Investigating effects of Iranian-native probiotics and Naringin on memory and APOE gene expression in a rat model of Alzheimer's disease induced by beta-amyloid

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Abstract

Background and Aim : Alzheimer's is the most common cause of dementia with the accumulation of beta-amyloid and causes the expression of the APOE gene with amyloid plaques and increases the risk of Alzheimer's.probiotics have a positive effect on the nervous system and increase antioxidant properties. Naringin is also a natural flavonoid found in citrus fruits and plays a role in the prevention and improvement of Alzheimer's disease and cell apoptosis due to its anti-inflammatory properties. The aim of this study is to investigate indigenous Iranian probiotics and Naringin on Alzheimer's rats.

Methods : Thirty-six male rats were divided into six groups (control, Alzheimer's and three treatment groups). All groups except the control group received beta-amyloid and were sensitized. The three treatment groups received 1cc gavage for twenty-one days. The shuttle box behavioral test was performed on all rats to assess memory and learning, and the expression of the APOE gene was measured by RealTime PCR.

Results : Rats in the mixed probiotics and naringin group spent more time in the white box than the Alzheimer's group, and in the Alzheimer's group, they spent less time in the white box than the control group. Also, in the treatment group, APOE gene expression changed significantly compared to the Alzheimer's group, and consuming probiotics and naringin reduced APOE gene expression.

Conclusion : According to the results of the study, treatment with a combination of native Iranian probiotics and naringin was able to reduce APOE gene expression and restore memory in rats in behavioral tests. Therefore, the combination of probiotics and naringin can be used as a way to treat and prevent Alzheimer's.

Keywords : Alzheimer” Probiotics ” Naringin ” Memory ”APOE gene

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