

**A STUDY ON TOTAL PHENOLIC CONTENT AND
ANTIOXIDANT ACTIVITIES OF SELECTED MANGO SEEDS**

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRAK	x
CHAPTER 1 INTRODUCTION	
1.1 Background	1
1.2 Problem statement	1
1.3 Objectives	3
CHAPTER 2 LITERATURE REVIEW	
2.1 History of antioxidants	4
2.1.1 Mechanism of oxidation	5
2.1.1.1 Initiation	6
2.1.1.2 Propagation	7
2.1.1.3 Termination	8
2.2 Antioxidant	9
2.2.1 Natural antioxidants	10
2.2.1.1 Tocopherol	11
2.2.1.2 Flavonoid	11
2.2.1.3 Phenolic compound	12
2.2.2 Synthetic antioxidants	12
2.2.2.1 Butylated Hydroxyanisole (BHA)	13
2.2.2.2 Butylated Hydroxytoluene (BHT)	13
2.2.2.3 Tert-butyl Hydroquinone (TBHQ)	14
2.2.2.4 Propyl Gallate (PG)	14
2.3 Mango	15
CHAPTER 3 METHODOLOGY	
3.1 Materials	20
3.1.1 Raw materials	20
3.1.2 Chemicals	20
3.1.3 Apparatus and instrument	20
3.2 Methods	20
3.2.1 Extraction	21
3.2.2 Total phenolic content	21
3.2.2.1 Preparation of standard gallic acid curve	21
3.2.2.2 Determination of total phenolic content	22

ABSTRACT

A STUDY ON TOTAL PHENOLIC CONTENT AND ANTIOXIDANT ACTIVITIES OF SELECTED MANGO SEEDS

This study was aimed to determine the total phenolic content and antioxidant activities in selected mango seeds. Three different types of mango (*Mangifera indica L.*) commonly available in Malaysian supermarkets namely, 'Chokanan', 'Maha' and 'Madu' were selected. Ethanol was used as a solvent because it is safe to be used in the food system. Phenolic content was determined using a Folin-Ciocalteu assay. Antioxidant activities were determined using FRAP and DPPH assays. Based on analysis of variance, 'Madu' showed the highest amount of total phenolic content (3994.27 ± 20.6 mg GAE/g) and 'Chokanan' had the lowest total phenolic content (3424.33 ± 76.7 mg GAE/g). However, 'Chokanan' showed the highest ferric reducing power for FRAP assay, followed by 'Maha' and 'Madu' extract. For radical scavenging activity using 2,2 - diphenyl - 1 - picrylhydrazyl (DPPH) method, the highest effect of scavenging free radical showed by 'Madu' followed by 'Maha' and 'Chokanan' seed which were 95.08 ± 0.052 %, 94.68 ± 0.044 %, and 94.56 ± 0.041 % respectively. All the mango seed extracts had lower antioxidant activity compared to BHA/BHT. Mango seeds will be a potential for natural antioxidants.

CHAPTER 1

INTRODUCTION

1.1 Background

Dietary antioxidant protect against free radicals such as reactive oxygen species in the human body (Nilsson *et al.*, 2004). Free radicals are known to be a major contributor to degenerative of aging (Atoui *et al.*, 2005). Fruits and vegetables account for a small part of our daily caloric intake; however their benefits to health surpass their caloric contribution. The contributory factors are due to the presence of vitamins and provitamins, such as ascorbic acid, tocopherols and carotenoids and, in addition to that, they are also rich in a wide variety of phenolic substances (Loliger, 1991).

1.2 Problem statement

There are two types of antioxidant, natural and synthetic antioxidant. Natural antioxidant can be found through plant extracts, fruits and vegetables. Synthetic antioxidants including BHA, BHT, and TBHQ contain largely constituents that exhibit steric hindrance resulting in more stable radicals. These synthetic antioxidants are commonly used but because of increasing concern of the human safety, the antioxidants have been replaced with natural antioxidants.

Mango is one of the most important tropical fruits in the world and currently ranked 5th in total world production among the major fruit crops (FAO, 2004). As mango is a seasonal fruit, about 20% of fruits are processed for products