A new subspecies of *Crocus pestalozzae* (Iridaceae) from Turkey

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Abstract

*C. pestalozzae* subsp. *violaceus* is described as a new subspecies from northwest Anatolia. The new taxa differs from subsp. *pestalozzae* by its flower colour, leaf and flower size, karotype, habitat and growing elevation. Diagnostic characters, a full description, and detailed illustrations are presented. Also photograps of metephase plate, karyotypes and idiograms of two subs. of *C. pestalozzae* are given. The geographical distribution of the subspecies is mapped. IUCN threatened category and observations on the population are noted.

Key words: *Crocus*, endemic, karyotype, taxonomy, Turkey

Introduction

The genus *Crocus* Linnaeus (1753: 36) occurs in the Mediterranean region and the drier floristic area to the east of the Mediterranean known as the Irano-Turanian region (Mathew 1982) and consists currently of about 129 recognized species (Erol et al. 2012, Harpke et al. 2013, Kerndorff et al. 2013a, 2013b, 2013c, Peruzzi & Carta 2011, Peruzzi et al. 2013, Yıldırım & Erol 2013). Turkey is an especially rich country in terms of *Crocus* species: Mathew (1984) listed 31 species [*C. tournefortii* Gay (1831: 320) is not included] from Turkey. Later, Mathew (1988) added one subspecies. Four more species and two subspecies were added by Mathew (2000), and, as a result of more recent publications, the number of *Crocus* taxa in Turkey reached 119 (73 species) (Erol et al. 2012, Yüzbaşıoğlu 2012, Candan & Özhatay 2013, Harpke et al. 2013a, 2013b, 2013c, Ruksans 2013, Yıldırım & Erol 2013), of which 97 are endemic to the country.

According to Mathew (1982), *C. pestalozzae* Boissier (1854: 13, 17) exists in two colour forms, white and a clear lavender-blue. The original collection (type locality) from Bolu has white flowers, and the blue form was not discovered until 1929. The lavender-blue form, more commonly encountered in cultivation, from unknown origin, has been called var. *caeruleus* (but this not a formally published name). During our field studies, the blue form was found in an isolated population. In this study, white and blue forms, based on our herbarium and field observations, are treated as distinct subspecies.

Specimens of the taxon described here have been collected several times by the first author since 2001 and observations made concerning population size and phenological features. The specimens were compared with similar material at ISTE, ISTF, K and E. The measurements, colours and other details given in the description are based on both herbarium and living material. Morphological data were obtained from 70 individuals in total. The illustrations of the new subspecies were made from living material using Adobe Photoshop CS4.

Karyological observations were made on mitotic metaphase cells of root-tips obtained from corms that were collected in the type locality and around İstanbul. Root tips were pretreated in α-monobromonaphthalene at 4 °C for 24 hours and fixed in Carnoy’s solution (3:1 absolute ethanol: glacial acetic acid) for a minimum of 1 hour. The root tips were hydrolyzed for 12 minutes in 1N HCl at 60 °C, stained in Feulgen solution and squashed in aceto-orcein. Metaphases were observed using an Olympus BX53 light microscope and photographs were taken with the same. Also measurements of somatic chromosomes were made with the program CAMERAM, they were calculated with formula of the relative variation in chromosome length (CV<sub>CL</sub>) and mean centromeric asymmetry (M<sub>CA</sub>) in Zuo & Yuan (2011) and Peruzzi & Eroğlu (2013). Chromosomes were classified according to the nomenclature of Levan et al. (1964).
Indeed, this feature is not detectable in the figures published by this author (Kandemir 2009, Fig. 4a; 2011, Fig. 11). On the other hand, distinct ribs were observed by us in cross sections of the leaf samples of *C. pestalozzae* that were collected around Istanbul. The type specimen of *C. pestalozzae* was collected by Pestalozza from the district of Bolu but without precise details. This species has not been re-collected from the type locality. *Crocus pestalozzae* subsp. *pestalozzae* is now known only from Kırklareli, Istanbul and Kocaeli Provinces (Fig. 2).

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