

**COMPARISON OF DIFFERENT VEGETABLE
WASTES AND MANURE MIXTURE MEDIUM
TOWARDS THE GROWTH OF *Eisenia fetida***

SHARIFAH AMIRAH BINTI SYED SALIM

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

JULY 2017

This Final Year Project Report entitled “**Comparison of Different Vegetable Wastes and Manure Mixture Medium towards the Growth of *Eisenia fetida***” was submitted by Sharifah Amirah binti Syed Salim, in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Biology, in the Faculty of Applied Sciences, and was approved by

Nursyazni binti Abdul Rahim
Supervisor
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
72000, Kuala Pilah Negeri Sembilan

Lili Syahani Rusli
Project Coordinator
B. Sc. (Hons.) Biology
Faculty of Applied Sciences
Universiti Teknologi MARA
72000 Kuala Pilah Negeri Sembilan

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

Date: _____

TABLE OF CONTENT

	PAGE
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENT	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATIONS	ix
ABSTRACT	x
ABSTRAK	xi
CHAPTER 1: INTRODUCTION	
1.1 Background of Study	1
1.2 Problem Statement	3
1.3 Significance of the Study	4
1.4 Objectives of the Study	5
CHAPTER 2: LITERATURE REVIEW	
2.1 Background of Earthworm	6
2.1.1 Morphology description of earthworm	7
2.2 Vegetables Wastes	9
2.2.1 Types of vegetable wastes	10
2.3 Managing Wastes in Malaysia	12
2.4 Managing Vegetable Wastes in Environment	12
2.5 Benefits and Impact of Vegetable Wastes in Environment	13
2.6 Manure Mixture of Cow	14
2.7 Vermicomposting Technology	15
2.7.1 Mechanism of vermicomposting technology	16
2.7.2 Role of earthworm in vermicomposting technology	18
2.7.3 Benefits of vermicomposting technology	19
CHAPTER 3: METHODOLOGY	
3.1 Materials	21
3.1.1 Raw materials	21
3.1.2 Chemicals	22
3.1.3 Apparatus	22
3.2 Methods	23
3.2.1 Earthworm culture in laboratory	23
3.2.2 Preparation of vegetable wastes and manure mixture medium	24
3.2.3 Earthworm growth potential assay	26
3.3 Statistical Analysis	27

CHAPTER 4: RESULTS AND DISCUSSION	
4.1 Earthworm Length	28
4.2 Earthworm Weight	33
4.3 Earthworm Biomass	38
4.4 Earthworm Growth Rate	43
4.4 Vegetable Wastes medium	48
CHAPTER 5: CONCLUSIONS AND RECOMMENDATION	50
CITED REFERENCES	51
APPENDICES	55
CURRICULUM VITAE	77

ABSTRACT

COMPARISON OF DIFFERENT VEGETABLE WASTES AND MANURE MIXTURE MEDIUM TOWARDS THE GROWTH OF *Eisenia fetida*

A research has been conducted on vermicomposting of different vegetable wastes together with manure mixture medium by utilizing *Eisenia fetida* (earthworm) as the decomposer. The study aims to determine effect of growth size of earthworm and to investigate which vegetable wastes medium is more effective towards the growth of earthworm. The vegetable wastes used were *Brassica oleracia* (cabbage) and *Spinacia oleracia* (spinach). The treatment medium were prepared by mixing vegetable wastes, manure mixture and soil into three different ratio which are Treatment 1 (2:1:5) ratio, Treatment 2 (1:1:5) ratio and Treatment 3 (1:2:5) ratio that has total mass of 40 g, 35 g and 40 g respectively. Soil was added to all treatments for facilitating the burrowing mechanism of earthworm. The effect of growth size of *Eisenia fetida* was at the peak shown by Treatment 1 as total length gained was 3.5 cm, the total weight gained was 0.2131 g, total biomass gained was 0.0054 g and growth rate gained was 0.0308 g/worm/day which were the highest among the other treatments medium. Then, Treatment 1 was further investigate for the most effective vegetable wastes medium. Result shown Treatment 1 containing *Brassica oleracia* is the most effective as growth size of earthworms exhibit maximum reading in comparison with *Spinacia oleracia* and control medium.