

Original Paper

Combination therapy of hydroalcoholic extract of *Pistacia atlantica kurdica* and fluvoxamine on spatial memory of immobilization rat

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Abstract

Background and Objective: Oxidative stress causes disorder in the brain processes including memory. *Pistacia atlantica kurdica* (pistachio) contains antioxidant compounds, oleic and linoleic acid. Fluvoxamine is an antidepressant medicine which inhibits serotonin reuptake. This study was done to determine the effect of hydroalcoholic extract of pistachio and fluvoxamine on spatial memory of male rats under immobilization stress.

Methods: This experimental study was done on 30 adult male Wistar rats in 5 groups (n=6). The control group was not under immobilization stress. Animals in the stress group were just under immobilization stress. Animals in the pistachio group were under immobilization stress and were received 400 mg/kg/bw hydroalcoholic extract of pistachio. Animals in the fluvoxamine group under immobilization stress were received 120 mg/kg/bw fluvoxamine. Animals under immobilization stress, in the pistachio plus fluvoxamine group were received 400 mg/kg/bw hydroalcoholic extract of pistachio and fluvoxamine 120 mg/kg/bw. The radial arm maze test was used for evaluation of spatial memory. After the animals' decapitation, the malondialdehyde and catalase level in hippocampus and the serum level of corticosterone and blood glucose were measured.

Results: The stress significantly increased the time of reaching to target, malondialdehyde, corticosterone and blood glucose level, and reduced the catalase in stress group in comparison with controls (P<0.05). In the pistachio and the pistachio+fluvoxamine treated groups, the time of reaching to target, malondialdehyde, corticosterone and blood glucose level significantly reduced and the catalase level significantly increased in comparison with stress group (P<0.05) but fluvoxamine significantly increased the time of reaching to target, malondialdehyde and blood glucose, and reduced the corticosterone and catalase in compared to controls (P<0.05).

Conclusion: The immobilization stress led to attenuation of spatial memory and the fluvoxamine administration as an antidepressant drug caused to deterioration of memory, while the treatment with pistachio extract lead to improve the memory.

Keywords: *Pistacia atlantica kurdica*, Fluvoxamine, Immobilization stress, Spatial memory, Rat

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