

UNIVERSITI TEKNOLOGI MARA

**ACETYLCHOLINESTERASE
INHIBITION TEST BY
Caulerpa lentillifera
AND *Caulerpa racemosa***

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AUTHOR'S DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Alzheimer disease (AD) is the one common type causes of dementia and neurogenerative disease. It has occurred when the chemical messenger or neurotransmitter in the brain are unable to transmit the signal from one neuron cell to another through the synaptic cleft. Thus, a person who is suffering AD will be unable to do the normal activities such as lack of mathematical skill, memorize some notes and others. Nowadays, the drugs that consume by the patient only relieve the symptom of the disease, which is by inhibit the acetylcholinesterase enzyme (AChE). As the result, the acetylcholine (ACh) level will be increasing. However, it gives a side effect to the patient. In this study, the natural resources are being used for AD treatment by inhibit the AChE enzymes. Generally, there are a lot of previous research that give more attention to red and brown seaweed and lack uses of green seaweed which have the potential that may not have exposed to the public. Especially *Caulerpa lentillifera* and *Caulerpa racemosa* which are popular in seafood dish serving. The objective of this study is to evaluate and determine the AChE inhibitory effect of *C. lentillifera* and *C. racemosa* extract through TLC plate test and using Ellman method, and to identify the chemical constitution of *C. lentillifera* and *C. racemosa* extract using GC-MS. In TLC plate test, the silica gel TLC plate have been used and the sample extraction are tested on AChE enzyme to give the result of white spot effect as well as inhibitory activities. Moreover, to improve the inhibitory activities are by using microplate reader and the inhibition are read by percentage. For chemical constitution, both samples are used to identify the bioactive compound that might available. As the result, for the TLC plate test, both samples are given the positive result as referred by positive control which is Eserine. In Ellman method, the *C. racemosa* are much higher inhibition percentage than *C. lentillifera* where about 54.45% in *C. racemosa* and 52.70% in *C. lentillifera* by mean at 10mg/ml of concentration. For chemical constitution, only a few compounds that are identified as potential biological activities. As a conclusion, the potential of AChE inhibition activity by *Caulerpa lentillifera* and *Caulerpa racemosa* are giving the high chance to be nutraceutical production.

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