P. Bareka, E. Christou & G. Kamari

Karyology of some plant taxa from Cyprus

Abstract

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The chromosome number, karyotype morphology and geographical distribution of some plant taxa from the indigenous flora of Cyprus are presented, along with comments concerning their IUCN status, whenever appropriate. Karyotype microphotographs for all taxa are provided and their karyotype morphology is discussed.

1868. ***Cyclamen cyprium*** Unger & Kotschy **—** 2*n* = 30 (Fig. 1A).

Cy: Close to the monastery of Agia Moni, 34° 90' N, 32° 62' E, alt. ca 1000 m, 17 Feb 2009, *E. Christou & P. Christou E67CY* (UPA).

Cyclamen cyprium is an endemic species of Cyprus that grows in rocky places, near lakes, streams and woodlands of pine and cedar, at an altitude of 300-1200 m.

The chromosome number 2*n* = 30 found here, agrees with previous reports by Vogt & Aparicio (1999) from a population derived from the region of Paphos. Earlier studies (Haan & Doorenbos 1951; Legro 1959 and Lepper 1964) also report the same chromosome number from cultivated material of unknown origin.

The karyotype is symmetrical consisting of mostly metacentric and submetacentric chromosomes, varying in size from 5.07 to 3.04 μm. In the present study, we observed the presence of at least two chromosomes pairs bearing satellites.

1869. ***Matthiola tricuspidata*** (L.) R. Br. **—** 2*n* = 14 (Fig. 1B).

Cy: Limassol, Akrotiri Bay, 34° 70′ N, 33° 09′ E, alt. 0-3 m, 4 Apr 2009, *E. Christou & P. Christou, E63CY* (UPA).

Matthiola tricuspidata, is a mediterranean ammophilus species that is located on sandy beaches and primary dunes near the sea level.

The somatic chromosome number of 2*n* = 14, counted here is in accordance with previous reports from Italy (Cela Renzoni 1969; Brullo & Pavone 1977) and Greece (Miège & Greuter 1973; Runemark 2000). However, Vogt & Aparicio (1999) report the chromosome number 2*n* = 16 in material derived from a Cypriot population close to Larnaca.

The karyotype studied here consists of mostly metacentric (m) chromosomes, which vary in size between 2.90 and 1.61 μm.

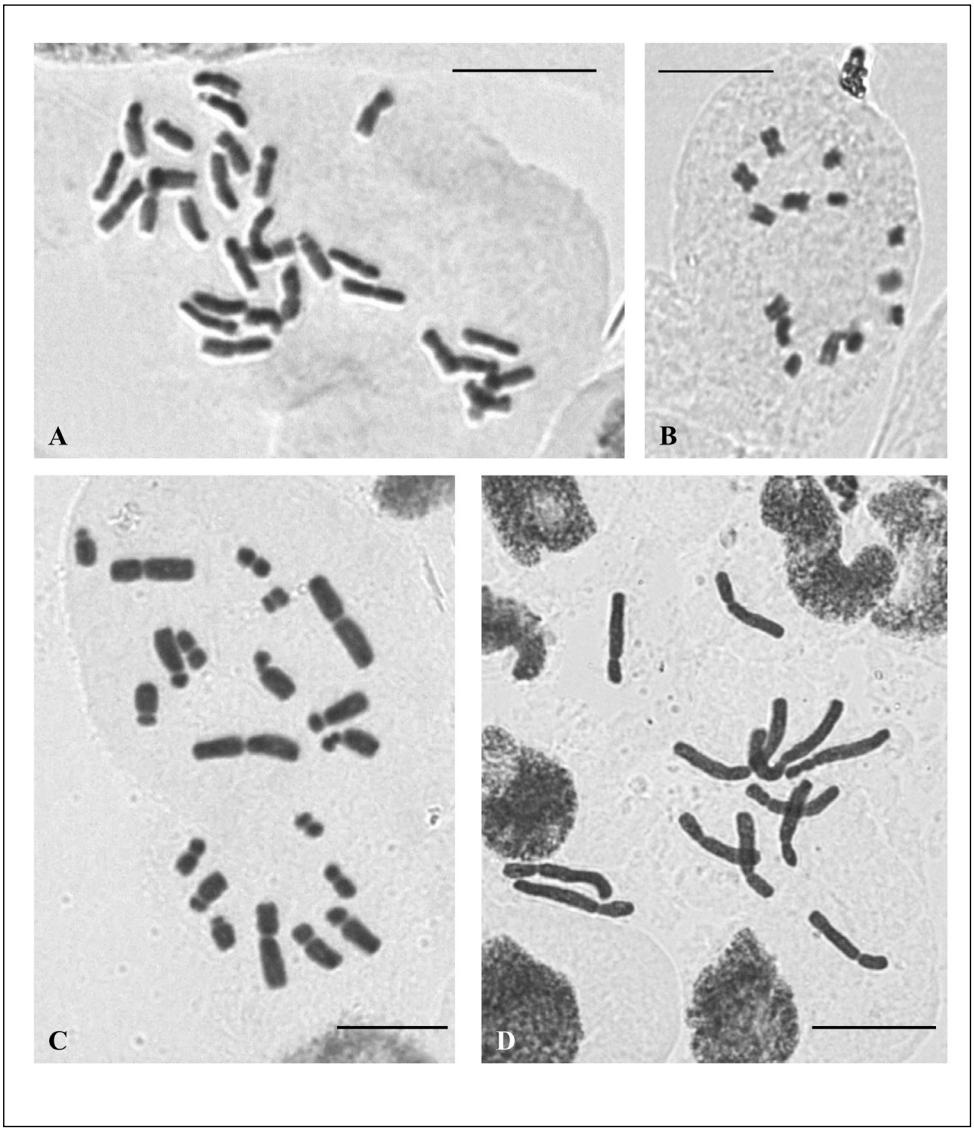

Fig. 1. Microphotographs of somatic metaphase plates of: **A,** *Cyclamen cyprium*, 2*n* = 30; **B,** *Matthiola tricuspidata*, 2*n* = 14; **C,** *Ornithogalum chionophylum,* 2*n* = 20 and **D,** *Scilla morrisii*, 2*n* = 12. – Scale bars = 10 μm.

1870. *Ornithogalum chionophilum* Holmboe **—** 2*n* = 20 (Fig. 1C).

Cy: Agios Nikolaos forest, 35° 05' N, 32° 02' E, alt. ca 700 m, 6 Apr 2008, *E. Christou & P. Christou*, *E4CY* (UPA).

Ornithogalum chionophylum is an endemic species of Cyprus distributed in Akamas area, at the forest of Agios Nikolaos as well as the Troodos mountains. It prefers moist soil, usually near streams, riverbanks or in shaded areas of *Pinus nigra* J.F. Arnold forests.

The chromosome number $2n = 20$ of the population studied is in accordance with previous reports by Garbari & al. (1988) and Stedje & Ovstedal (1991). Additionally, the chromosome number of $2n = 24$ is also reported for this taxon by Gennaiou-Della (2000) in material from another population of Cyprus.

The karyotype is asymmetrical consisting of $2n = 10m + 2sm + 2sm/st + 6st = 20$ chromosomes. The fourth in size chromosome pair is characterized by the presence of a secondary constriction on the short arm of the homologues, while the size of the chromosomes ranges from 10.25 to 2.21 μm.

1871. *Scilla morrisii* Meikle **—** $2n = 12$ (Fig. 1D).

Cy: Close to the monastery of Agia Moni, 34° 90' N, 32° 62' E, 6 Apr 2008, *E. Christou & P. Christou*, *E4CY* (UPA).

Scilla morrisii is an endemic species of Cyprus found in moist, shaded crevices and banks, often under *Quercus infectoria* subsp. *veneris* (A. Kern.) Meikle and *Pistacia terebinthus* L. The species has been characterized as Endangered (EN), according to the *Red Data Book of the flora of Cyprus*, since it is threatened by habitat loss caused by the expansion of agricultural areas, road construction, internal factors (inbreeding and low densities) and by predators, while its total population on the island amounts to 1000 individuals (Della & al. 2007).

The chromosome number $2n = 12$ is in accordance with previous reports by Greilhuber & Speta (1989); Gennaiou-Della (2000) and Speta (2011), under *Othocallis morrisiii* (Meikle) Speta from other localities of the island.

The symmetrical karyotype consists of $2n = 2m + 8sm + 2sm\text{-}SAT = 12$ large chromosomes ranging in size from 22.96 to 11.94 μm. The shortest in size chromosome pair bears small spherical satellites. Additionally, secondary constrictions are observed in the middle of the shorter arms of the third in size chromosome pair.

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Addresses of the authors:
Pepy Bareka[1], E. Christou[2] & G. Kamari[2],
[1]Laboratory of Systematic Botany, Faculty of Crop Science, Agricultural University of Athens, Iera Odos 75, 118 55 Athens, Greece. E-mail: bareka@aua.gr
[2]Botanical Institute, Section of Plant Biology, Department of Biology, University of Patras, 265 00 Patras, Greece. E-mail: kamari@upatras.gr