

A DETAILED STUDY OF *CROCUS CARPETANI* SERIES

*Dr. R. B. Saxena

Drug Standardisation Research Section, Central Research Institute- Ayurveda, Aamkho, GWALIOR- 474009 (INDIA).

*Correspondence for Author: Dr. R. B. Saxena

Drug Standardisation Research Section, Central Research Institute- Ayurveda, Aamkho, GWALIOR- 474009 (INDIA).

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ABSTRACT

Crocus series : *C.aleppici*^[1], *Autumn crocus*^[2], *C. biflori*^[3], *C. biflorus*,^[4] *C. flavi*^[5], *C. longiflori*^[6], *C. orientali*^[7], *C. sativus*^[8], *C. scardici*^[9], *C. speciosi*^[10], *C. verni*^[11] and *C. versicolores*^[12] have been studied. Now the sub-species *Crocus-crocus carpetani* series are closely related and are difficult to be separated taxonomically and have a complex cytology. Botany of *crocus carpetani* series, taxonomy of their species and their infra-specific taxa are presented, and their distribution, ecology and phenology, description and chromosome counts are provided with key of their identification.

KEYWORDS: *Crocus*, Geographic area, Classification, Chromosome, Cytology, *Carpetani*- series, Phenology.

INTRODUCTION^[13-21]

The genus *crocus* L. consists currently of about 160 recognized species occurring from W Europe and NW Africa to W China, with the center of species diversity on the Balkan Peninsula and in Turkey. Mathew divided into sub- genera (not supported by recent phylogenetic research) and two- sections sub-divided into 15 series. Later, one more series was added and one series was moved to another section. The species discovered since then have been integrated into this classification, distributed sea (Portugal and W Morcco), Europe to W China and Mongolia. The center diversity of the genus in Turkey with more than 70 taxa and Greece with 33 taxa. The study shows` no support for a system of section as currently defined, although despite the many inconsistencies between Mathew's classification and current hypothesis.

The species evolution is generally accompaied or followed by partial changes in the chromosome complement and there can be few genera where such a wide range of variation occurs. The variation is, however, difficult to deal with or without informations of breeding systems, hybridization potential and the production of hybrids. So far, it has only been possible to make a comparative analysis of chromosome number and morphology, but these differences and similatries can be significant, and may well indicate barriers to successful inter-breeding. Although similar karyotypes do not revel the presence of symmetrical structural changes, it may generally be assumed that if the phenotypes are also alike, there is a probability that there are no barriers to gene exchange. If karyotype are observable different than inter-breeding is less likely.

Such chromosome barriers are of obvious importance and can be lead on the further divergene which may eventually give rise to acceptable species. The closely related species have been difficult to separate taxonomically and have also been found to be complex cytologically and have been treated as series.

BOTANY^[22,23]

The taxonomic classification of *crocus carpetani* series is follows :

- | | |
|--------------------|-------------------|
| 01. Regnum | Plantae |
| 02. Division | Spermatophyta |
| 03. Sub-division | Angiospermae |
| 04. Infra-division | Radiatopses |
| 05. Class | Monocotyledonae |
| 06. Sub-class | Liliidae |
| 07. Order | Liliales |
| 08. Family | Iridaceae or Iris |
| 09. Sub-family | Crocoidae |
| 10. Tribus | Croceae |
| 11. Genus | <i>Crocus</i> |

Genus *crocus*: **Herb:** small, perennial, cormous. **Corm:** usually symmetrical, enclosed by several tunics of variable texture and colour. **Cataphylls:** up to 5, sheathery the aerial shoot. **Leaves:** appearing with or after the flowers, all basal, flat or channeled (canaliculated) on the upper surface, lower surface usually strong keeled usually with two grooves, deciduous, simple, alternate, linear and sessile with entire margins and parallel venation, height 5-8 cm. **Flowers:** scape absent, one to several, each on a short, subterranean pedicel which is some-times sub tended by a membranous, sheathing prophyll. **Bract:** membranous.

Bracteole: similar or reduced or absent. **Perianth:** regular, tube long and narrow, glabrous or with ring of hairs in the throat at the insertion of the filaments, segments usually sub-equal. **Anthers:** usually extrose. **Style:** 3 lobed to multifid. **Ovary:** subterranean. **Fruit:** capsule cylindrical or ellipsoid, maturing or above ground level by elongation of pedicel. **Seed:** numerous, usually globose or ellipsoid, brownish or reddish, with a strophiole.

Section: Nudiscapus - species without basal prophyll.

Series *carpetani*: undersurface of the leaves rounded with grooves, upper surface channeled, spring flowering, style whitish, obscurely divided.

Crocus carpetanus Boiss and Reut^[24-30]

Herb: small, perennial, cormous. **Found:** SW Europe Portugal, Spain. **Native climate:** cold moist winter/spring. Dry summer. **Wild habitat:** volcanic rocky slopes, rocky open areas of forest clearance in granite formations, cliffs and alpine meadows area, thin woods. **Distribution:** inner NW Spain (Carpet NEW Monter-cordillera), Northern Portugal. **Altitude:** 1200 – 2300 m.asl. **Corm:** tunic fibrous, fibres finely reticulate and extend into a distinct neck. **Leaves:** 2-4, 1-2.5 mm. wide, very thick like to Romulea, 5-6 inside the white lines on the face are very large and very green only a thin border around it, present at anthesis. **Flowers:** 6-8 cm. high, solitary, crystalline white or pale lilac has a rich colour variations ranging from dark pinkish purple colour from east. Outside of very light veined petals, the flower colour is slightly darker than the right tube. **Throat:** whitish or slightly yellowish, glabrous. **Prophyll:** absent. **Bract and bracteole:** sub-equal, well exerted from the cataphylls, membranous white. **Perianth-tube:** 4-8 cm. long, whitish or purplish. **Segments:** 2-3.6 x 0.8 – 1.5 cm. obtanceolate, rounded. **Filament:** hairless. **Anthers:** yellow. **Pollens:** yellow. **Styles:** whitish or pale yellow, shorter than to slightly exceeding the stamens, divided obscurely into 3 branches, which are much expanded and fimbriate at the apex. **Capsule:** c. 1 cm., sub-globose. **Seeds:** sub-globose, pale brown, strophiole in distinct. 2n = 64.

Phenology: Flowering: February – March.

Crocus nevadensis Amo and Campo.^[27, 31-36]

Synonym (s): *Crocus algeriensis* Baker

Crocus atlanticus Pomal

Crocus marcetii Pau

Crocus nevadensis Sub-sp. *Marcetii* (Pau) P. Monts.

Crocus nevadensis var. *atlanticus* (Pomel) Pau and Font Quer.

Crocus versicolor Sub-sp. *Marcetii* (Pau) G. Monts.

Crocus versicolor var. *aragonensis* G. Monts.

Common name: Species crocus, Crocus.

Herb: small, perennial, cormous. **Native:** Sierra Nevada and Sierra de san Cristoval of Spains. **Found:** N Africa, Algeria, Morocco. Europe – SW Europe Spain. **Native climate:** cool moist winter, warm dry summer. **Wild habitat:** mountain meadows and stony places, grassy area. **Distribution:** SE of Spain (Sierra Nevada), northern Algeria, northern Morocco (Atlas Mountains). **Grows:** Morocco and Algeria in Oran. **Altitude:** 500 – 2300 m. asl. **Corm:** tunic fibrillin extends parallel to the neck. **Leaves:** 3 – 6, 1 – 2.5 mm. wide, thick, backing structure, green, alternate, present at anthesis. **Flowers:** 1 (-2), cream, white or pale lilac, mauve, purple veined, outer petals of the veins in the older flowers are pale green in grey. **Throat:** whitish or pale yellow, pubescent, short haired. **Prophyll:** absent. **Bract and bracteole:** well-exserted from the cataphylls, membranous, white, sub-equal or the bracteole much narrower. **Perianth tube:** 3-6 cm., whitish or lilac. **Segments:** 2-4 x 0.6 -1 cm., oblanceolate, obtuse. **Filaments:** white. **Anthers:** yellow. **Pollen:** yellow. **Styles:** whitish about equaling the stamens, obscurely divided into 3 branches and branch much-expanded and fimbriate. 2n = 26.

Phenology: Flowering : February – March.

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