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Protective effect of Ginkgo biloba leaf extract on learning and memory deficit induced by aluminum in model rats.

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Abstract

OBJECTIVE: To examine the protective effect of **Ginkgo biloba** leaf extract (GbE) on learning and **memory** deficit induced by aluminum chloride (AlCl₃), and explore its mechanisms.

METHODS: The rat models with learning and **memory** deficit were induced by administering via gastrogavage and drinking of AlCl₃ solution. And the model rats were treated with GbE at the dose of 50, 100, 200 mg/kg every day for 2 months accompanied with drinking of AlCl₃ solution, respectively. Their abilities of spatial learning and **memory** were tested by Morris water maze, and the acetylcholinesterase (AChE) activity in serum was assayed with chemical method, the AChE expression in hippocampus was observed by immunohistochemistry assay, and then quantitative analysis was done by BI 2000 image analysis system.

RESULTS: Learning and **memory** deficit of rats could be induced by AlCl₃ solution ($P < 0.01$), and AChE expressions in rats hippocampus were increased ($P < 0.01$); GbE ameliorated learning and **memory** deficit and reduced AChE expression in rats hippocampus in a dose-dependent manner, while GbE significantly increased serum AChE activity at the dose of 200 mg/kg each day ($P < 0.05$).

CONCLUSION: GbE can ameliorate learning and **memory** deficit induced by AlCl₃, which may be due to its inhibition of the AChE expression in hippocampus.

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