

# The Evaluation of Eggplant Leaves as a Potential Anti-Alzheimer Activity

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Alzheimer's disease (AD) is a progressive neurodegenerative disorder. The main strategy for treatment of AD is based on the cholinergic hypothesis which relies on the repair of cognitive and memory deteriorations by elevating the reduced acetylcholine. For this purpose, AChE inhibitors have been used to treat the symptoms of AD but only four drugs as acetylcholinesterase (AChE) inhibitors are currently marketed for the treatment of AD. On the other hand, decreasing the oxidative stress and improving the antioxidant defense is reported to have neuroprotective effects. While there are more than one molecular mechanism in AD, it is a rational approach to find molecules that would target a multiple molecular mechanism. Eggplant is a plant that could be cultivated with low cost. Due to the high levels of phenolic and flavonoid structures, the eggplant has stronger antioxidant activity compared to other plants. The compounds such as flavonoids bearing chromenone and many alkaloids exhibit inhibitory activity against AChE. We have expected that the leaves could show AChE inhibitory and antioxidant activity so that it would have a potential to treat the disease with two mechanisms. With this respect, we evaluated *in vitro* AChE inhibitory and antioxidant activity of the leaves. We collected the leaves and prepared extracts. AChE inhibitory and antioxidant activity of the extracts were evaluated by Ellman's method and DPPH method, respectively. Extracts displayed 79-82% AChE inhibitory activity in 30  $\mu$ g/ml and antioxidant activity with IC<sub>50</sub> value of 63.19-119.3  $\mu$ g/ml. Their cytotoxicity was tested and no cytotoxicity was determined.