## UNIVERSITI TEKNOLOGI MARA

# PHARMACOGNOSTICAL EVALUATION OF LEPISANTHES RUBIGINOSA BARK

## NUR ATIKAH BINTI BASHARUDDIN

Dissertation submitted in partial fulfilment of the requirements for the Bachelor of Pharmacy

**Faculty of Pharmacy** 

2012

#### **ACKNOWLEDGEMENTS**

First of all, I would like to praise Allah SWT for His guidance and also His bless of giving me a good health and strength to complete my project on time. Besides that, I would like to express my gratitude to my beloved supervisors, Dr. Humera Naz and Tengku Azlan Shah bin Tengku Mohamad for their uncountable assistance and guidance to me all the time during my project. They had given me a lot of advices and precious knowledge during this project.

Besides that, I also would like to thank to the authority of University Technologi Mara, (UiTM) for providing enough facilities that had helped me a lot to complete my final year project. To my parents also, I would like to thank them for always give me strength and support to continue this project until complete. My thanks also to my friends, Azwa bt. Abdullah and Wan Izzati Mariah bt. Wan Hassan that had sacrificed their time to help me doing this project.

.

Lastly, I also would like to show my appreciation towards everyone that was involved in my final year project, either directly or indirectly. All of your efforts and contributions were meaningful to me and I will not forget it forever. Thank you very much.

### **TABLE OF CONTENTS**

TITLE	PAGE
APPROVAL	
ACKNOWLEDGEMENT	i
TABLE OF CONTENTS	ii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
ABSTRACT	viii
CHAPTER ONE (INTRODUCTION)	
1.1 Introduction	
1.1.1 Importance and uses of Lepisanthes rubiginosa	1
1.1.2 Macroscopic and microscopic examination	2
1.1.3 Determination of ash values	3
1.1.4 Powder microscopy of bark	4
1.1.5 Thin layer chromatography	4
1.2 Statement of Problem	4
1.3 Significance of the Study	4
1.4 Aims	5
1.5 Objectives	5
1.6 Problems and Limitations	5
CHAPTER TWO (LITERATURE REVIEW)	
2.1 Pharmacognosy	6
2.2 Importance of Pharmacognosy	6
2.3 Description of Sanindaceae family	7

2.4 Morphological characteristics of <i>Lepisanthes rubiginosa</i>	7
2.5 Chemical constituents of Sapindaceae family	8
2.5.1 Saponin	9
2.5.2 Flavonoids	9
2.6 Tannins	11
CHAPTER THREE (MATERIAL AND METHOD)	
3.1 Plant material	12
3.2 Macroscopic examination of bark	12
3.3 Microscopic examination of bark	12
3.3.1 Samples preparation	13
3.3.2 Mounting of sampling processes onto glass slides	13
3.3.2.1 Bleaching	13
3.3.2.2 Staining	13
3.3.2.3 Dehydration process	13
3.3.2.4 Mounting	14
3.3.3 Viewing samples under the microscope	16
3.4 Powder microscopy	16
3.4.1 Preparation of samples	16
3.4.2 Preparation of slides	16
3.4.3 Viewing under the microscope	17
3.5 Thin layer chromatography	17
3.6 Colour test	18
3.7 Determination of ash	18
3.7.1 Total ash	18
3.7.2 Determination of acid-insoluble ash	19
3.7.3 Determination of water-soluble ash	19

#### **ABSTRACT**

Lepisanthes rubiginosa, also known as Pokok Mertajam in Terengganu is an important medicinal plant belonging to the family Sapindaceae. The decoction of roots is used to alleviate fever, the leaves are used externally to treat skin disease while the young stems of this tree are eaten by people in Indonesia to induce sleeping. The study provides the pharmacognostical evaluation of the bark of this plant which will be helpful in producing standardization and pharmacopoeia parameter. The microscopic examination showed secondary phloem, cortex, sieve elements, companion cell, fibre and medullary rays. While the physiochemical studies revealed total ash (4.67%), acid insoluble ash (0.50%) and water soluble ash (3.61%). The thin layer chromatography studies gave 10 spots in chloroform:methanol (80:20). In the colour reaction test, the bark powder produced different colour with different reagents.