

**ALPHA-AMYLASE ENZYMES INHIBITION ACTIVITY
OF CURRY (*Murraya koenigii*) STEMS EXTRACT**

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This Final Year Project Report entitled "**Alpha-Amylase Enzymes Inhibition Activity of Curry (*Murraya koenigii*) Stems Extract**" was submitted by Aina Yasmin Farhan binti Mior Karim in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Chemistry with Management, in the Faculty of Applied Sciences, and was approved by

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ABSTRACT

ALPHA-AMYLASE ENZYMES INHIBITION ACTIVITY OF CURRY (*Murraya koenigii*) STEMS EXTRACT

Diabetes mellitus (DM) is due to the insufficiency of insulin secretion in the action of insulin or both and will be resulting in effect the glucose metabolism in the body negatively. It will cause high sugar in blood. Alpha-amylase (α -amylase) is one of the enzyme that contribute of increasing the sugar level in the blood. *Murraya koenigii* or curry tree was believed get to inhibit α -amylase enzyme due to it phytochemical exist in their plant. The synthetic drugs that were used have a lot of side effect such as nausea and gastritis. Furthermore, the stems of *M. koenigii* will usually be discarded and will be underutilized. The stems also currently have little or no study was found in inhibit of α -amylase enzyme. In this study, the extraction of stems part of *M. koenigii* has been done by using maceration method. Other than that, the total phenolic (TPC) and total flavonoid (TFC) contents of crude extract and types of functional groups present in the stems extract of *M. koenigii* via Fourier Transform Infrared Spectroscopy (FTIR) were determined and lastly the evaluation of α -amylase inhibition activity of the stems extract of *M. koenigii* has been evaluate. The methods that have been conducted in this study were involving an extraction of stems part *M. koenigii* using maceration process, the inhibition process of α -amylase enzyme towards the stems extract, determination of total phenolic and total flavonoid contents, evaluation of the functional group in roots extract using FTIR. The result for this study has showed that the acetonitrile fraction has the best inhibition towards α -amylase with IC_{50} of 14.8341 ± 0.0803 mg/L. This can be compared with the standard positive control, metformin with 11.0164 ± 0.021 mg/L. The TPC and TFC contents for acetonitrile fraction of *M. koenigii* stems were 152.998 mg GAE/g and 33.71844 mg QE/g respectively. The functional groups that exists in acetonitrile fraction were alcohols, alkanes, silicon, amines, aromatic, and carboxylic acid. From the result that have been achieved, it can be conclude that the acetonitrile fraction of *M. koenigii* stems have a successful acted as antidiabetic agent.

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