

POTENTIAL ALPHA-AMYLASE AND ALPHA-GLUCOSIDASE INHIBITORY ACTIVITY  
OF BIOACTIVE FRACTIONS FROM ALUGBATI (*Basella alba*) LEAVES

A Thesis

Presented to the College of Arts and Sciences

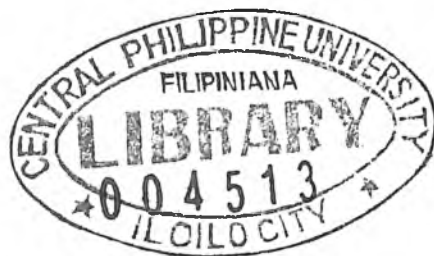
Central Philippine University

Iloilo City

In Partial Fulfillment

of the Requirements for the Degree

BACHELOR OF SCIENCE IN CHEMISTRY



By

MA. MITZI P. BENDOY

June 2022

# POTENTIAL ALPHA-AMYLASE AND ALPHA-GLUCOSIDASE INHIBITORY ACTIVITY OF BIOACTIVE FRACTIONS FROM ALUGBATI (*Basella alba*) LEAVES

Ma. Mitzi P. Bendoy

## ABSTRACT

This study evaluated the potential *in vitro* inhibitory activity of *Basella alba* leaves against enzyme markers of diabetes mellitus,  $\alpha$ -amylase, and  $\alpha$ -glucosidase. The dried plant sample was ground into fine powder, defatted, and soaked in methanol to obtain the crude extract. The crude methanolic extract of *Basella alba* was then fractionated sequentially in acetone-methanol mixtures with increasing solvent polarity ratios. Fractions obtained were evaluated for their  $\alpha$ -amylase and  $\alpha$ -glucosidase inhibitory potential. The standard drug, acarbose inhibited  $37.44 \pm 7.65\%$ ,  $83.99 \pm 0.86\%$ , and  $86.52 \pm 0.40\%$  of  $\alpha$ -amylase activity at 10, 30, and 50 ppm. The highest inhibition was observed in the acetone-methanol (4:1) fraction which inhibited  $57.80 \pm 0.71\%$ ,  $56.39 \pm 0.49\%$ , and  $46.94 \pm 0.26\%$  of  $\alpha$ -amylase activity, followed by the acetone fraction with inhibitory activity of  $22.24 \pm 0.41\%$ ,  $38.05 \pm 0.68\%$ , and  $46.62 \pm 0.32\%$  at increasing concentrations of 50, 200, and 350 ppm, respectively. The acetone-methanol (1:4) mixture exhibited the lowest activity at  $8.00 \pm 0.35\%$  for 50 ppm, and  $0.61 \pm 0.27\%$  for 200 ppm. However, no inhibitory activity was demonstrated in any of the fractions of *Basella alba* against  $\alpha$ -glucosidase. Total flavonoid content analysis revealed that all fractions have the same flavonoid content. *Basella alba* may serve an essential role in managing the risk of diabetes mellitus and is recommended for consumption on a regular basis.