

Monograph – *Crocus sativus*

Botanical Name

Crocus sativus Linn.

Family

Iridaceae

Common Names

Za'frān, Kesar,
meadow crocus, saffron.

Description

Saffron (*Crocus sativus* L.) is a species belonging to the Iridaceae family and has been widely used as an herbal medicine, spice, food colouring,



and a flavouring agent since ancient times. It is a perennial bulbous plant that grows 8 to 30 cm high. The plant has a large squat tuber surrounded by reticulate and fibrous sheaths. The leaves are erect or splayed, narrow, and have a ciliate margin and keel. The lily-like flowers have two bracts at the base. There is a pale violet-veined calyx, yellow anthers, and white filament. The thread-like style of the plant is 10 mm long and stigma is bright orange. [4] This plant is cultivated in Europe, Turkey, Iran, Central Asia, India, China, and Algeria. In Iran, it is cultivated in the south Khorasan province from ancient times. [4] The dried stigma and tops of styles constitute the saffron of commerce. [4]

Qualities

Crocin, crocetin, and safranal are the main chemical constituents of saffron. ^[4]

Taste

The bitter taste of saffron is attributed to picrocrocin. ^[4]

Colour

Fresh saffron of good quality is when the upper part of its stigma should be whitish in colour and without fungal infestation. It should neither be too compact and thick nor crumbling and it should not easily impart its colour on touch. ^[5] The colour of saffron is due to the presence of crocins, which have glycoside carotenoid structure. ^[4]

Aroma

Safranal is an aromatic aldehyde which is the main component of plant volatile oil. ^[4]

Storage

Keep it in a warm dark place, away from sunlight.

Mizāj

Hot in the second degree and dry in the first degree.

Actions

Saffron is Qabez – astringent, Mohallel – resolvent and Munzij – concoctive. It is moderately hot and deobstruent. According to Galen its heat is more than its astringence. Its oil is warming. It reverses putrefactive processes and strengthens the viscera. ^[5]

History and Tradition

Saffron, on account of its brilliant yellow colour, like that of the rising sun, has been especially valued by human beings from the earliest ages. In Persia the word 'zard, derived from 'zend', signifies 'yellow and saffron' and the sun is called 'zard-ru', 'yellow or golden faced'. The earliest medical writers mention saffron as a Heart Tonic and improving the complexion and brilliancy of the eyes. ^[6]

Saffron Sa-Fa-Lang, (Fan Hong Hua), is used in Traditional Chinese Medicine to remove stagnation, toxins and balance heart and liver meridians or channels. Saffron is arguably the most expensive herb in the world due to the amount of time and energy it takes to grow and harvest. ^[3]

In Tibb it is called 'sartāj-i-mufarrihāt' – king of exhilarants. Its actions are alterative, emmeagogue, carminative, stimulant, aphrodisiac, and rejuvenating. ^[6] In Ayurvedic tradition it is regarded as Sativic and gives energy to love and devotion. ^[7]

Parts Used: The stigmas of the flowers, the saffron of commerce, are of medicinal value.

Dose

- Tincture 5 to 20 drops
- Powder 30 grains

Correctives

- Berberis vulgaris
- Fruit

Important Formulations

- Dawa-ul-Misk
- Mufari Yaquti
- Reyvibe

Cautions

- In large doses it is an abortifacient.
- It is said that the three mithqal (13.5 gm) of saffron makes a person so overjoyed that, as a result, the person can die (of shock).^[5] This issue has been proved by the literature.^[4]

Uses

- Head: one of the most well known effects of saffron is its exhilarant and anti-depressant activity which leads to the sense of happiness and laughter. Jorjani has stated that: "Saffron is astringent and resolvent and its fragrance can strengthen these two effects. Hence, its action on enlivening the essence of the spirit and inducing happiness is great".^[4] Modern scientific evidence has also well supported the beneficial impact of saffron stigma and petal extracts as well as crocin in the treatment of mild to moderate depression. The positive effects of saffron in the improvement of depression symptoms have been confirmed by both animal and clinical data and are comparable to those of standard drugs such as imipramine and fluoxetine.^[4]
- Eye: strengthens eye-sight and prevents the morbid matters affecting it. It is useful in day blindness. Its collyrium is beneficial in cases of blue discolouration of the eyes, particularly, when

there is complication of some other ailment. ^[5] Saffron was used to prepare a special eye formulation called collyrium (Kohl) to treat a range of ophthalmic disorders such as cataract and conjunctivitis and to improve vision. The proposed traditional benefits are well consistent with the findings of modern scientific research. Saffron extract along with crocetin and crocin are effective for the enhancement of retinal blood flow protection against tunicamycin- and H₂O₂-induced retinal damage treatment of asthenopia and prevention of age-related macular degeneration. ^[4]

- Ear: it is useful in hot swellings of the ear. ^[5]
- Chest: saffron, especially its oil is inhaled by the patients of diaphragmitis and pleurisy of the false ribs. It acts as an expectorant and strengthens the respiratory organs. ^[5] It has been traditionally prescribed to improve respiratory function, asthmatic problems, and as a lung tonic. In this context, a relaxant effect on tracheal smooth muscle has been described for this plant. ^[4] Safranal has been reported as a phytochemical that plays an important role in the observed effects. ^[4] Finally, the bronchodilatory effects of saffron could be attributed to the stimulation of β ₂-adrenergic and H₁ histaminergic receptors while blocking the muscarinic receptors. ^[4]
- Heart: saffron is a very potent and expensive revitaliser and rejuvenator of circulation. It is an exhilarant and a cardiac tonic. As a tonic it catalyzes and enhances the action of other herbs and nutrients. It is an emissary herb for the human heart. ^[5] Saffron is a heart tonic that has been used to support the cardiovascular functions and treatment of palpitation. Several studies have

supported the cardioprotective and anti-atherosclerotic effects of saffron-derived bioactive components, crocin, and crocetin.^[4] The mechanisms underlying the anti-atherosclerotic effects include anti-hyperlipidemic and insulin sensitizing effects, inhibition of foam cell formation, oxidized low-density lipoprotein (LDL) uptake, aortic intima thickening, lipid absorption, and vascular cell adhesion molecule-1 (VCAM-1) expression, while boosting fecal fat excretion.^[4]

- Stomach: it is an emetic drug. It reduces the appetite because it counters the gastric acidity which stimulates appetite and strengthens the stomach.^[5] Saffron is a gastric tonic and suppresses the appetite. Razi has written: "Saffron is a digestive drug with astringent properties. It cleanses the stomach."^[4]
- Liver: strengthens the liver because it's warming, tonic, and astringent properties.^[5] This plant is a powerful liver tonic and hepatic deobstruent. Tabari has described hepatoprotective effects of saffron as: "It is warm, moderate, and dry. It is resolvent and bitter. Therefore, it can treat liver obstructions."^[4]
- Spleen: some physicians have the opinion that saffron is good for the spleen.^[5]
- Male: saffron also possesses aphrodisiac properties and hence used to cure impotence. There is experimental and clinical evidence indicating that saffron and its bioactive pigment, crocin, could improve sexual behaviours. The positive effects of saffron include increasing of libido, enhancement of erectile function, and amelioration of semen quality.^[4]

- Female: it is a diuretic and a stimulant of sexual desire. It is prescribed in hardness, blockage, adhesions and malignant ulcers of the uterus, especially when used with wax or with yolk of an egg and with its double quantity of olive oil. According to some physicians it is given orally to the women suffering from labour pain to facilitate quick delivery. ^[5] One of the most important effects of saffron is its potent oxytocic activity which is exerted even after local use. Hence, the plant has traditionally been prescribed to facilitate difficult labours. Razi has a note in this regard: "Ingestion of 6 to 7 grams of saffron induces the labour. I myself prescribed it for many times and the results were always successful".^[4] Antaki has written: "It has been experienced that oral use of 3.5 g saffron with rose water and sugar can facilitate delivery. Application of a vaginal suppository prepared by 3.5 g of saffron accelerates labour and delivery of the placenta. It has also contraceptive effects. ^[4] This plant has also been reported to be useful for the treatment of female genito-urinary system disorders. Heretofore, a number of surveys have indicated the clinically relevant effects of saffron, at different doses, in the management of premenstrual syndrome, dysmenorrhea, and irregular menstruation. ^[4]
- Skin: its oral use improves the complexion and it is also painted on erysipelas. ^[5]
- Legs, Feet & Bone: saffron is a dissolvent of swellings. ^[5]
- Cancer: during recent years, there has been a pile of in-vitro and in-vivo evidence indicating the promising anti-carcinogenic effects of saffron and, in particular, its bioactive phytochemicals (crocin,

crocetin, diglucosylcrocetin, and dimethylcrocetin) against different types of cancer. Such broad-spectrum antitumor properties of saffron is deemed to be due to its modulatory effects on gene expression, induction of conformational changes in DNA, induction of apoptosis, modulation of sigma-1 receptors, and scavenging of free radicals and inhibition of topoisomerase II. [4]

- Absorption Enhancer: in addition to the aforementioned indications, a very special effect has been reported by some of the mentioned authors regarding saffron which is the ability to increase the bioavailability and enhance absorption of other drugs. This action can increase the effects of a potent drug with undesirable effects which cannot be prescribed in high doses. [4]

Anti-inflammatory: properties of saffron and crocin have also been approved by recent studies and in different models of inflammation. [4]

Most of these beneficial effects of saffron in the mitigation of inflammation have been attributed to crocin and crocetin. Besides, the observed anti-inflammatory properties have been suggested to the positive impact of saffron and its phytochemicals in the enhancement of antioxidant enzymes as well as scavenging of reactive oxygen species which are key mediators in the promotion of oxidative stress and subsequent inflammatory response. [4]