P03-173

EFFECT OF SAFRANAL, A CONSTITUENT OF CROCUS SATIVUS, ON MK-801-INDUCED BEHAVIORAL AND MEMORY DEFICITS IN RAT

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The psychotomimetic MK-801, non-competitive N-methyl-D-aspartate (NMDA) receptor antagonist, induce behavioral and cognitive impairments similar to those seen in schizophrenia. Safranal, a constituent of Crocus sativus (saffron), was found to have anti-seizure and anti-ischemic effects. In the present study, we investigated the effect of safranal on behavioral changes and spatial memory deficits induced by MK-801 in adult male Wistar rats, using radial maze. Safranal (72.75, 145.5 and 291 mg/kg, i.p.) was administrated 30 min before MK-801 (5 mg/kg, i.p.). Single systemic injection of MK-801 significantly increased locomotion, stereotypic behavior (rearing, grooming, sniffing) and ataxia ($p< 0.01$) which became evident on day 1. Moreover, average reference and working memory errors were significantly increased within 10 days after MK-801 administration ($p< 0.05$). Pretreatment with safranal (291 mg/kg) significantly reduced locomotor hyperactivity and behavioral changes elicited by MK-801 ($p< 0.001$). Average reference errors were also significantly decreased in comparison with MK-801 treated animals ($p< 0.01$). These data indicated that treatment with safranal attenuated behavioral and spatial memory deficits in a rat model of an acute psychotic episode.

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