

## Effects of saffron (*Crocus sativus* L.) and its active constituent, crocin, on recognition and spatial memory after chronic cerebral hypoperfusion in rats

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**Background and Aims:** In this study, a rat model of chronic cerebral hypoperfusion was used to determine whether saffron extract and crocin, which are potent antioxidants and free radical scavengers, can reduce vascular cognitive impairment.

**Methods:** Male adult Wistar rats were administered different doses of an aqueous solution of crocin or hydroalcohol extract of saffron intraperitoneally (i.p.) 5 days after permanent occlusion of the common carotid arteries. Spatial learning and memory were assessed in training trials, 7–11 days after common carotid artery ligation using the Morris water maze.

**Results:** The results showed that the escape latency time was significantly reduced from 24.64s in the control group to 8.77 and 10.47s by crocin (25mg/kg) and saffron extract (250mg/kg). The traveled distance to find the platform was also changed from 772cm in the control group to 251 and 294cm in the crocin (25mg/kg) and saffron extract (250mg/kg) groups. The percentages of time spent in the target quadrant, in comparison with the control group (24.16%), increased to 34.25% in the crocin (25mg/kg) and 34.85% in the saffron extract (250mg/kg) group.

**Conclusions:** saffron extract and crocin improve spatial cognitive abilities following chronic cerebral hypoperfusion and that these effects may be related to the antioxidant effects of these compounds.

**Keywords:** *Crocus sativus*; Crocin; Memory; Chronic cerebral hypoperfusion