

Determination of anti-acetylcholinesterase activity of *Clitoria ternatea* ethanolic extract

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Structured Abstract

Background: Alzheimer's disease is the most frequent type of dementia and a progressive age-related neurodegenerative condition that affects especially among old folks. Although several acetylcholinesterase inhibitor drugs were used to treat this disease, there are numerous side effects. Thus, this study is conducted in finding the alternative source of anti-AChE products from plant-based.

Methods: In this present study, cold extraction method was conducted by soaking in 95% of ethanol to make crude extract of *C. ternatea*. The extracted plant was subsequently mixed with Ellman's reagent to evaluate the anti-acetylcholinesterase activity by measuring at 410nm according to Ellman's method. The linear equation was used to determine the IC₅₀ of plant extract by plotting a graph of concentration vs percentage of inhibition and subjected to GC-MS analysis to detect bioactive compound.

Results: The results showed the percentage yield of extracted plant material obtained was 30%. While the IC₅₀ value derived was 2.4 mg/mL. The GC-MS analysis confirmed that *C. ternatea* contains of terpenes and fatty acids has both saturated and unsaturated fatty acids. The major compound found were n-hexadecanoic acid followed by neophytadiene, octadecatrienoic acid and phytol.

Conclusion: The IC₅₀ obtained from *C. ternatea* indicated low potency for anti-acetylcholinesterase activity. GC-MS results showed that n-hexadecanoic acid, neophytadiene, octadecatrienoic acid and phytol may have numerous therapeutic effects in treating neurodegenerative disease. The GC-MS analysis confirmed that *C. ternatea* contains terpenes and fatty acids also shown to have activity against AChE.

Keywords: Anti-acetylcholinesterase activity, IC₅₀ value, Ellman's method

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