ISSN: 2754-4990

Journal of Ophthalmology Research Reviews & Reports

SCIENTIFIC Research and Community

Mini Review

Open Access

Ancient Mysterious Herb Saffron and its Illuminative Phytochemicals Unus Herbal Luteum Pingere Pro Sanus Macula Lutea

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Received: February 25, 2025; **Accepted:** February 28, 2025; **Published:** March 11, 2025

Introduction

An ancient esoteric plant, Saffron (Crocus Sativus Linnaeus) with purple flower acts as a yellow dye and it has been used for culinary, medical, spiritual, religious and industrial purposes throughout the history. Furthermore, many studies indicate that bioactive carotenoid substances of saffron such as crocin, crocetin, and safranal, might have potential therapeutic effects with high potency against various neurological or metabolic disorders. In other respects, eye disorders such as agerelated macular degeneration and diabetic retinopathy represent most promising conditions because of the antioxidant and anti-inflammatory properties of saffron [1,2].

Even in Ancient Times Saffron was Used for Various Medicinal Purposes here are Some Important Uses

- **Pain Relief:** Saffron is thought to be effective against eye, ear and toothaches. It has also been used to treat ulcers.
- **Digestive Problems:** Saffron has been used to relieve stomach upsets; It is believed to strengthen the digestive system. It has positive effects on bile acids. Studies have revealed that crocin improves insulin resistance and regulates the lipid profile, which may indirectly affect the metabolism of bile acids. Additionally, crocin may reduce inflammation in the intestines by supporting digestive health and affecting the absorption of bile acids in the process [3,4].
- **Spiritual and Physical Relaxation:** Ancient physicians stated that saffron had calming effects and preferred it in the treatment of stress and anxiety. In the spiritual field, it has guiding esoteric meanings such as purifying, protecting, illuminating and sunlight. Deyrulzafaran Monastery is a historical building located in south east of Anatolia. The monastery, built in the 5th century, was expanded over time and was named Deyrulzafaran (Saffron Monastery). The monastery is still one of the most important religious places of the Assyrian people. The name of Deyrulzafaran Monastery comes from the yellow color and cinnamon scent of the flower saffron growing around it. According to rumors, saffron flowers were used in the construction of the monastery and the color of its walls was affected by this flower.
- **Aphrodisiac Effect:** Saffron has also been used for its sexual potency enhancing properties. Crocin is responsible for the characteristic golden yellow color of saffron with its coloring feature. It consists of the combination of gentiobiose disaccharide and crocetin dicarboxylic acid [5-7]. Additionally, crocin has antioxidant, anti-carcinogenic and neuroprotective effects; Therefore, its various health benefits are being researched.

This article primarily reviews the favorable effects of saffron on ocular pathologies via key mediators, target receptors, and likely mechanisms.

Saffron and Eye Health

- **Antioxidation:** Especially crocin and crocetin of saffron have highly potential antioxidant effects on retinal ganglion cells against the oxidative stress in age related macular degeneration disease and diabetic retinopathy [8-10].
- **Anti-Inflammation:** Safranal in saffron may also decrease the tissue damage and inflammatory response via reducing the cellular NF-κB, TNF-α, IL-1β, and IL-6 levels.
- **Blood Flow Regulation:** Increased intraocular blood circulation by virtue of vitamins E and A in saffron, supports the oxygen and nutrient delivery to the retina and choroid that reduces the retinopathy risk.
- **Regeneration:** Patients under supplementary saffron treatment may also have an improvement in visual acuity and retinal degenerative conditions.

Relative Key Mediators and Receptors

- **NF-κB Pathway:** Saffron's crocin and crocetin activate PI3K/Akt while inhibiting NF-κB, reducing pro-inflammatory cytokine release and oxidative damage. Evidence suggests crocin may treat glaucoma, macular dystrophies, diabetic retinopathy, and age-related macular degeneration by preserving retinal structure.
- **Antioxidant Defense:** Saffron augments endogenous antioxidant enzymes (e.g., SOD, GSH), mitigating oxidative injury to retinal cells and enhancing cellular repair.
- **GABA_A Receptors:** Safranal can modulate GABA_A receptors, lowering excitotoxicity in retinal neurons and contributing to neuro-protection.
- **PPAR Pathway:** Crocin and crocetin suppress inflammation and regulate fatty acid metabolism via PPAR-α and PPAR-γ, beneficial in metabolically related retinopathies, such as those linked to diabetes [11-13].

Take Home Message, Future Vision and Research Proposal

"Saffron Extract's Neuroprotective Effects on Digital Eye Strain" prolonged screen use induces dryness, irritation, and ocular fatigue due to increased oxidative stress and inflammation. Future clinical and experimental studies may assess saffron's role in these conditions. While saffron capsules do exist, novel formulations such as eye drops or ointments might deliver the active bio-components of saffron to the inner ocular tissues more appropriately. This pathway may increase patients' compliance and enable better therapeutic outcomes.

Conclusion

Saffron, with its rich phytochemical content, has a significant potential to modulate the oxidative stress, inflammation, and receptorbased reactions in eye diseases. Its potential protective and therapeutic effects on common eye issues such as agerelated macular degeneration, diabetic retinopathy, or digital eye strain, should be evaluated in greater detail in future clinical studies. This will pave the way for saffron to find wider applications in treatment approaches. This review article is not only for reinforce the scientific basis of saffron's traditional medical use, but also shed light on new applying approaches. Even though there are different clinical studies on advantages of supplemental Saffron use, the more detailed comparative clinical studies shall be required for the more effective treatment protocols.

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