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A New Species of *Crocus* (Liliiflorae, Iridaceae) from Turkey

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Abstract: A new species of *Crocus* L. belonging to the series *Speciosi* from north-eastern Turkey is described.

Zusammenfassung: Eine neue *Crocus*-Art der Serie *Speciosi* zugehörig aus der Nordosttürkei wird beschrieben.

Key words: *Crocus striatulus.* north-eastern Turkey.

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Introduction

The genus *Crocus* in Turkey was studied by H. Kerndorff and E. Pasche since 1983. A systematic investigation of crocus populations in the field was initiated in 1993 (Kerndorff 1993, Kerndorff & Pasche 1994, 1997, 2003, 2004a, b, 2006, 2011, 2012; Pasche 1993), which led to the finding of several new species. All of the studied populations from all over Turkey belong so far to section *Nudiscapus*. Most of them are morphologically and habitually very different and are all spring-flowering. *Crocus striatulus* also belongs to section *Nudiscapus* but flowers in autumn. Analyses of the biparentally inherited internal transcribed spacer (ITS: ITS1 + 5.8S rDNA + ITS2) region of nuclear ribosomal DNA (nrDNA) (Harpke et al. 2013) show a clear genetic separation from its allied species *C. speciosus* M. Bieber. and *C. pulchellus* Herbert as well as from those described by Rukšāns (2012, 2013).

Description of the new taxon

Crocus striatulus Kerndorff & Pasche, species nova

H o l o t y p u s : Turkey, Lazistan, Giresun Province, Giresun Dağları, 1900-2200 m, 20.03.2010, HKEP 1030 (Gatersleben, GAT 7388).

Cormus factus plus minusve irregularis, ca. 1-2 cm diameter. Tunicae membranaceae, tenuissimae. Membranae ex parte fissae a summo ad fascias. Annuli adsunt in basi, paucis sine dentibus significatis. Collum brevissimum sub 3 mm, constans ex fasciis dissectis acutae ad apicem. Cataphyllae 3, argenteae-albae iuventute, brunneolae inter maturitatem. Folia hysterantha, 1-3, plus minusve 2.1 (n = 21), virida, pars latissima in medio, 3-5 mm diameter, glabra, subter sine carina. Stria media insolita tenuis, 1/5 usque ad 1/8 diameter folii. Faux alba usque ad pallidissime luteam. Perianthii tubus albus. Segmenta exteriora

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Fig. 1: Morphological parameters of *Crocus striatulus*. 1a, dimension of white stripe; 1b, brown persistent cataphylls; 1c, lighter cataphylls; 1d, corm tunic; 1e, bract and bracteole; 1f, parts of corm tunic.

late forma ovalia, leviter exeuntia in acutum ad apicem, 32-38 mm, plerumque 34 mm longa (n = 5), 11-17 mm, plerumque 15 mm lata (n = 5). Latera exteriora et interiora segmenta omnino pallida usque ad saturate caerulea, pinnatinervia uterque plus minusve intense nervata atrocaerulea. Prophyllum abest. Bractea et bracteola adsunt, recutita, inconspicua, argentea-alba, brunneola ad apicem, 25 mm longa, 4-5 mm lata. Filamenta alba, 6-**8**-10 mm longa, glabra ad basem; antherae 11-**13.4**-15 mm longae, angustae, complanatae, indistinctae sagittatae, connectivum sine colore. Pollen flavum. Stylus aurantiacus, trifidus, alteruter ramus subdivisus summum in 2(3) ramos, qui porro subdivisi in multos ramos brevissimos ad apicem, vel trifidi cum solum brevissimis 4-5 subdivisionibus ad apicem. Styli plerumque superantes stamina. Capsula et semina non visa. Chromosomatorum somaticorum numerus 10.

Corm more or less irregularly formed, about 1-2 cm in diameter. Tunics membranous, very thin (photograph 1d). Membranes partly splitting from above into vertical bands (photograph 1d). Rings at base present but few, papery without significant teeth. Neck very short, below 3 mm, consistent of split bands, peaky at the apex. Cataphylls 3, silvery-white when young, brown when older, persistent. Leaves hysteranthous, 1-3 but in average 2.1 (n = 21), green, broadest part in the middle, 3-5 mm in diameter, glabrous, no ribs underneath. White stripe unusually thin, 1/5 to 1/8 of leaf diameter. Throat white to very pale yellow (colour-plate, photographs 2a and 3). Perianth tube yellow. Outer segments broadly egg-shaped, slightly peaked at the apex, between 32 and 38 mm but usually 36 mm long, between 9 and 15 mm, mostly 13 mm wide. Inner segments between 30 and 36 mm but usually 34 mm long and between

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Fig. 2-4: Flowering specimens of *Crocus striatulus* from type locality.

11 and 17 mm frequently 15 mm wide (for all measures n = 5). Inside and outside of all segments are light to deep blue, evenly feathered on both sides with more or less intense dark blue veins (colour-plate, photographs 2a-4). Prophyll absent. Bract and bracteole present, skinny, inconspicuous, silvery-white, at the apex brownish, 25 mm long, 4-5 mm broad (colour-plate).

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Filaments white, 6 - **8** - 10 mm long, no hair at basis (colour-plate, photograph 3); anthers 11 – **13.4** – 15 mm long, narrow, flattened at top, indistinctly arrow-shaped, connective colourless. Pollen yellow. The styles are orange, trifid, either branches subdivided into mostly 2(3) branches which are further subdivision into many very short branches at the apex; or trifid with only very short 4-5 subdivisions at the apex. Styles are mostly overtopping the stamens. Capsule and seeds not seen. Chromosome number unknown.

Distribution and habitat: Turkey, Lazistan, Giresun Province, Giresun Dağları. So far it is known only from two localities in the Giresun Dağları in open grassy areas, light forests and scrub, often together with *Rhododendron*. *Crocus striatulus* seems to occur only in non-calcareous soils.

Discussion

Crocus striatulus is named after its unusually small white stripe of the leaf (striatulus means narrow striped) which is certainly one of the narrowest of those crocus species with a leaf-diameter of more than 3 mm. In its general appearance it resembles greatly *C. speciosus*. Different to this one is also the corm tunic, which is membranous instead of being coriaceous. Further distinguishing features are the faint membranous stripes of the corm tunic, which split down from the apex to near the middle of the corm. The poorly developed papery rings are similar to those of *C. ilgazensis*. However, the results of the ITS analysis clearly separate it as a distinct taxon (see Harpke et al. 2013, Figs. 1, 52). Therefore, the most important morphological feature to distinguish this taxon from its relatives is a leaf parameter. Unfortunately, the identification key published by Rukšāns (2013) for series *Speciosi* lacks the characters of the white stripe as well as other leaf-parameters.

According to the recently established phylogeny of *Crocus* based on one chloroplast and two nuclear loci by Harpke et al. in 2013, the former small series *Speciosi* of Mathew (1982) is now part of a large clade merged into groups of species of former series *Reticulati* and *Biflori*. Although taxa of series *Speciosi* are grouped together within this clade their association to the other taxa belonging to series *Biflori* and *Reticulati* is unresolved. Therefore, at the present state of knowledge the taxonomical state of series *Speciosi* as a series is critical.

In addition, at least one more allied species of this group is known to us yet from the Antitaurus (to be described later), and it is probable that there are many more undiscovered species of this alliance in such a large region of distribution. All in all, it shows that the revision of *Crocus speciosus* in Turkey and Iran is not complete. Much more work is needed for this on a genetic as well as on a morphological and geographical basis.

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