



## Applications of Crocin

### Medicine

Herbal plants have used for folk medicine since immemorial times. Hippocrates who is the father of medicine, refer to 400 medicinal plants and advised “let food be your medicine and let medicine be your food”. Most of plants are used today for medicine. It is still acceptable today that prevention is more important than treatment. Saffron was utilized in folk remedy against scarlet fever, colds, asthma, eye and heart diseases, tumors, and cancer.<sup>1</sup>

Crocin , one of the active components of saffron has showed strong antioxidant effects. Saffron and its Crocins are potential anti-cancer and also a hypolipidemic and antioxidant agent, protects brain against excessive oxidative stress, protective on ischemic heart, useful in alleviation of cognitive deficits, possesses significant anti-proliferation effects on human prostate and colorectal cancer cells, aphrodisiac activity, immunomodulatory, beneficial in diabetic neuropathy treatment, effects glucose uptake and insulin sensitivity and too many other activities. Crocin showed various pharmacological effects on the nervous system such as antianxiety activity, antidepressant effects, aphrodisiac properties, learning and memory-enhancement.<sup>1</sup>

Alzheimer’s disease (AD) is the most common form of dementia, in which the death of brain cells causes memory loss and cognitive decline. Several factors are thought to play roles in the development and course of AD. Existing medical therapies only modestly alleviate and delay cognitive symptoms. Crocin is a unique antioxidant because it is a water-soluble carotenoid. Crocin has shown potential to improve learning and memory as well as protect brain cells. Crocin exhibits multifunctional protective activities in the brain and could be a promising agent applied as a supplement or drug for prevention or treatment of AD.<sup>2</sup>

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<sup>1</sup> Zeliha Selamoglu, Senay Ozgen , “Therapeutic Potential of Saffron Crocus”

<sup>2</sup> [John W. Finley](#), [Song Gao](#), “ Antioxidant and Potential Therapy for Alzheimer’s Disease”



Crocin analogs isolated from saffron significantly increased the blood flow in the retina and choroid as well as facilitated retinal function recovery and it could be used to treat ischemic retinopathy and/or age-related macular degeneration.<sup>3</sup> Ischemic retinopathy and age-related macular degeneration are the leading ocular diseases that cause blindness. The etiology of these diseases is due in part to the reduction of blood flow in the retina and/or choroid.<sup>4</sup>

Saffron has proven to be effective in different models of psychiatric disorders, including depression and anxiety. Studies on the bioactive substances of saffron in depression indicate that Crocin acts by inhibiting the reuptake of dopamine and norepinephrine neurotransmitters.<sup>5</sup>

Crocin has a specific, preventive effect on ethanol-induced impairment of learning and memory. Saffron extract or its constituents, especially Crocin, improves the impairment of certain types of learning and memory. Therefore, saffron and its active constituents should be useful for the therapy of CNS neurodegenerative disorders accompanying the impairment of memory and cognitive functions.<sup>6</sup>



**Pure Crocin**

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<sup>3</sup> Bilal Ahmad Wani\*, Amina Khan Rouf Hamza and F. A. Mohiddin, "Saffron: A repository of medicinal properties"

<sup>4</sup> [BO XUAN](#), [YH Zhou](#), [NA LI](#), [GEORGE C.Y. CHIOU](#), "[Effects of Crocin Analogs on Ocular Blood Flow and Retinal Function](#)"

<sup>5</sup> María José Bagur, Gonzalo Luis Alonso Salinas, Antonia M. Jiménez-Monreal, Soukaina Chaouqi, Silvia Llorens, Magdalena Martínez-Tomé and Gonzalo L. Alonso, "Saffron: An Old Medicinal Plant and a Potential Novel Functional Food"

<sup>6</sup> Kazuho Abe, Hiroshi Saito, "Effects of Saffron Extract and its Constituent Crocin on Learning Behaviour and Long-term Potentiation"