ALPHA-AMYLASE INHIBITION ACTIVITY OF PANDAN (*Pandanus Amaryllifolius*) ROOTS EXTRACT

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JANUARY 2023

This Final Year Project Report entitled "**Alpha-Amylase Inhibition Activity of Pandan (*Pandanus Amaryllifolius) Roots Extract***" was submitted by Muhammad Aidid bin Nor Ariffin in partial fulfilment of the requirements for the Degree of Bachelor of Sciences (Hons.) Chemistry with Management, in the Faculty of Applied Sciences, and was approved by

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Date: February 2023

ABSTRACT

ALPHA-AMYLASE INHIBITION ACTIVITY OF PANDAN (*Pandanus Amaryllifolius*) ROOTS EXTRACT

Pandan (*Pandanus amaryllifolius*) is a herbaceous plant that is commonly found and used in Southeast Asian countries mainly as natural antidiabetic sources. Diabetes is a chronic illness that happened to be the seventh cause of death by 2030. This is correlated with the α-amylase enzyme in human body that catalyze the hydrolysis of starch and thus increases the glucose production in the body which leads to diabetes. Hence, this study involved extracting the root part of P. *amaryllifolius* via maceration method using three solvents of different polarity which are ethanol, acetone, and n-hexane with percentage yield of 15.63%, 7.93% and 5.87% respectively. Each of this extract is then undergo separation via rotary evaporator and the α-amylase inhibition assay was done where the inhibition activity, IC_{50} was calculated for ethanolic extract, acetone extract and n-hexane extract to be 10.902, 60.654 and 31.543 respectively. Based on this, the ethanolic extract from P. *amaryllifolius* roots resulted into the lowest IC_{50} which indicates a high inhibition activity against α-amylase. Hence, ethanolic extract from P. *amaryllifolius* roots was chosen for further analysis where the total phenolic and flavonoid content was calculated to be 73.98 mg GAE/100 g plant sample and 9.75 mg QE/ 100 g plant sample. The ethanolic extract from P. *amaryllifolius* roots was then run through Fourier Transform Infrared Spectroscopy (FTIR) and High Performance Liquid Chromatography (HPLC) to find out types of functional groups present as well as determining major compounds in the P. *amaryllifolius* roots extract. The result showed significant amount of phenolic and flavonoid compounds based on the FTIR spectrum and the presence of quercetin as secondary metabolite that is highly responsible for the inhibition of α-amylase.

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