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Protection against brain tissues oxidative damage as a possible mechanism for the beneficial effects of Rosa damascene hydroalcoholic extract on scopolamine induced memory impairment in rats

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Alzheimer's disease (AD) as the most common form of dementia is an age-related neurodegenerative disease. It is characterized by a progressive loss of memory and decline of comprehensive cognition. Hypnotic, analgesic, anticonvulsant, and antioxidant effects of *Rosa damascena* have been reported. This study, investigated the effect of *R. damascena* hydroalcoholic extract on memory performance in a scopolamine-induced memory impairment model.

The rats were divided into control group received saline; scopolamine treatment groups were daily treated by 50 and 250 mg/kg of *R. damascena* extract and were finally injected by scopolamine before each trial in Morris water maze. The brains were removed for biochemical measurements. Time latency and path length in the scopolamine group were higher than control ($P < 0.01$ to < 0.001). Both treatment groups showed shorter traveled distance and time latency compared with scopolamine group. Time spent in target quadrant by scopolamine group was lower than control, while Sco + Ext 250 group spent longer time in target quadrant than scopolamine group. MDA concentrations in hippocampal and cortical tissues of scopolamine group were higher, while thiol concentrations were lower than control ones. Treatment by both doses of the extract decreased the MDA concentration, while increased the thiol concentration. The results showed that the hydroalcoholic extract of *R. damascena* prevents scopolamine-induced memory deficits. This finding suggests that memory improvement may be in part due to the antioxidant effects.

Keywords: Memory, Morris water maze, *Rosa damascena*, Oxidative damage, Scopolamine

Biography

Sima gul Ghasemi, 25 years and she is studying medicine in Mashhad University of Medical Sciences, Iran. She has published 3 papers in neuropharmacology specially in Dementia. She is member of Pharmacological Research Center of Medicinal Plants, Neurogenic Inflammation and neurocognitive Research Center, School of Medicine, Mashhad University of Medical Sciences.

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