UNIVERSITI TEKNOLOGI MARA | Fakulti Sains Gunaan

SUBMISSION FOR EVALUATION
FINAL YEAR PROJECT 2 - RESEARCH PROJECT

{ ANTIDIABETIC AND ANTIOBESITY POTENTIALS OF SPENT TEA WASTE EXTRACTS }

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ANTIDIABETIC AND ANTIOBESITY POTENTIALS OF SPENT TEA WASTE EXTRACTS

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Final Year Project Report Submitted in
Partial Fulfilment of the Requirements for the
Degree of Bachelor of Science (Hons.) Applied Chemistry
in the Faculty of Applied Sciences
Universiti Teknologi MARA

AUGUST 2025

ABSTRACT

ANTIDIABETIC AND ANTIOBESITY POTENTIALS OF SPENT TEA WASTE EXTRACTS

This study explores the potential of spent tea waste (STW) extract to address two significant global health concerns which are antidiabetic and antiobesity. This research utilized microwave assisted extraction (MAE) with using ethanol 60 % (v/v) across five different sample to solvent ratios (1:10 to 1:50) to extract phenolic compounds from STW. Among these, extract 1:40 ratio yielded the highest total phenolic content (TPC) measured at 325.0 mg GAE/g. The 1:40 ratio extract, having the highest TPC content, tested for their inhibitory effects on α-amylase and pancreatic lipase which is two different enzymes that was involved in carbohydrate and fat digestion. STW extracts inhibited α-amylase with an IC50 value of 119.72 µg/mL, which is lower and more potent than standard acarbose (344.2 µg/mL) and demonstrating moderate antidiabetic potential. The extracts also showed a moderate pancreatic lipase inhibitory activity, with an IC50 value of 336.41 µg/mL. This study highlights the potential therapeutic capabilities of STW extracts as natural and cost-effective remedies for diabetes and obesity management, aligning with sustainable development goals by transforming waste into valuable health resources.

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