

**ANALYSIS OF MINERALS CONTENT AND VITAMIN C IN
*PAEDERIA FOETIDA***

SITI NURULHAJAR BT RAZIHAN

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

JULY 2019

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 of study	1
1.2 Problem statement	3
1.3 Significance of study	4
1.4 Objectives of study	4
CHAPTER 2 LITERATURE REVIEW	
2.1 Nutrients	5
2.2 Macronutrients	7
2.2.1 Carbohydrates	7
2.2.2 Lipids	7
2.2.3 Proteins	8
2.3 Micronutrients	8
2.3.1 Minerals	9
2.3.2 Vitamins	9
2.3.2.1 Vitamin C	10
2.3.2.2 Other vitamins	11
2.3.3 Vitamin C in plants	11
2.4 Previous studies on <i>P. foetida</i>	12
2.5 Previous studies on minerals content of plants	14
2.6 Previous studies on vitamin C in <i>P. foetida</i>	16
CHAPTER 3 METHODOLOGY	
3.1 Materials	17
3.1.1 The chemical used in this study	17
3.1.2 Instrument used in this study	17
3.2 Methods	18
3.2.1 Preparation of samples	18
3.2.2 FTIR analysis	18
3.2.3 Determination of minerals	19
3.2.4 Determination of vitamin C	20
CHAPTER 4 RESULTS AND DISCUSSION	
4.1 FTIR analysis	21
4.2 ICP-OES analysis	27

4.2.1 Nutrient daily intakes	28
4.2.2 Minerals in stems and leaves of <i>P. foetida</i>	29
4.3 Vitamin C in <i>P. foetida</i>	34
CHAPTER 5 CONCLUSION AND RECOMMENDATIONS	36
CITED REFERENCES	38
APPENDICES	43
CURRICULUM VITAE	45

LIST OF TABLES

Table	Caption	Page
Table 4.1	IR correlation table.	21
Table 4.2	Functional group present in <i>P. foetida</i> .	26
Table 4.3	Regression correlation for each element analyzed by Inductively coupled plasma - optical emission spectrometry (ICP-OES)	27
Table 4.4	Recommendation minerals intake for adults.	28
Table 4.5	The mean concentrations of elements in leaves and stem of <i>P.foetida</i>	29
Table 4.6	The ascorbic acid (AA) content in <i>P. foetida</i> .	35

ABSTRACT

ANALYSIS OF MINERALS CONTENT AND VITAMIN C IN *Paederia foetida*

A study on the minerals content and vitamin C in *Paederia foetida* have been done. The samples that have been collected from the local area were analyzed for the minerals and vitamin C in leaves and stem of *P. foetida*. The leafy plant, *P. foetida* have the minerals, both micro-nutrient and macro-nutrient like Cu, Zn, Fe, Mn, Mg, Na, K and Ca. Both stem and leaves have different value of minerals. Leaves have higher value in Mn, Na, K, Ca and Mg. While stem have higher Cu, Fe and Zn compared to leaves. Vitamin C in *P. foetida* were analyzed in two different preparation, dried and fresh for both leaves and stem. The vitamin C value in fresh stem (298.69ppm) is higher compared to fresh leaves (50.06ppm) and dried leaves (42.41ppm), however the vitamin C in dried stem were not detected.

Keywords: Paederia foetida, minerals, vitamin C