

UNIVERSITI TEKNOLOGI MARA

**EVALUATION OF CYTOTOXIC ACTIVITY OF
MYRICETIN AND MAHANIMBINE AGAINST BRAIN
CANCER CELL LINE (SF295)**

HAZLINDA BTE MOHAMAD

Dissertation submitted in partial fulfilment of the
requirements for the Bachelor (Hons) Of Pharmacy

Faculty of Pharmacy

2012

APPROVAL SHEET

I hereby recommended that the thesis prepared under my supervision by Hazlinda binti Mohamad entitled “Cytotoxic Activity Of Myricetin And Mahanimbine Against A Brain Cancer Cell Line (SF295) And A Normal Cell Line (WRL68)” be accepted in partial fulfilment of the requirement for the degree of Bachelor of Pharmacy from the Faculty of Pharmacy, UiTM.

.....
Date

.....
Ms. Nurul Aqmar Mohd Nor Hazalin
Main Supervisor

.....
Date

.....
Assoc. Prof. Dr. Kalavathy A/P Ramasamy
Co-supervisor

.....
Date

.....
Dr. Vasudevan Mani
Co-supervisor

.....
Date

.....
Prof. Dr. Aishah Adam
Dean of Faculty of Pharmacy

ACKNOWLEDGEMENTS

Firstly, I would like to praise to the merciful Allah SWT, for the guidance that helped me throughout this study and finish this study on time. I also would like to thank my supervisor, Ms. Nurul Aqmar Mohd Nor Hazalin and my co-supervisor of this study, Assoc. Prof. Dr. Kalavathy A/P Ramasamy and Dr. Vasudevan Mani for their valuable guidance and advices. They had inspired me a lot and lead me to overcome problems during this study period.

I also would like to be grateful for having very supportive postgraduate students which Ms.Nur Syafiqah Bt Rahim, Ms. Siti Norshazwani Bt. Wahab, Ms. Nor Nadia Ban, Ms. Siti Munirah Bt. Jaafar and Ms. Nurul Huda Bt. Musa for their continuous guidance. I would like to thank the authority of University Teknologi Mara (UiTM) for providing such a good environment and facilities to complete this study. I would also like to take this opportunity to thank to Faculty of Pharmacy for offering this subject, Research 556 since it does gives a very valuable opportunity for students to participate and learn about the operations in doing research and open up the door for students to experience in the field of research and development.

Lastly, deep appreciation to my research colleagues which are, Norhamiza Bt. Abd Hamid, Izzati Bt. Hasnul, Wan Izzati Mariah Bt. Wan Hasan and Hosni B. Azhar for their cooperation in helping me with this study. An honourable mention goes to my families and friends for their understanding and support in completing this study. Without all the help from the particulars mentions before, I definitely would face many difficulties in completing this study. Thank you.

TABLE OF CONTENTS

	Page
TITLE PAGE	
APPROVAL	i
ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii-iv
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
ABSTRACT	viii
CHAPTER ONE (INTRODUCTION)	
1.1 Background Research	1-2
1.2 Objectives	3
CHAPTER TWO (LITERATURE REVIEW)	
2.1 Brain cancer	4-5
2.1.1 Statistics	5-6
2.1.2 Causes and risk factors	7
2.2 Current treatment of brain cancer	7-9
2.2.1 Surgery	9-10
2.2.2 Radiotherapy	10-11
2.2.3 Chemotherapy	11-12
2.3 Natural Products	12
2.3.1 Terrestrial plant	12-13
2.3.2 Terrestrial microorganism	13-15
2.3.3 Marine organism	15-16
2.4 Myricetin	17-18
2.4.1 Biological Properties of Myricetin	18
2.5 Mahanimbine	18-19
2.5.1 Biological Properties of Mahanimbine	19

CHAPTER 1

INTRODUCTION

1.1 Background research

National Cancer Institute defined cancer as a disease in which abnormal cells divide without control and are able to invade other tissues. Brain cancer can arise from original (primary) brain cells (glioma), the cells that are form other brain components and these cells may affects central nervous system. Malignant tumour is cancerous and if not treated early, may spread and affect other parts of the body, becoming invasive cancer (National Cancer Society Malaysia, 2011). Malignant tumours are referred as cancerous cell since the tumours are very aggressive and growing rapidly.

Increasing population and longer life spans contributes to rise of cancer. Cancer occurs more in females than males with a ratio of male to female 1:1.2 (National Cancer Society Malaysia, 2011). The percentage of brain cancer in Malay male is 4.4% and is the eighth most common cancer among them. Female are less risk to get brain cancer as the percentage of brain cancer is 3% but they are at very high risk to get breast cancer, 33.8%.