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Effect of Medlar (*Mespilus germanica* L) fruit and seed flavonoids on learning and memory and also hippocampal CA3 neurons in Alzheimer's rats

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Introduction: Alzheimer's disease is significantly developing and there is no decisive treatment for that. So, it is urged to prevent in early stages. In present study, the effect of *M.germanica* fruit and seed flavonoids on learning and memory and hippocampal CA3 pyramidal neurons in Streptozotocin-induced Alzheimer's rats have been studied.

Methods: *M.germanica* flavonids were extracted and identified by 2-Dimensional Paper Chromatography and Thin Layer Chromatography. Experimental groups including: 1. Control group, 2. STZ group, 3. STZ + 10 dose of *M.germanica* flavonoids group, and finally Pure flavonoids. STZ-i.c.v (10µl) in all groups except control group was injected at first and third days after surgery beside that, Intraperitoneal injection of flavonoids in all groups except control group, was performed everyday during the 21days. Control group received injection of saline. Afterwards was performed inhibitory avoidance test by shuttle box and immediately after that through perfusion, brains were separated to investigate hippocampal CA3 neurons. To inspect of behavioral data, we used SPSS (analysis one way ANOVA) and regarding the tissues data we used Prism.

Results: *M.germanica* flavonoids in STZ+10mg/kg flavonoids group can restrict significantly deficiency in learning and memory and also improve neural damages in CA3 induced by STZ ($p<0.001$).

Conclusion: Accordingly, it seems that *M.germanica* due to high levels of flavonoids provide useful efficacy on prevention of memorial loss and injury of neurons by STZ-icv and makes a potential in treatment of neurodegenerative diseases specially in Alzheimer's disease.

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