

UNIVERSITI TEKNOLOGI MARA

**COLLECTION, EXTRACTION, FRACTIONATION
AND ISOLATION OF PHYTOCHEMICAL
CONSTITUENTS FROM *PANDANACEAE* SPECIES**

MOHD BOKHARI BIN MOHAMED NOR

**Dissertation submitted in partial fulfillment of the
requirements for the degree of
Bachelor of Pharmacy (Hons)**

Faculty of Pharmacy

October 2006

ACKNOWLEDGEMENT

Alhamdulillah, all praise to Allah S.W.T., the Most Merciful and the Most Gracious. With His helps and blessings, this study has been done successfully. Praises to Prophet Muhammad (may peace be upon him), the greatest creation who brought light and peace throughout the universe.

Special thanks are dedicated to my respectful supervisor, Professor Dr. J.F.F. Weber, for being there for me in every step of the way in phytochemistry, which I had very little knowledge and information at the beginning of my study. Special gratitude to my co-supervisor, Dr. Humeira and the Dean, Professor Dr. Abu Bakar Abdul Majeed. Special thankfulness to En. Syed Abdul Illah Al-Yahya, who help me for the period of the study. Not forgotten to coordinator of this course, Dr. Kalavathy. Thanks for her support and advice. I pray to Allah S.W.T. preserve your time in doing good deeds and charity.

My greatest thanks to my lovely fellows, Mohd Faizul Kamaruddin and Afra Nahdia Marizan Nor, who work together with me all the time during this study.

My precious thanks go to my family especially to my parents for their never-ending support. Finally yet importantly, also thank to my fellow friends for being there every time when I need them for helps.

TABLE OF CONTENTS

	Page
TITLE PAGE	
APPROVAL FORM	
ACKNOWLEDGEMENTS	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF PLATES	viii
LIST OF ABBREVIATIONS	ix
ABSTRACT	x
CHAPTER ONE (INTRODUCTION)	1
CHAPTER TWO (LITERATURE REVIEW)	
2.1. Description of plants of the genus <i>Pandanus</i>	3
2.2. Traditional Use of <i>Pandanaceae</i> Species	4
2.3. Chemical Constituents	6
CHAPTER THREE (MATERIALS AND METHODS)	
3.1. Materials	14
3.1.1. Plant Materials	14
3.1.2. Chemicals	14
3.2. Experimental	15
3.2.1. Preparation of Crude Extract	15
3.2.2. Fractionation of Crude Extract	16
3.2.3. Isolation of Compounds from Leaves	18
3.2.3.1. Thin Layer Chromatography (TLC)	18
3.2.3.2. Preparative TLC	18

ABSTRACT

The major objective of this project is to study the phytochemistry in *Pandanus* species. Several stages were taken in order to accomplish the project. A first stage is the collection of the sample which is *Pandanus* plants from the local forest. Then, several extraction methods had been done to purify the compound(s) by using several solvents and apparatus. Fractionation of the compound(s) had been done to remove the other impurity which comes together with the pure compound(s). Last but not least, the isolated processes were done to isolate the pure compound(s) that have been obtain. The pure compound(s) that were obtained undergoes several test methods to identify the structure of the compound(s) by using spectroscopic technique such as Nuclear Magnetic Resonance (NMR) spectrometer, Infrared (IR) spectrometer and UV Visible (UV-VIS) spectrometer.

CHAPTER 1

INTRODUCTION

Asia Pacific regions, especially Malaysia, Indonesia and Thailand have been known as the tropical stores of many plant species. It is estimated that there are more than 12,000 species of higher plants available in Malaysia, and from the amount, about 10% of these plants were use for medicinal purposes (Latiff *et al.*, 1984).

Natural products from plants had been utilized widely as medicines for thousands of years and they were known to be use for particular ailments from those ancient times (Samuelsson, 2004). The specific plants used and the methods of applications were passed down from generations through oral history. In more recent history and until today, numerous researches have been actively investigating for new drug discovery from medicinal plants in view of their potential health benefits.

Morphine, vinblastine, paclitaxel and reserpine are the examples of the plants constituents, which had been studied for their efficiency and pharmacological effects and used widely in pharmaceutical purposes. Despite being one of the oldest fields of science, natural product chemistry remains an active field of research. The study on phytochemistry of natural products has become more important since the finding in this study can be using as the basic and starting materials for biotechnology. This is clearly