

## **The effect of saffron on pulmonary function and serum levels of total oxidant status, total antioxidant capacity, and NF-κB in patients with chronic obstructive pulmonary disease**

### **Abstract**

**Background:** Chronic obstructive pulmonary disease (COPD) is characterized by systemic inflammation and accelerated pneumonia. Some studies have shown that saffron has a positive effect on relieving inflammation.

**Aims:** The main purpose of this study was the effect of using saffron supplement on serum levels of total oxidant status (TOS), total antioxidant capacity (TAOC), and NF-κB.

**Methods and material:** Fifty-six male patients with proven COPD were enrolled in a double-blind interventional clinical trial. Patients were randomly divided into two groups of placebo (n = 28) and intervention (n = 28). Exhalation volume of pressure in the first second (FEV<sub>1</sub>), forced vital capacity with pressure (FVC), level of TOS, TAOC and NF-κB in two times before intervention and 12 weeks after intervention according to international standards of obstructive pulmonary disease (gold) were estimated.

**Results:** The results showed that 12 weeks of intervention with saffron supplementation resulted in a significant reduction in TOS compared with the placebo group (P<0.05). Also, at the end of the study, it was found that there was a significant increase in serum NF-κB levels in the placebo group compared to the intervention group (P<0.05). On the other hand, treatment with saffron led to a significant increase in serum TAOC levels (P<0.05) compared with placebo group. The results of the 6MWD test also revealed that the mean of 6MWD in the saffron group at the end of the study was significantly higher than the placebo group (P<0.05).

**Conclusion:** In the present study, it was found that saffron supplementation may lead to an oxidant/antioxidant balance in COPD patients by reducing serum NF- $\kappa$ B levels, which requires further studies.

**Keywords:** Chronic obstructive pulmonary disease, Saffron, Total oxidative status, Total antioxidant capacity, NF- $\kappa$ B.