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A DETAILED ATUDY OF *CROCUS FLAVI* - SERIES

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ABSTRACT

The genus *crocus* (family - Iridaceae) contains Ca. 150, small, corm bearing, perennial species having an old world distribution, primarily in the Mediterranean -Europe, W Asia and W China. These species are highly valuated as oranametal applications. Sub-genus *crocus* - *crocus flavi* series are closely related, and are difficult to be separated taxonomically and have a complex cytology. Botany of *crocus flavi* - 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 to their identification.

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Keywords:

Crocus, Geographic area,
Classification, Chromosome,
Cytology, flavi - series.

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INTRODUCTION

Crocus is a genus of the flowering plants in its Iridaceae or Iris family comprising approximately 150 taxa.^{1,2} Mathew's classification was based on three character states : (1) presence or absence of a prophyll (a basal spathe) (2) aspect of the style and (3) corm tunic, for 80 species,³ distributed mainly in the Mediterranean region.⁴ The species discovered since then have been integrated in to 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.⁵⁻⁸ The study shows 1 no support for a system of sections as currently defined', although despite the many inconsistencies between Mathew's classification and current hypothesis.⁵ Two section sub-divided into 15 series. Later one more series was added⁹ and one series was moved to another section.¹

The species evolution is generally accompanied or followed by partial changes in the chromosome complement and there can be few genera where such a wide range of variation occurs.^{10,11} The variation is, however, difficult to deal with or without in formations 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 similarities can be significant, and may well indicate barriers to successful inter-breeding. Although similar karyotypes do not reveal the presence of symmetrical changes, it may generally be assumed that if the phenotypes are also alike, there is a probability that there are no barriers to gene exchanges. If karyotypes are observably different than inter-breeding is less likely.^{4, 12 - 15} Such chromosome barriers are of obvious importance and can 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 the series.^{16 - 18} These physiological features have been discussed by the genus into a hierarchy of sub-genera , section and series of *crocus flavi*.

TAXONOVIGATION

01. Domain	Eukaryota
02. Kingdom	Plantae
03. Sub-kingdom	Viridiaeplantae
04. Phylum	Tracheophyta
05. Sub - phylum	Euphyllophytina
06. Infra-phylum	Radiatopses
07. Class	Spermatopsida
08. Sub-class	Liliidae
09. Super-order	Lilianae
10. Order	Asparagales
11. Family	Iridaceae or Iris
12. Sub-family	Crocodeae
13. Tribus	Crocee
14. Genus	<i>Crocus</i>

Genus *crocus* : **Herb**: small, perennial, cormous. **Corms** : oblate, covered with tunic. **Leaves** : few, all basal, green, adaxially with pale, median strips, base surrounded by membranous, sheath like leaves. **Aerial stems** : not developed. **Flowers** : emerging from ground, with peduncle and ovary sub-terrestrial. **Perianth** : white, yellow or lilac to dark purple. **Tube** : long, slender, segments similar, equal or sub-equal. **Stamens** : inserted in the throat of the perianth tube. **Style**: 1, slender, distally with 3 to many branches. **Capsule** : small, ellipsoid or oblong - ellipsoid. **Seed** : coats covered with dense mat of papillae.¹⁹

Section : Nudiscapus - Species without a basal prophyll.

Series flavi : Spring flowering, fls - dark yellow or orange. Style yellow, anther yellow. Leaves synanthous. Prophyll absent., bracteole present, tunic membranous, with parallel fibres, with no distinct horizontal rings at base. Crystals types typical styloids. Calcium oxalate can be found in all major groups of plants. This may be collected in several different crystal types.²⁰ The following species of *crocus* are induced for description :

Crocus antalyensis Mathew²¹

Crocus antalyensis belong to the group of bulbous and tuberous plant. **Distribution :** W Turkey. **Native climate :** cold winter, dryish summer. **Wild habitat :** wood land clearing, scrub, open slopes. **Corm :** ovoid, ca. 15 mm, tunics papery, dark brown, breaking up at the base into numerous parallel fibers with a persistent neck. **Cataphylls :** up to 6, white, yellowish brown when dried. **Leaves :** 2 - 8, deciduous, simple, alternate, linear and sessile with entire margins, parallel venation, synanthous, generally do not exceed the flower at anthesis, 0.5 - 1 mm. width. **Flowers :** cup-shaped, arranged solitary, white. **Perianth :** striped on out side of the outer perianth segments, generally 2; 1 obovatus in shape, obtuse, outer perianth segments, 5 - 12 x 14 - 27 mm., inner perianth segments 5 - 9 x 17 - 28 mm. **Throat :** yellow, glabrous. **Prophyll :** absent. **Bract :** papery ca. 6 x 70 mm. **Bracteole :** papery 2 x 60, yellowish brown when dried. **Filament :** 4 - 7 mm. pilose yellow. **Anthers :** 8 - 12 mm., yellow. **Pollen grains :** creamu-white. **Styles :** yellow, divided into 5 - 15 branches. **Fruit :** capsule loculicidal. 2n = 8.

Phenology : Flowering : Spring.

Characteristics : *C. antalyensis* was not found until recently since it is wide-spread in W Turkey. *C. antalyensis* has a very great variation.²²

Crocus antalyensis* ssp. *anatolyensis^{21,23-24}

The general description is the same as that of *c. antalyensis* but with the following characteristic : **Corm :** tunic, structure-parallel or membranous, dark brown, breaking up at the base into numerous parallel fibres with a long dark brown persistent neck. **Leaves :** 3-8, synanthous, equal to or shorter than flower at anthesis, 150 - 200 mm. length (mature). **Flowers :** pale to deep lilac blue with a bluish suffusion on the outside of the base of outer segments. **Style :** divided into 6 - 12, slender orange or yellow branches.

***Crocus antalyensis* ssp. *striatus* ssp. nov.**²⁵

Native : Turkey, cl : Mugla, surrounding hills of Mugla. **Altitude :** 900 - 1050. **Corm :** ovoid, ca. 15 mm., tunics rough, papery, light brown, breaking up at the base into numerous parallel fibres with a persistent neck. **Cataphylls :** 2-3. **Leaves :** 4, synanthous, exceeding the flower at anthesis, 1 mm. wide, 300 - 320 mm. long (mature) and recurved. **Flowers :** pale lilac-blue, flecked on outer perianth segments, distinctly striped on the outside of the inner perianth segments, elliptic to ovate in shape, obtuse, 9 - 10 mm. wide, 20 - 25 mm. long. **Throat :** yellow pubescent. **Prophyll :** absent. **Bract :** papery, white, suffused with brown. **Bracteole :** papery, very narrow, ligulate. **Filaments :** 6 mm. pubescent. **Anthers :** 12 mm. yellow. **Style :** divided into 8 comparatively deep, pale yellow or white branches. 2n = 8

Phenology : Flowering : Spring.

Characteristics : *Crocus antalyensis* ssp. *striatus* differs morphologically from *C. antalyensis* ssp. *antalyensis* : **Corm :** rough papery, light brown, breaking up at the base into numerous parallel fibres with a persistent neck. **Leaves :** 4, synanthous, exceeds the flower at anthesis, recurved, 300 = 320 mm. length (mature). **Flowers :** pale lilac-blue, flecked on outer perianth segments, striped on the out side of the perianth segments. **Style :** divided into 8, comparatively deep, pale yellow or white branches.

Crocus antalyensis ssp. *striatus* is phenotypically closest to *crocus antalyensis* ssp. *antalyensis*. Both have same diploid number of 2n = 8, but their karyotypes are morphologically distinct. *C. antalyensis* ssp. *antalyensis* has a complement medians and one pair with sub-median constrictions. The new ssp. has complement consisting of one pair of the longest median, two pairs of smaller sub-median and one pair with subtelocentric chromosome.

Crocus antalyensis* ssp. *gemicii ?ik & Erol²⁶

Botanical name : *crocus antalyensis gemicii* ?ik & Erol.

Morphological data on *C. antalyensis* ssp. *gemicii* were obtained from the type locality (Fethiya, Mugla), including total of 10 individual. **Distribution** : Turkey : Mugla. Fethiye to Antalya open areas in Pinus nigra forest. **Altitude** : 1300 m. **Corm** : ovoid, ca. 15 mm., tunics papery, dark brown, breaking up to the base into numerous parallel fibres with a persistent neck. **Cataphylls** : up to 6, white, yellowish brown when dried. **Leaves** : 2-8, synanthus, generally do not exceed the flower anthesis, 0.5 - 1 mm. width. **Flowers** : white, waist- shaped striped on out-side of the perianth segments, generally 2 : 1 obovatus in shape, obtuse, outer perianth segments 5 - 12 x 14 - 27 mm., inner perianth segments 5 - 9x 17-28 mm. **Throat** : yellow glabrous. **Prophyll** : absent . **Bract** : papery, ca. 6 x 70 mm. **Bracteole** : papery, 2 x 60 mm. yellowish brown when dried. **Filaments** : 4 - 7 mm. pilose yellow. **Anthers** : 8 - 12 mm. yellow . **Pollen grains** : creamy-white. **Style** : yellow divided into 5 - 15 branches. $2n = 6$ or 8.

Phenology : Flowering : Spring.

Characteristics : Morphological differences between the subspecies of *crocus antalyensis* : *C. antalyensis* ssp. *gemicii* ,ssp. *antalyensis* and ssp. *striatus* differs morphologically : Leaves : number and position at anthesis : *gemicii* : 2 - 8, synanthous generally do not exceed the flower at anthesis . Flowers : white, striped on outside of the outer perianth segments, waist. Style : divided into 5 - 15 slender yellow branches, *antalyensis* : Leaves number and position at anthesis : 3 - 8, synanthous, equal or shorter than flowers of anthesis. Flowers : pale to deep lilac-blue with a bluish suffusion on the outside of the base of outer segments, I fundibular. Style : divided into 6 - 12 slender or yellow branches. *Striatus* - leave number and position of anthesis : 4, synanthous, exceed the flower at anthesis recurved. Flowers : pale, lilac-blue, flecked on outer perianth segments, striated on the out-side of the inner perianth segments, infundibular. Style : divided into 8 comparatively deep pale yellow or white branches.

Crocus antalyensis ssp. *mariner*²⁷

Distribution : endemic/ SW Anatolia/ Mugle. **Habitat** : Pine forests, wet and flooded meadows of the surrounding areas are very rarely seen. **Altitude** : 1250 - 1350 m. **Corms** : tunic, a long neck and at the bottom is divided into fibrils . **Leaves** : 2 - 8 units, 0.5 - 1.0 mm. at the level of the flowers are blooming period. **Flowers** : usually white, rarely lilac, the outer surface, fine-grains dark purple in colour, feather acaents and is also very beautiful point. Flowers on the face of the outer most vessels in evident. Certain light is full open flowers. Flowers on the upper side of the closed ward light and is quite balons. May be biflorus crocus mean-looking Turkey would be easier. **Throat** : yellow, featherless. **Anthers** : 8-12 mm. yellow filaments 4 -7 mm. **Style** : yellow or orange in colour, multipart 5 - 15, anther branch into the mid-level and reaches up to the top-level anthers. $2n = ?$

Phenology : flowering : February - March

Characteristics : ssp. level and less fragrant in the middle of anthers. According to scientific articles pilosa (hairy) (evident in the examples that I tested, but did not come across as feather) and are yellow in colour.

Crocus candidus Clarke^{28 - 30}

Naming of *c. candidus* was described by Edward Daniel Clarke in 1812.

Synonym (s) : * *Crocus fleischeri* Baker (illegiti mate)

* *Crocus kirkii* Maw

* *Crocus lageniflorus* var. *candidus* [E.D. Clarke] Herb

Crocus candidus is also called ` Little tiger`.

Distribution : NW Asiatic Turkey. **Native climate** : cool, moist winter, warm dry summer. **Wild habitat** : stony places, scrub, over lime stone. **Altitude** : low. **Corm** : tunic membranous splitting to parallel fibres near the base but not into rings, **Tunic ring** : absent. **Leaves** : 1 or 2 wide leaves per corm, deciduous, simple, alternate, linear, sessile with entire margins, parallel venation, revolute, thin long, ends reach to the base of carina. **Keel** : comers ⁺. acute, base narrow, dark green, up to 9 mm. wide, appearing with flowers. **Flowers** : 5 - 7 cm. tall, cup-shaped, arranged solitary, white. **Throat** : yellow. **Perianth segments** : sub-acut, obtuse. **Petals** : outer usually speckled grey/purple. **Anthers** : yellow. **Styles** : 6. **Capsule** : loculicidal. $2n = 6$.

Phenology : Flowering : March - April.

Crocus flavus Weston^{31 - 34}

Crocus flavus ssp. *flavus* Weston

The Latin specific epithet *flavus* means 'pure yellow', spring yellow crocus known as *Crocus x luteus* 'Golden yellow'.

Synonym(s) : * *Crocus aureus*

* *Crocus moesiacus*

* *Crocus flavus*

* *Crocus luteus*

Scientific name : *Crocus maesiacus* Ker. Gawl

Botanical name : *Crocus flavus*, *Crocus* 'yellow Giant'

Common name : Bottle-flowered crocus, Dutch yellow crocus, Yellow crocus, *Crocus* 'yellow Giant', *Crocus flavus* 'Yellow Giant, Yellow Mommoth.

Habit : erect, clump-forming. **Growth habit :** Forb/herb. **Plant type :** bulb. **Native :** Greece, former Yugoslavia, Bulgaria, Romania and NW Turkey. **Wild habitat :** woods, scrub and grass land. **Duration :** perennial. **Altitude :** 1200 m. **Height :** up to 10 cm. **Spread :** 0 - 0.1 m. **Time of ultimate height :** 2 - 5 years. **Corm :** 1 - 2.5 cm. diameter, depressed globose, strong ridged, deep russet in colour, membranous, splitting into vertical fibres and lacking distinct horizontal rings at the base. **Leaves :** 4 -8, usually 5, size about 10 - 23 cm. x 1 - 4 cm., erect, synanthous, green with a distinct white median stripe, pubescent. **Stem :** no more than 5 - 6 cm. above the ground. **Flowers :** usually 1, sometimes 2. **Perianth :** segments, dark yellow or orange, 1 - 3.5 X 0.5 - 1.5 cm. in size. **Throat :** yellow. **Filament :** yellow or orange, 2 - 5 mm. size. **Anthers :** yellow, 8 - 12 mm. size. **Style :** shorter than anther, yellow, divided into 3 short, usually expanded branches. **Capsule :** loculicidal. $2n = 8, 8+11 B$.

Phenology : Flowering : February - April.

Characteristics : In UK, it has been cultivated for over 400 years. It is not big *Crocus*. Its cultivars are used as ornamental plants.

Crocus flavus ssp. *dissectus* 'Dutch yellow' ³⁵⁻³⁷

Synonym (s) : * *Crocus mouradii* Whittall

Common name : Yellow Mammoth, Yellow crocus, Saricigdem, Saffron, Dutch yellow.

Habit : Herb/Forb. **Life cycle :** perennial. **Distribution :** W Turkey. **Native climate :** Mediterranean. **Wild habitat :** thin woodland or scrub. **Spread :** Balkans to Turkey, in grass lands, scrub or light woodland. **Native :** Turkey. Locality : Kutakya, Efendikopmosu - Gediz arase. **Altitude :** 140 - 1200 m. **Corm :** tunic parallel fibre membrane with a tuft of fibres extending above the top of the corm. **Tunic ring :** absent. **Leaves :** 4 - 8 with flowers, green. **Flowers :** 9 - 12 cm. tall, deep orange-yellow, occasionally pale yellow. **Throat :** yellow. **Shape of perianth segments :** sub-acute, acute. **Anthers :** yellow. **Style :** branches numbers. **Capsule :** small ellipsoid. $2n = 8$.

Phenology : Flowering : Spring.

Characteristics : Distinct from ssp. *flavus* by its smaller flowers and many branch styles (*C. flavus* has simple three branched style).

Crocus flavus ssp. *sarichinarenis* Ruksans ³⁸

Culturally yellow *C. antalyensis* ago as there were in some of the suppliers selling flower seeds. Recently a new type of Janis found in nature. This species is extremely rare in nature. It is known only from the location where discovered, and its location is very limited number. In the absence of new populations do think it is a kind of protection, you need. *C. antalyensis* grown in field conditions it is very nice. A very nice catching up in also required.

Most interesting was explaining of *Crocus* name I named it by mountain ridge where it grows- Sarichinar Daf. Janis did not know it before, but Sari- Chinar in Turkish mean - yellow plantanus where think is locus classicus of this taxon ?.

Native : Sarichinar -Dag . **Life form** : tuber, geophytes. **Locality** : Sarichinar = Dag, N slopes, 50 km N from Antalya. **Type location** : holotype GB. **Distribution** : Endemic/ Turkey (w Asia, Asia-temperate)/ Antalya. **Habitat** : forests and shrubs at the edges slightly woodland areas between the semi-shade. **Altitude** : 1140 - 1170 m. **Corm** : tunic papery, a short neck and the lower side firillin. **Leaves** : leaves flowers blooming period is longer than the neck of Flavis is thinner than other types. **Flowers** : wide within this group is the smallest, off-white, beige, light or dark yellow. *C. antalyensis* same as the outer petals, coffee - burgundy striped or mottled light is between. **Segments** : stylus is usually the same colour with light yellow petals, a significant piece. **Anthers** : higher level. **Capsule** : 0.6 - 1.0 cm. length, loculicidal. $2n = ?$

Phenology : Flowering : February - March.

Characteristics : Equivalent - ssp. *antalyensis* (white in colour), ssp. *dissectus* (flowers completely yellow and not have a line on the outer surface just any one).

Crocus graveolens Boiss. Reut.³⁹

Synonym (s) : * *Crocus lagniflorus* var. *syriacus* Herb

Common name : Rue

Naming *crocus graveolens* was described by Pierre Edmond Boissier and George Francosis Reuter in 1882. **Distribution** : SW Turkey, NW Syria, Lebanon and N Israel. **Native climate** : Mediterranean with montane in fluenas , cold winter with snow. **Wild habitat** : in rocky places or scrub/woodland and clearing often over lime stone. **Altitude** : 500 - 1600 m. **Corm** : tunic membranous when young, splitting lengthways with age. Unpleasantly scented ? **Leaves** : 8, produced with the flowers, deciduous, simple, alternate, linear and sessile with entire margins and parallel venation. **Flowers** : 7 - 8 cm. high, cup-shaped, solitary, smallish narrow petalled yellow or orange yellow, variously marked with brown/purple, normally striped and feathered outside, some forms having a pungent scent, spring. **Fruit** : produced loculicidal capsule . $2n = 6$.

Phenology : Flowering : Early spring.

Characteristics : Despite the interest of variable external making this species has little horticultural merit. In U.K. gardens the small stary flowers are usually produced in winter and quickly become ungainly as the tube elongated. Needs a bulb frame and even their increases only slowly.

Crocus hyemalis Boiss, et Blanche⁴⁰

Hyemalis means of winter, wintry. The standard author abbreviation Boiss, is used to indicate Pierre Edmond Boissier (1810 - 1815), a Swiss Botanist, explorer and mathematician and standard abbreviations Blanche is used to indicate Emanuel Blanche (1824 - 1908) a French botanist.

Synonym (s) : * *Crocus hyemalis* var. *foxii* Maw ex Boiss.

Common name : Crocus.

Crocus hyemalis belong to the group of bulbous and tuberous plant. **Habitat** : Batha, Phrygana. **Distribution** : Mediterranean woodlands and scrub-land, semi-steppe shrub lands chorotype - Mediterranean. In Isreal - Gallilee, upper Jorden valley, Gilboa, Carmel, Samarian mountains, Judean mountains, Sharon, Shefela. This is rare species in cultivation but ironically it is spread widely across Syria, Lebanon, Jorden and commonest *crocus* in Israel. **Life form** : geophytes corm. **Stems** : 4-8 cm. high. **Leaves** : all basal rosette, narrow ensiform leaf with white central strips, deciduous, simple alternate, linear, sessile with entire margins and parallel venation. **Inflorescence** : solitary. **Flowers** : fragrant, white, slightly flecked with varying amounts of violet on the reverse, cup- shaped. **Throat** : internally deep golden, almost orange, shows through translucent petals to the outside. **Anthers** : stunning black, 3. **Style** : orange, 15 branches. **Fruits / pods** : capsule, numerous seeds. $2n = 6$.

Phenology : Flowering : January, February, November, December.

Characteristics : This is not one for a garden, as it is tender in very severe winter and it may need frost protection (it does not need more than this and dislikes too much heat) in cold climate, so alpine house is best-unless wish to take a gamble, under glosses it starts blooming in mid-winter and carriers on until January.

Crocus olivieri J. Gay.⁴¹

Crocus olivieri ssp. *olivieri* Gay J.^{41,42}

Crocus olivieri was named after the botanist Guillaume Olivier, who collected in an Aegean island. It is tarbulens - was discovered and introduced to the world by British Scientist Brian Mathew in 1982. Found only in the Aydos woods in Istanbul Sultanbeyli district, it normally blossoms in February. Typically only 20 to 30 plants are found in the woods each year.

Synonym (s) : * *Crocus aucheri* Boiss

* *Crocus syriacus* techich., nom. Illeg.

* *Crocus suterianus* Herb

* *Crocus sulphureus* Klott, nom. Illeg

* *Crocus olivieri* forma *balcanicus* Kitan & Drenk

* *Crocus lageniflorus oliverianus*

Scientific name : *Crocus olivieri* ssp. *olivieri*

Habit : Herb/ Forb. **Native :** E Aegean island, Albania, Bulgaria, Greece former Yugoslavia, Romania, Turkey - Asiatic Turkey and Turkey in Europe. **Distribution :** Macedonia, SE Romania, S Bulgaria, Albania, Greece, Turkey. **Native climate :** Mediterranean. **Wild habitat :** stony or grassy place and in scrub or thin woodland. **Corm :** tunic membranous splitting at base. **Leaves :** very broad, deciduous, simple, alternate, linear sessile with entire margins and parallel venation. **Inflorescence :** solitary. **Flowers :** cup-shaped, orange/yellow. **Style :** 6, branched. The plant produce loculicidal capsule. $2n = 6$.

Phenology : Flowering : February.

Characteristics : ssp. *olivieri* has unmarked flowers.

Crocus olivieri ssp. *balansae* (J. Gay ex Maw) Mathew^{23,24, 43-44}

Crocus olivieri ssp. *balansae* `Zwanenburg` was already described and the name validly published by George Maw based on a prior description by Jacques Etienne Gay. It was Brian Frederick Mathew, however, who reclassified it in to to-days valid botanical systematics.

Synonym (s) : * *Crocus balansae*

Common name : Crocus

It belongs to the group of bulbous and tuberous plant. **Habit :** Herb/ Forb. **Native :** Greece, Turkey. **Growth habit :** rosette. **Life cycle :** perennial. **Native climate :** Mediterranean. **Wild habitat :** open slopes and in scrub. **Altitude :** 1000 m. **Height :** 2 - 5 cm. **Spread :** 0.25 - 0.4 m. **Distribution :** native W Turkey. **Corm :** tunic, membranous, splitting at the base. **Leaves :** green, deciduous, simple, alternate, linear sessile with entire margins and parallel venation. **Inflorescence :** solitary. **Flowers :** cup-shaped, deep orange-yellow, with a polished deep-bronze basal zone running up the tube, and continuing as fine strips on the polished exterior. **Style :** divided into 12 - 15 branches. It produces loculicidal capsule. $2n = 6$.

Phenology : Flowering : March.

Characteristics : *Crocus olivieri* ssp. *olivieri* has unmarked flowers, but ssp. *balansae* has dark marking on the backs of the perianth.

Crocus olivieri ssp. *istanbulensis* Mathew^{42, 45-47}

There are a bulbous plant with the Latin name *istanbulensis*, it grows only in the mountains Aydos Omerlibasin. It is also a specific to the Anatolian side of Istanbul, shrub berry, a very rare plant. There are only three areas in this region grows. Wrong in a few places where limited offorestation, under threat due to rapid and unplanned.

Synonym (s) : * *Crocus olivieri* ssp. *istanbulensis* Mathew B

Habit : top of hill and the opening in the bush areas. **Native :** Turkey. **Life cycle :** perennial. **Distribution :** Endemia/Turkey/Istanbul Anatolian side. **Altitude :** 150 - 200 m. **Corm :** tunic top side of the bottom of the vertical fiber is braided. However this is only seen in older bulbs that have not been regularly deaned, crystal type-typical styloids. **Leaves :** rarely 2-3, 4 together with the looming of the flowers are at or longer, green. **Flowers :** light or dark yellow, larger than other types of crocus. Generally each side of the flowers, including flowers tube is yellow uniform, although some forms of flowers in the tube is lightly freckled brown. **Anthers :** flowers throat filaments and the same colour is yellow. **Styles :** same colour of petals, rarely darker orange colour. 6 pieces each time, the level of anthers rarely can up or down. **Capsule :** small, ellipsoid or oblong-ellipsoid. $2n = 6$.

Phenology : Flowering : February - March

Characteristics : It is rarely is an endemic crocus. At one point in Istanbul and in the world is a very narrow area. And in that region compared pine trees planted these trees seem to be very difficult in the winter sun has hegrows up. Because pine trees that lose of their leaves in the winter sun has no change to these plants.

Equivalentents : ssp. *olivieri* (thick membranous tunic top side of the bottom one-piece fiber piece), ssp. *flavus* and *dissectus* (leaves a thin high numbered neck tunic is significant).

Crocus vitellinus Wahlenberg ^{23,24,48-49}

Received from Maurice Boussard as *graveolens*, has in turn received it from Pere Paul Mouterde a long time ago. Mouterde thought it probably was a form of *crocus vitellinus* but was not convinced these two should be treated as different species anyway. The differences are fainter perfume and slightly later flowering time of *vitellinus*.

Synonym (s) : * *Crocus syriacus*

Common name : Species crocus, crocus

Cultivar name : Vitellinus

Crocus vitellinus belongs to the group of bulbous and tuberous plant. **Habit :** Herb/ Forb. **Distribution :** S Turkey, W Syria, in Israel- Gallilee. **Native climate :** cool winter, warm drier summer. **Wild habitat :** stony places, scrub, thin woodland. **Life form :** geophytes. **Life cycle :** perennial. **Corm :** tunic thickly membranous, splitting into parallel strips. **Leaves :** deciduous, simple, alternate, linear, sessile with entire margins and parallel venations, green. **Flowers :** solitary, cup-shaped, orange-yellow, sometimes marked purple/brown on outer petals, petals- broad, vivia yellow flowers each of which has a distinct orange zone in the throat. **Anthers :** yellow. **Styles :** orange, divided. The flowers are marked with bronze feathering out-side. **Capsule :** loculicidal. $2n = 8$.

Phenology : Flowering : January - February.

Characteristics : The closer plant is *crocus graveolens*. It can easy to distinguish by its larger flowers and fewer, dark green leaves.

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