

Original Paper

Effect of alcoholic extracts of *Rosa canina* L fruit on hippocampus neuronal density in mice

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Abstract

Background and Objective: Brain is not able to produce new neurons by neurogenesis after maturity. Neurogenesis after the maturity was reported in Hippocampus and subventricular areas in the brain. *Rosa canina* L has various vitamins and other valuable compounds such as polyphenols, carotenoid, carbohydrates and fatty acids. This study was conducted to evaluate the effect of the alcoholic extract of the fruit of *Rosa canina* L plant on neuronal density of the hippocampus in animal model.

Methods: In this experimental study 24 adult male mice were randomly allocated into 4 groups including: control and three treatment groups. Animals in treatment groups 1, 2 and 3 were received the alcoholic extract with extract with a dose of 25, 50, 75 mg/kg/bw intraperitoneally (IP), for 21 day continuously with an interval of 24 hours, respectively. Animals in control group were received normal saline injection. One month after the first injection, the animals were anesthetized and brain gently was out of the skull. After processing, seven-micron serial sections were stained with blue toluidine and erythrosine. Different regions of the hippocampus were photographed and neuronal density was evaluated by stereological methods and was compared with control group.

Results: The mean neuronal density of CA1 area of hippocampus in control and the treated group with a dose of 25, 50, 75 mg/kg/bw was 55 ± 2 , 70 ± 3 , 65 ± 3 and 61 ± 2 , respectively. Neuronal density significantly increased in treatment group with dosage of 25 mg/kg/bw in compared to control group ($P < 0.05$). The mean neuronal density of CA2 and CA3 area of hippocampus in treated group with a dose of 25, 50, 75 mg/kg/bw was not significant in compared to controls.

Conclusion: This study showed that the alcoholic extract of the fruit of *Rosa canina* L plant with dosage of 25 mg/kg/bw increase neurons of the mice hippocampus.

Keywords: Hippocampus, Neuronal density, *Rosa canina* L, Alcoholic extract

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