UNIVERSITI TEKNOLOGI MARA

EFFECT OF METHANOLIC EXTRACT OF *MYRMECODIA PLATYTYREA* TUBER ON THE CYTOKINE LEVEL IN SPRAGUE DAWLEY RATS

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Dissertation submitted in partial fulfillment of the requirements

for the degree of

Bachelor of Pharmacy (Hons.)

2015

ACKNOWLEDGEMENTS

Upon completion of this project, I would like to express my gratitude to many parties. I would like to convey my greatest gratitude to Allah S.W.T. the one who has given me the strength, ability and ideas to finish this study. My deepest gratitude goes to my supervisor, Dr Mizaton Hazizul Hasan as my advisor for her fully commitment and encouragement. Her guidance in conducting this research, skills in writhing thesis, suggestions, comments and advices are the one that I appreciate the most.

Special gratitude to all post-graduate student and research assistant whose are willing to help me in completing this study. Their guidance and support are really appreciated.

Sincere thanks to my family and friends especially Siti Sarah Athirah Pauzi as my research partner for their help and moral support during this study. I am blessed by their unconditional love which has indeed given me encouragement and motivation in completing this research. Without support from these individuals I am afraid that I am unable to do well in completing this study. Thank you very much.

TABLE OF CONTENTS

TITLE PAGE	**Page**
APPROVAL	
ACKNOWLEDGEMENTS	**ii**
TABLE OF CONTENTS	**iii**
LIST OF FIGURES	**iv**
LIST OF TABLES	**v**
LIST OF ABBREVIATIONS	**vii**
ABSTRACT	vii
CHAPTER 1 (INTRODUCTION)	**1**
1.1 Background of study	1
1.2 Objective	3
1.3 Hypothesis	3
CHAPTER 2 (LITERATURE REVIEW)	**4**
2.1 Cytokines and Inflammation	4
2.2 Cyclooxygenase Pathway	6
2.3 Immunomodulatory Activity	8
2.4 Sprague Dawley Rat	9
2.5 *Myrmecodia platytyrea*	9
CHAPTER 3 (METHODOLOGY)	**12**
3.1 Chemical	12
3.2 Apparatus	12
3.3 Experimental animals	12
3.4 Treatment of Sprague-Dawley Rats	13
3.5 Statistical Analysis of Data	15
CHAPTER 4 (RESULT)	**16**
CHAPTER 5 (DISCUSSION)	**24**
CHAPTER 6 (CONCLUSION)	**26**
BIBLIOGRAPHY	**27**

ABSTRACT

Myrmecodia platytyrea is known as ant-nest plant, belonging to the Rubiaceae family which is believed to have a potential anti-inflammatory activity. The decoction of the plant's tuber is used for the treatment of inflammation-related disorders such as cancer, rheumatoid arthritis, coronary heart diseases and others. Furthermore, the tuber consists of many polyphenol compounds. The present study was conducted to determine the effect of methanolic extract of *Myrmecodia platytyrea* tuber on the inflammation markers such as the cytokine levels (TNF-α, IL-1β and IL-6) in female Sprague Dawley rats treated for 14 days (p.o.) daily. The administration of 100 mg/kg, 200 mg/kg and 400 mg/kg of *M. platytyrea* extract on treated rats revealed no significant differences ($p>0.05$) on body weight, food and water intake compared to control rats (normal saline, p.o.). Blood drawn at the end of the study via cardiac puncture was analysed using Enzyme-linked Immunosorbent Assay (ELISA) for the measurement of rat TNF-α, IL-1β and IL-6. However, there were no significant differences in the level of cytokines compared to control. In conclusion, 14-day oral administration of *M. platytyrea* methanolic extract of *M. platytyrea* tuber did not cause any elevation of cytokine levels of the female Sprague Dawley rats.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Inflammation is a body protective mechanism towards harmful stimuli that causes tissue injury. The symptoms are redness, swelling, pain, heat and loss of function. The cell quickly responds by activating the immune system in order to eliminate the harmful stimuli such as damaged cells, irritants or invading pathogens by. The neutrophils which are firstly activated will move to site of inflammation and recruits more macrophages, chemokines and others leukocytes. In normal inflammatory response, after the pro-inflammatory cytokines are being down regulated, the expression of anti-inflammatory cytokines then takes place (Pal et al., 2014). Failure in down regulation of pro-inflammatory cytokines will lead to chronic inflammation. The cancer arises from chronic inflammations among other inflammation-related disease.

Myrmecodia platytyrea is called as ant-nest plant. It is found from Burma and Indochina throughout the Philippines, Malaysia, Indonesia and Papua New Guinea, to Queensland, the New Hebrides and Fiji (Huxley, 1978). It is an epiphytic plant that is attached to or