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**SUBMISSION FOR EVALUATION
FINAL YEAR PROJECT 2 - RESEARCH PROJECT**

**{ ANTIDIABETIC AND ANTI OBESITY POTENTIALS OF SPENT TEA
WASTE EXTRACTS }**

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**ANTIDIABETIC AND ANTI OBESITY 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 ANTI-OBESITY 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 anti-obesity. 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 μ g/mL, which is lower and more potent than standard acarbose (344.2 μ g/mL) and demonstrating moderate antidiabetic potential. The extracts also showed a moderate pancreatic lipase inhibitory activity, with an IC₅₀ value of 336.41 μ g/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.

TABLE OF CONTENTS

| | Page |
|--|-------------|
| ABSTRACT | i |
| ABSTRAK | ii |
| ACKNOWLEDGEMENT | iii |
| LIST OF TABLES | vi |
| LIST OF FIGURES | vii |
| LIST OF SYMBOLS | viii |
| LIST OF ABBREVIATIONS | ix |
| | |
| CHAPTER 1 INTRODUCTION | |
| 1.1 Research background | 1 |
| 1.2 Problem statement | 4 |
| 1.3. Research questions | 5 |
| 1.4. Objectives | 6 |
| 1.5. Significance of study | 6 |
| | |
| CHAPTER 2 LITERATURE REVIEW | |
| 2.1. Spent tea waste | 8 |
| 2.1.1. Valorise products from spent tea | 9 |
| 2.1.2. Composition and characterization of spent tea waste | 12 |
| 2.1.3. Extraction of bioactive substances | 15 |
| 2.2. Total phenolic contents | 16 |
| 2.3. Antidiabetic properties | 18 |
| 2.3.1. α -amylase inhibitory activity | 19 |
| 2.4. Antiobesity properties | 21 |
| 2.4.1. Pancreatic lipase inhibitory activity | 22 |

| | | |
|--|--|----|
| CHAPTER 3 METHODOLOGY | | |
| 3.1. | Materials and chemicals | 25 |
| | 3.1.1. Materials | 25 |
| | 3.1.2. Chemicals | 25 |
| 3.2. | Methods of sample extraction and analysis | 25 |
| | 3.2.1. Preparation of samples | 25 |
| | 3.2.2. Positive controls | 26 |
| | 3.2.3. Microwave Assisted Extraction (MAE) | 26 |
| | 3.2.4. Total phenolic contents | 27 |
| | 3.2.5. α -amylase inhibitory activity | 27 |
| | 3.2.6. Pancreatic lipase inhibitory activity | 28 |
| 3.3. | Experimental design/Flow chart | 30 |
| | | |
| CHAPTER 4 RESULTS AND DISCUSSION | | |
| 4.1 | Percentage yield of spent tea waste extracts | 31 |
| 4.2 | Total phenolic content of STW sample extract | 33 |
| 4.3 | α -amylase inhibitory activity | 36 |
| 4.4 | Pancreatic lipase inhibitory activity | 42 |
| | | |
| CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS | | |
| 5.1 | Conclusion | 46 |
| 5.2 | Recommendation | 47 |
| | | |
| REFERENCES | | 49 |
| APPENDICES | | 57 |
| CURRICULUM VITAE | | 58 |