# ANTIOXIDANT IN SEEDS, PERICARP AND THE WHOLE POD OF Moringa oleifera PLANT

## SITI NADHIRAH BINTI ABD MUTALIB

Final Year Project Report Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Science (Hons.) Biology in the Faculty of Applied Sciences Universiti Teknologi MARA

**JULY 2019** 

This Final Year Project Report entitled "Antioxidant in Seeds, Pericarp and The Whole Pod of *Moringa oleifera* Plant" was submitted by Siti Nadhirah binti Abd Mutalib, in partial fulfilment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

Dr. Nor' Aishah binti Abu Shah Supervisor B. Sc. (Hons.) Biology Faculty of Applied Sciences Universiti Teknologi MARA 72000 Kuala Pilah Negeri Sembilan

Siti Norazura binti Jamal Project coordinator FSG611 B. Sc. (Hons.) Biology Faculty of Applied Sciences Universiti Teknologi MARA 72000 Kuala Pilah, Negeri Sembilan

Miza

Dr. Aslizah binti Mohd Aris Head School of Biology Faculty of Applied Sciences Universiti Teknologi MARA 72000 Kuala Pilah Negeri Sembilan

### **TABLE OF CONTENTS**

DECLARATIONS	11
ACKNOWLEDGEMENTS	111
TABLE OF CONTENTS	IV
LIST OF TABLES	$\overline{\mathrm{Vl}}$
LIST OF FIGURES	VII
LIST OF ABBREVIATIONS	VIII
ABSTRACT	ix
ABSTRAK	Х

# **CHAPTER 1: INTRODUCTION**

1.1	Background of Study	1
1.2	Problem Statement	2
1.3	Significance of the Study	2
1.4	Objectives of the Study	3

## **CHAPTER 2: LITERATURE REVIEW**

2.1	Antioxidant	4
2.2	Free Radicals	5
2.3	DPPH assay	6
2.4	Plant of Study	7
2.5	Appearance and Characteristics of Moringa oleifera	9
2.6	Uses of Moringa oleiefera	10

#### **CHAPTER 3: METHODOLOGY**

3.1	Materials	12
	3.1.1 Raw materials	13
	3.1.2 Chemicals	13
	3.1.3 Apparatus	13
3.2	Sampling sites	13
3.3	Methods	13
	3.3.1 Sample Preparation	13
	3.3.2 Solvents Extraction	14
	3.3.3 DPPH Radical Scavenging Activities Assay	14
3.4	Statistical Analysis	15

# CHAPTER 4: RESULTS AND DISCUSSION

4.1	Detections of antioxidant activity in different part of	17
	Moringa oleifera	
4.2	Free Radical Scavenging Activity in Three Samples	18
4.3	Antioxidant activity in pericarp	20
4.4	Antioxidant activity in seeds	22
4.5	Antioxidant activity in the whole pod	24
4.6	Statistical Analysis	25

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS	26
CITED REFERENCES	27-32
APPENDICES	33-39
CURRICULUM VITAE	40-41

### ABSTRACT

#### ANTIOXIDANT IN SSEDS, PERICARP AND WHOLE POD OF

#### Moringa oleifera PLANT

*Moringa oleifera* or known as Kelor can be classified as dicot plants, also known as beans plants or vegetables that give good impact towards human being especially in term of health because of the content of the high antioxidant. For that reason, a study has been conducted on *Moringa oleifera* plants purchased from the wet market located in Kuala Pilah, Negeri Sembilan. The main purpose of this study is to determine the presence of antioxidant properties of *Moringa oleifera* by using DPPH assay with the use of different concentrations starting with 1000 500, 400, 300, 200, and 100µg/ml. The part of the plants chosen such as seeds, pericarp, and the whole pod were used in screening for antioxidant activity. The result for this research found that the highest antioxidant activity between seeds, pericarp and both (seeds and pericarp) is the one contain in the part of Moringa oleifera' pericarp with 86.86% followed by seeds with the value 83.43% and the lowest reading is both part (seeds and pericarp) with the value 77.78% in the highest concentration being used which is 1000µg/ml.