2–7 mm, hairy, obtuse or acute; basal oblanceolate; cauline ovate-lanceolate to broadly elliptic. Inflorescence with a dense condensate dichasium; flowers terminal, tetramer or pentamer. All bracts herbaceous. Pedicels 2.5–5.5 mm long, erect, shorter than sepals, but first one equal to or longer than sepals. Sepals 4–7 mm long, with eglandular and few glandular hairs, oblong or oblong-lanceolate, acute and scarious; hairs not exceeding apex. Petals white, bifid, shorter than sepals. Capsule 5.5–9.5 mm long, pale yellow, conical-cylindrical, very prominent, dehiscing by 8(-10) apical revolute marginated teeth; diameter < 1 mm under teeth. Seeds 0.4–0.5 mm long, pale brown, rounded-reniform, and finely tuberculate (ca. 0.02 mm).

3.3. Morphological comparison

Cerastium siculum has often been confused with *C. semidecandrum*, which has refracted pedicels and scarious bracts; with *C. pumilum*, which has scarious bracts for the upper one and pedicels longer than sepals;



Figure 2. Lectotype of *Cerastium densiflorum* Guss. (NAP-Guss).



Figure 3. Lectotype of *Cerastium aggregatum* Durieu ex Brign. (MPU21844). © Université de Montpellier – Herbiérs MPU (SPH).

Table. Morphological characters of *Cerastium* species in subsection *Fugacia*.

Species	Bracts	Sepals		Pedicels		Capsules	Seeds
		Apex	Hairs	Compared to sepals	Curvature		
<i>C. glomeratum</i>	Herbaceous	Clearly exceeded by eglandular hairs	Eglandular hairs dominant	Shorter to equal	Slightly curved under flower	Prominent, almost twice as long as sepals, often curved	0.6–0.65 mm long
<i>C. brachypetalum</i> Pers.	Herbaceous	Clearly exceeded by eglandular hairs	Eglandular hairs dominant	Longer	Clearly curved under flower	Half as long as sepals	0.6–0.7 mm long
<i>C. comatum</i> Desv.	Herbaceous	Clearly exceeded by eglandular hairs	Eglandular hairs dominant	Longer	Ca. 90° curved under flower	Straight, ~7 mm long	0.5–0.8 mm long
<i>C. semidecandrum</i> L.	Scariosus	Not exceeded by eglandular hairs	Eglandular hairs dominant	Longer	Deciduous at flowering	Straight, 1.5–1.8 times longer than sepals	~0.45 mm long
<i>C. siculum</i>	Herbaceous	Not exceeded by eglandular hairs	Glandular and eglandular hairs in same proportion	Shorter	Erect	Very prominent, 5.5–9.5 mm long, diam. <1 mm under teeth	0.4–0.5 mm long
<i>C. dichotomum</i> L.	Herbaceous	Not exceeded by eglandular hairs	Glandular and few eglandular hairs	Shorter	Erect	Narrow, erect, 18–23 mm long	~0.8 mm long
<i>C. diffusum</i>	Herbaceous	Not exceeded by eglandular hairs	Glandular and few eglandular hairs	Longer	Erect	Slightly curved, 4–8 mm long	0.5–0.8 mm long
<i>C. ramosissimum</i>	Herbaceous	Not exceeded by eglandular hairs	Glandular hairs dominant	Equal	Erect to slightly curved at apex	Very prominent and curved, 6–12 mm long	0.8–0.9 mm long
<i>C. gracile</i> Dufour	Herbaceous	Not exceeded by eglandular hairs	Glandular hairs dominant	Equal to, or longer	Sometimes deciduous at flowering	Slightly curved, shiny, 7–12 mm long	0.75–1.05 mm long
<i>C. dubium</i> (Bastard) Guépin	Herbaceous	Not exceeded by eglandular hairs	Glandular hairs dominant	Equal to, or longer	Erect	Erect, 7–8 mm long	0.7–0.9 mm long
<i>C. ligusticum</i> Viv.	Upper ones scariosus	Not exceeded by eglandular hairs	Glandular hairs dominant	Longer	Curved-recurred after flowering	Straight or slightly curved, narrow, 1.5–1.8 times longer than sepals	0.5–0.7 mm long
<i>C. pumilum</i>	Upper ones scariosus	Not exceeded by eglandular hairs	Glandular hairs dominant	Longer	Clearly curved under flower	Few prominent, diam. >1.7 mm under teeth	0.5–0.85 mm long

with *C. glomeratum*, which has apex of sepals exceeded by eglandular hairs and pedicels shorter than sepals; and with *C. diffusum*, which has tetramer flower and pedicels longer than sepals (Table).

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