

Trigonelline: A Promising Compound for The Treatment of Alzheimer's Disease

Authors : Mai M. Farid, Ximeng Yang, Tomoharu Kuboyama, Chihiro Tohda

Abstract : Trigonelline is a major alkaloid component derived from *Trigonella foenum-graecum* L. (fenugreek) and has been reported before as a potential neuroprotective agent, especially in Alzheimer's disease (AD). However, the previous data were unclear and used model mice were not well established. In the present study, the effect of trigonelline on memory function was investigated in Alzheimer's disease transgenic model mouse, 5XFAD which overexpresses the mutated APP and PS1 genes. Oral administration of trigonelline for 14 days significantly enhanced object recognition and object location memories. Plasma and cerebral cortex were isolated at 30 min, 1h, 3h, and 6 h after oral administration of trigonelline. LC-MS/MS analysis indicated that trigonelline was detected in both plasma and cortex from 30 min after, suggesting good penetration of trigonelline into the brain. In addition, trigonelline significantly ameliorated axonal and dendrite atrophy in Amyloid β -treated cortical neurons. These results suggest that trigonelline could be a promising therapeutic candidate for AD.

Keywords : alzheimer's disease, cortical neurons, LC-MS/MS analysis, trigonelline

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