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Poster Presentation

Effects of Saffron Extract and its Active Constituent Crocin on Development of Neuropathic Pain in a Rat Model of Chronic Constriction Injury

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Abstract

Neuropathic pain is caused by a lesion or disease affecting the nervous systems, and is generally manifested as spontaneous pain, hyperalgesia, and allodynia. Previous study indicate that saffron has anti-inflammatory and antioxidant properties, we investigated whether saffron and crocin, a major constitute of saffron, would infleuence on behavioral responses of pain induced by chronic constriction injury (CCI). Adult male Wistar rats (200 to 250 g) were randomly assigned into 6 groups: Sham, CCI, CCI+ Saline, CCI+Saffron (30mg/kg) and CCI +Crocin (15) and CCI +Crocin (30). CCI was induced by setting four loose ligatures around the left siatic nerve of the rat. Two weeks after nerve lesion, injections of saline, saffron or crocin were started and continued every 24 hours until the day 26 post-surgery. Pain behavioral responses including mechanical allodynia (von Frey filament testing) and thermal hyperalgesia were measured at days 14, 17, 20, 23, 26, and 40 after CCI. CCI induced a long-lasting hyperalgesia to nocious heat and mechanical allodynia. Treatment with saffron and crocin (30 mg/kg) decreased thermal hyperalgesia and mechanical allodynia from the days 20-23 after surgery that lasted until the day 40. The lower dose of crocin (15 mg/kg) only decreased mechanical alodynia from the day 23 after CCI that lasted until the day 40. These findings indicate that treatment with saffron and crocin after CCI may have a therapeutic effect, suggesting that these subs tances may offer new strategies for the treatment of this highly debilitating condition.

Keywords: Saffron, Crocin, CCI, Allodynia, Hyperalgesia, Rat

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