



اَوْبُوْ سَيِّدِيْ تَيْكُوْ لُوْ كِيْ مَارَا
UNIVERSITI
TEKNOLOGI
MARA

**A PRELIMINARY STUDIES ON PHYTOCHEMICALS AND ANTIMICROBIAL
POTENTIAL OF *Coriandrum sativum* L AGAINST PATHOGENIC
MICROORGANISMS**

By

NUR DIYANAH BINTI HAZMI

**Thesis Submitted in Partial Fulfillment for the Degree of Bachelor of Medical Laboratory
Technology (Hons), Faculty of Health Sciences, Universiti Teknologi MARA**

2017

DECLARATION

I hereby declare that this thesis is my original work and has not been submitted previously or currently for any other degree at UiTM or any other institutions.

(Nur Diyanah Binti Hazmi)

ACKNOWLEDGEMENT

Alhamdulillah and I am very grateful to Allah S.W.T, for giving me strength, ability and health to complete my final year project that took about four months.

Firstly, I would like to appreciate and thank to my supervisor, Puan Azlin Sham Binti Rambely for teaching and giving me more knowledge regarding to my final year project. Her encouragement, guidance and suggestion that she gave to me were helpful in completing my final year project successfully.

I would like to thank also to Faculty of Health Sciences and Dr Mazura Binti Bahari, coordinator of final year project for Bachelor of Medical Laboratory Technology (Hons) for the supports. I also want to take this opportunity to thank to all the laboratory staffs; Mrs. Iadah Binti Elias, Mrs. Masmadiany Muhammad, Mrs. Aziyana Zainol, Mr. Mohd Nornizam Zaini, Mr. Mohd Khairi Khalil and Mr. Mohd Nazzihan for cooperating and helping me during my laboratory work.

A special appreciation and thanks to my parents, Hazmi Bin Zainal Abidin and Norhayati Binti Abd Rahman and also to my family members for their moral support and encouragement throughout my study in Puncak Alam.

Lastly, I would like to thank to my classmates especially my group members for their favor, ideas and support to complete my project.

TABLE OF CONTENTS

CONTENT	PAGE
TITLE PAGE	ii
DECLARATION	iii
INTELLECTUAL PROPERTIES	v
APPROVAL	viii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	x
LIST OF TABLES	xii
LIST OF FIGURES	xiii
LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURE	xiv
ABSTRACT	xv
CHAPTER 1: INTRODUCTION	
1.1.BACKGROUND OF STUDY	1
1.2.PROBLEM STATEMENT	4
1.3.SIGNIFICANCE OF STUDY	5
1.4.OBJECTIVES OF STUDY	6
1.5 HYPOTHESIS OF STUDY	6
CHAPTER 2: LITERATURE REVIEW	
2.1 INTRODUCTION TO <i>CORIANDRUM SATIVUM</i>	8
2.2 SOLVENTS	9
2.3 PHYTOCHEMICAL SCREENING	9
2.4 ANTIBACTERIAL SUSCEPTIBILITY TESTING (AST)	13

ABSTRACTS

Background: Coriander (*Coriandrum sativum*) belongs to the *Apiaceae* family. It has been claimed to have antibacterial activity against Gram-positive and Gram-negative as well as fungi. This has led to studying of phytochemical properties of *Coriandrum sativum* L aerial parts as an antimicrobial activity against pathogenic microorganisms extracted by adding hexane as an additional steps for cleaning purpose and comparing the effectiveness as mentioned in previous study. **Method:** The plants of *Coriandrum Sativum* were purchased from local market in Selangor. The aerial parts were collected and washed with distilled water and dried in the hot air oven for 2 days, then made to powder form. The powdered samples with concentration (100g/500ml) was placed in 2 solvents which are methanol and hexane. As for hexane, the powder was soaked in 24 hours before being extracted by using methanol for the next day for 2 days. The extract from these solvents were soaked and evaporated under pressure by using rotary evaporator with the final concentration 1000mg/ml. Preliminary phytochemical screening and antimicrobial sensitivity testing (AST) were performed against pathogenic organism and compared the effectiveness. **Results:** The results of antimicrobial assay showed that methanolic extract of *Coriandrum sativum* L exhibited most antimicrobial activity against *Escherichia coli*, *Pseudomonas aeruginosa*, and *Proteus mirabilis* respectively. While for hexane-washed methanolic extract of *Coriandrum sativum* L have marked antibacterial activity against *Bacillus cereus*, *Proteus mirabilis* and *Staphylococcus aureus*. None of the extract exhibited antimicrobial activity against *Acinetobacter baumannii*. Comparison between methanolic extract and hexane-washed methanolic extract show significant result at same concentration. **Conclusion:** In conclusion, the leaves extract of *Coriandrum sativum* plant have marked antibacterial activity against many bacteria. From this study, it can be said that, additional steps by adding hexane as lipid removing purpose of *Coriandrum sativum* shows no significance changes. Nevertheless, both extractions showed a wide range of antibacterial activity and can be used for the medical purpose. **Keywords:** *Coriandrum sativum*, antimicrobial, phytochemical, extraction, lipid, hexane, methanol, pathogenic bacteria.