

## **Abstract**

**Objective:** Crocin is a hydrophilic carotenoid that constitutes 6 to 16% of the total dry matter of saffron. It is a diester of gentiubiose disaccharide and crocin dicarboxylic acid. It has many functions, it is known as an active medicinal compound, especially for its strong antioxidant activity. Such as. The potential beneficial effects of crocin against the development of allergic asthma as well as the expression level of Nrf2, COX2 and iNOS genes and the pathological and biochemical consequences related to it were carried out in an experimental model of allergic asthma caused by ovalbumin (OVA) in mice.

**Method and Materials:** The mice were divided into 5 groups (10 mice in each group): control group, ovalbumin group (OVA), ovalbumin + crocin 30 group (OVA+Cr30), ovalbumin + crocin 60 group (OVA+Cr60), and ovalbumin + dexamethasone group (OVA+Dex). Mice were sensitized by ovalbumin or normal saline, and at the end of the study, the amount of inflammation, pathological changes, and the expression level of Nrf2, COX2, and iNOS genes in the lung tissue of mice were determined.

**Results:** As a result of sensitizing with ovalbumin, the expression level of Nrf2 gene ( $P < 0.001$ ) decreased and the expression level of COX2 ( $P < 0.01$ ) and iNOS ( $P < 0.001$ ) genes in the lung tissue of rats compared to the control group. The control showed a significant increase. As a result, intervention with crocin (especially in high concentration) significantly prevented the reduction of Nrf2 gene expression and the increase of COX2 and iNOS gene expression.

**Conclusion:** The results of the current study revealed that under the intervention conditions with crocin, antioxidant factors (Nrf2) decreased and inflammatory factors increased.

**Key words:** asthma, crocin, albino mouse, Nrf2, COX2, iNOS.