

# Chromosome numbers for the Italian flora: 5

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## Abstract

In this contribution new chromosome data obtained on material collected in Italy are presented. It includes 7 chromosome counts for *Centaurea* (Asteraceae).

## Keywords

cytogeography, cytotaxonomy, karyotype, *Centaurea*

## How to contribute

The text concerning new chromosome data should be submitted electronically to Lorenzo Peruzzi ([lorenzo.peruzzi@unipi.it](mailto:lorenzo.peruzzi@unipi.it)), including indications on voucher specimens and methods used.

## Chromosome counts

*Centaurea aspromontana* Brullo, Scelsi & Spamp. (Asteraceae)

**Chromosome number.**  $2n = 18$  (Fig. 1)

**Voucher specimen.** ITALY. Calabria. Sotto piano Zivernà (Reggio Calabria), 21 August 2017, *L. Peruzzi et K.F. Caparelli* (PI n° 009594).

**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in



**Figure 1.** *Centaurea aspromontana* Brullo, Scelsi & Spamp.,  $2n = 18$ . Scale bar: 10  $\mu\text{m}$ .

Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsine.

**Observations.** *Centaurea aspromontana*, as well as all other species investigated in this contribution, belongs to *C. deusta* Ten. species complex, within *C. sect. Phalolepis* (Cass.) DC. *Centaurea aspromontana* is endemic to southern Calabria, where it can be found in a few localities (Peruzzi et al. 2017). Our chromosome count, performed on plants from the *locus classicus* (Brullo et al. 2001, Peruzzi et al. 2015), is the first for this species (Bedini et al. 2010 onwards) and confirms the basic chromosome number  $x = 9$  typical of *C. sect. Phalolepis* (Hilpold et al. 2014).

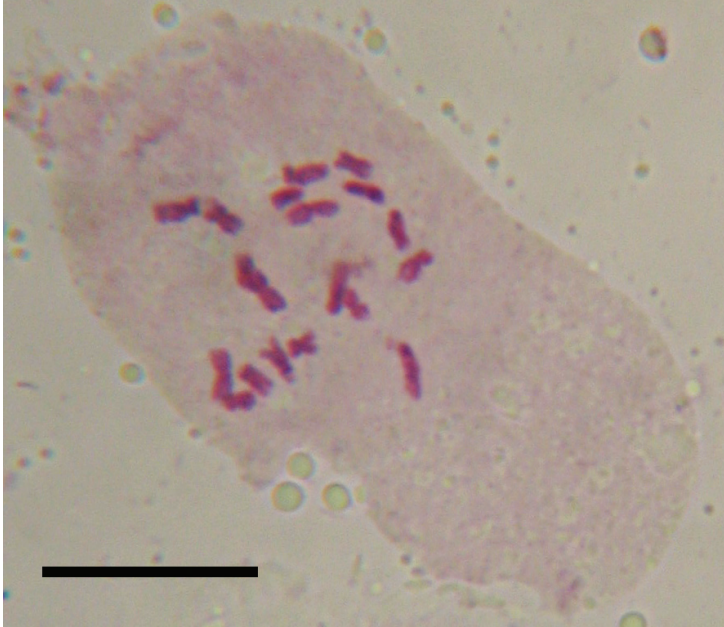
### *Centaurea calabra* G.Caruso, S.A.Giardina, Raimondo & Spadaro (Asteraceae)

**Chromosome number.**  $2n = 18 + 0-2B$  (Fig. 2)

**Voucher specimen.** ITALY. Calabria. Presila Catanzarese, tra Sersale e Zagarise (Catanzaro), 6 August 2017, L. Peruzzi et K.F. Caparelli (PI n° 009592).

**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsine.

**Observations.** *Centaurea calabra* is endemic to a narrow area restricted to the Ionian coast, typically associated to chasmophytic communities, in Calabria (Caruso et al. 2013). Our chromosome count, performed on plants collected very close to the *locus classicus* (Caruso et al. 2013, Peruzzi et al. 2015), is the first for this species (Bedini et al. 2010 onwards). Out of 13 root tips sampled, six showed a regular  $2n = 18$  chromosome complement, five showed  $2n = 18 + 1B$  and two showed  $2n = 18 + 2B$ .



**Figure 2.** *Centaurea calabra* G.Caruso, S.A.Giardina, Raimondo & Spadaro,  $2n = 18 + 1B$ . Scale bar: 10  $\mu$ m.

### *Centaurea ionica* Brullo (Asteraceae)

**Chromosome number.**  $2n = 18$  (Fig. 3)

**Voucher specimen.** ITALY. Calabria. Rupi presso Stilo (Reggio Calabria), 21 August 2017, L. Peruzzi et K.F. Caparelli (PI n° 009595).

**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsine.

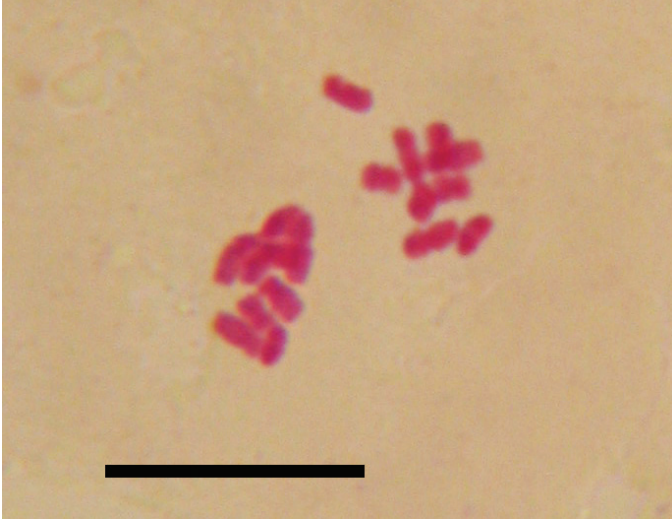
**Observations.** *Centaurea ionica* is endemic to Calabria, where it can be found in just five known localities mainly distributed near the Ionian side of the Region (Peruzzi et al. 2017). Our chromosome count, performed on plants from the *locus classicus* (Brullo et al. 2001, Peruzzi et al. 2015), is the first for this species (Bedini et al. 2010 onwards).

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### *Centaurea poeltiana* Puntillo (Asteraceae)

**Chromosome number.**  $2n = 18$  (Fig. 4)

**Voucher specimen.** ITALY. Calabria. Aspromonte, Pietra Impiccata (Reggio Calabria), 21 August 2017, L. Peruzzi et K.F. Caparelli (PI n° 009596).



**Figure 3.** *Centaurea ionica* Brullo,  $2n = 18$ . Scale bar: 10  $\mu\text{m}$ .



**Figure 4.** *Centaurea poeltiana* Ten.,  $2n = 18$ . Scale bar: 10  $\mu\text{m}$ .

**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsin.

**Observations.** *Centaurea poeltiana* is endemic to Calabria, where it grows in the southern part of the Region, mainly in beech or oak forests (Peruzzi et al. 2006). Our

chromosome count, performed on plants from the *locus classicus* (Puntillo 1996, Peruzzi et al. 2015), is different from the only other published count, i.e.,  $2n = 36$ , obtained from plants collected near Montalto di Aspromonte, a few kilometres away from our sampling area (Peruzzi et al. 2006). Accordingly, this species shows at least two cytotypes, at diploid and tetraploid level.

### *Centaurea sarfattiana* Brullo, Gangale & Uzunov (Asteraceae)

**Chromosome number.**  $2n = 18$  (Fig. 5)

**Voucher specimen.** ITALY. Calabria. Sila, Lago Passante (Catanzaro), 6 August 2017, L. Peruzzi et K.F. Caparelli (PI n° 009593).

**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsin.

**Observations.** *Centaurea sarfattiana* is endemic to the Sila massif (Calabria), where it grows in dwarf shrubs vegetation on siliceous substrata (Brullo et al. 2004). Our chromosome count, performed on plants from the *locus classicus* (Brullo et al. 2004, Peruzzi et al. 2015), is the first for this species (Bedini et al. 2010 onwards).

### *Centaurea scillae* Brullo (Asteraceae)

**Chromosome number.**  $2n = 18 + 2B$  (Fig. 6)

**Voucher specimen.** ITALY. Calabria. Tra Bagnara e Scilla (Reggio Calabria), 21 August 2017, L. Peruzzi et K.F. Caparelli (PI n° 009590).

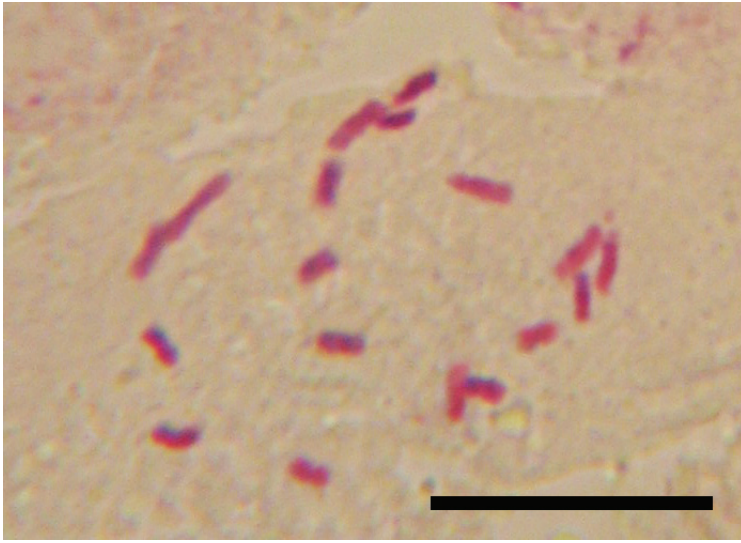
**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsin.

**Observations.** *Centaurea scillae* is endemic to Calabria, where it grows in few localities along the Tyrrhenian coast in the extreme south-western part of the Region (Peruzzi et al. 2017). Our chromosome count, performed on plants from the *locus classicus* (Brullo et al. 2001, Peruzzi et al. 2015), is the first for this species (Bedini et al. 2010 onwards). Out of six root tips sampled, all showed  $2n = 18 + 2B$ .

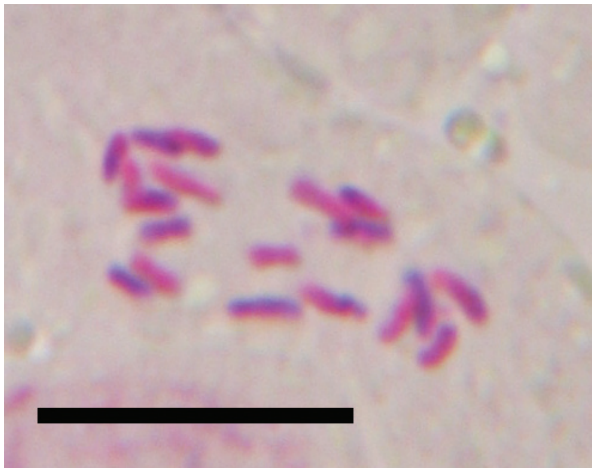
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### *Centaurea deusta* Ten. (Asteraceae)

**Chromosome number.**  $2n = 18$  (Fig. 7)



**Figure 5.** *Centaurea sarfattiana* Brullo, Gangale & Uzunov,  $2n = 18$ . Scale bar: 10  $\mu\text{m}$ .



**Figure 6.** *Centaurea scillae* Brullo,  $2n = 18 + 2B$ . Scale bar: 10  $\mu\text{m}$ .

**Voucher specimen. ITALY. Calabria.** Monte Sellaro (Cerchiara di Calabria, Cosenza), 30 August 2017, *L. Peruzzi* (cypselae collected in the field and stored in the Germplasm Bank of Department of Biology, Pisa, under acc. GB-PI-1665).

**Method.** Squash preparations were made on root tips obtained from germinating cypselae. Root tips were pre-treated with 0.4% colchicine for 3 hours and then fixed in Carnoy fixative solution for 1 hour. After hydrolysis in HCl 1N at 60 °C, the tips were stained in leuco-basic fuchsin.

**Observations.** *Centaurea deusta* occurs in the eastern part of the Mediterranean basin, from Italy to Bulgaria (Greuter 2006 onwards). Our chromosome count is the



**Figure 7.** *Centaurea deusta* Ten.,  $2n = 18$ . Scale bar: 10  $\mu\text{m}$ .

first from Calabria, and it agrees with previous counts obtained from Italy (Damboldt et al. 1973, Brullo et al. 1992, Tessitore et al. 1994). All the extra-Italian counts also gave  $2n = 18$  chromosomes (Rice et al. 2014 onwards). Mathas (1976) found one B-chromosome on plants from Puglia and Campania.

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