

عنوان مقاله:

Histopathological and behavioral evaluations of the effects of crocin, safranal and insulin on diabetic peripheral neuropathy in rats

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خلاصه مقاله:

Objectives: Crocin and safranal, the major constituents of saffron, exert neuroprotective effects. In the present study, we investigated the effects of crocin and safranal (alone or in combination with insulin) on peripheral neuropathy in diabetic rats. Materials and Methods: Diabetes was induced by intraperitoneal (i.p.) injection of 60 mg/kg of streptozotocin (STZ) and confirmed by blood glucose level higher than 250 mg/dl. After confirmation of diabetes, crocin (30 mg/kg, i.p.), safranal (1 mg/kg, i.p.) (alone or in combination with insulin) and insulin (5 IU/kg, s.c.) were administered for eight weeks. Neuropathic pain was evaluated using acetone drop test. Histopathological changes of sciatic nerve were evaluated using light microscope. Blood glucose levels and sciatic nerve malondialdehyde (MDA) contents were also measured. Results: STZ caused cold allodynia, edema and degenerative changes of sciatic nerve, hyperglycemia and an elevation of sciatic nerve MDA levels. Crocin, safranal and insulin improved STZ-induced behavioral, histopathological and biochemical changes. Combined treatments produced more documented improving effects. Conclusion: The results of the present study showed neuroprotective effects of crocin, safranal and insulin in a rat model of diabetic neuropathy. In addition, crocin and safranal enhanced the neuroprotective effect of insulin. The neuroprotective effects of these chemical compounds could be associated with their anti-hyperglycemic and antioxidant properties.

کلمات کلیدی:

Crocin, Safranal, Insulin, Diabetic neuropathy, Rats

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