

**OPTIMIZATION OF SOIL pH BY USING CALCIUM
CARBONATE FROM SHELL WASTE**

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ABSTRACT

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Calcium carbonate (CaCO_3) is an alternative way to optimize the soil pH. In this study, calcium carbonate from shell waste has been used at different weight loading in order to investigate the effects of calcium carbonate on the soil pH and different types of soil have been used during this study. Characterization of CaCO_3 has been done by using FTIR and TGA which the presence of CaCO_3 has been proved at 1600 to 1400 cm^{-1} and one significant weight lost curve at 600 until 800°C with the total weight loss of the sample was 39.85%. Soil pH has been determined by using calcium chloride (CaCl_2) and distilled water first before CaCO_3 being applied on each sample. After taking all the pH of each sample, CaCO_3 were introduced on each sample to study the effect of CaCO_3 on soil pH. In this study, 10% to 50% of weight of CaCO_3 has been applied on each sample and based on the results that has been obtained, 50% weight of CaCO_3 that has been applied was chosen as the best among the other four percentage due to its effect that having results of pH reach seven and consider as neutral when being tested with both calcium chloride and distilled water.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	viii
ABSTRACT	x
ABSTRAK	xi
CHAPTER 1 INTRODUCTION	
1.1 Background	1
1.2 Problem statement	2
1.3 Significance of study	3
1.4 Objectives of study	4
CHAPTER 2 LITERATURE REVIEW	
2.1 Soil diversity	5
2.2 Soil pH	7
2.3 Calcium carbonate from shell waste	10
2.4 Characterization of calcium carbonate from shell waste	
2.4.1 Fourier transform infrared spectroscopy (FTIR)	13
2.4.2 Thermogravimetric analyzer (TGA)	15
2.4.3 UV-Visible	17
2.4.4 Scanning electron microscopy (SEM)	18
CHAPTER 3 METHODOLOGY	
3.1 Materials	
3.1.1 Raw materials	21
3.1.2 Chemicals	21
3.1.3 Apparatus	21
3.1.4 Instrumentation	22
3.2 Methods	
3.2.1 Sampling area	22

3.2.2	Sample collection	
3.2.2.1	Shellfish	23
3.2.2.2	Soil sampling	23
3.2.3	Sample preparation for soil	24
3.2.4	Preparation of calcium carbonate (CaCO ₃)	24
3.2.5	Characterization of calcium carbonate (CaCO ₃)	24
3.2.6	pH measurement of CaCO ₃	25
3.2.7	Soil pH and soil properties	25
3.2.8	Determination the effect of CaCO ₃ on soil pH	28

CHAPTER 4 RESULTS AND DISCUSSION

4.1	Characterization of CaCO ₃ from shell waste	
4.1.1	FTIR	29
4.1.2	TGA	33
4.1.3	Measuring pH of CaCO ₃	35
4.2	Measuring soil pH and soil properties	36
4.3	Effect of CaCO ₃ on soil pH	40

CHAPTER 5 CONCLUSION AND RECOMMENDATION 51

CITED REFERENCES	53
APPENDICES	57
<i>CURICULUM VITAE</i>	60

LIST OF TABLE

Table	Caption	Page
2.1	Comparative of neutralizing value for liming materials	9
2.2	Details description of shells (<i>strombus canarium</i> , <i>Oliva sayana</i> , <i>Terebra dislocate</i> and <i>Anadara granosa</i>)	12
4.1	IR correlation table	30
4.2	FTIR adsorption peak and functional group of CaCO_3 from shell waste	31
4.3	Measurement of CaCO_3 pH by using distilled water	36
4.4	Measurement of soil pH by using CaCl_2	38
4.5	Measurement of soil pH by using distilled water	38
4.6	Effect of CaCO_3 on soil pH for sample 1 (Kadok)	40
4.7	Effect of CaCO_3 on soil pH for sample 2 (Dewan Beta)	42
4.8	Effect of CaCO_3 on soil pH for control soil (UiTM)	44