

**PHYTOCHEMICAL CONSTITUENTS AND
ANTIBACTERIAL ACTIVITY OF
Melastoma malabathricum Linn. AGAINST
DIARRHEAGENIC BACTERIA**

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**Final Year Project Report Submitted in
Partial Fulfillment on Requirement for the
Degree of Bachelor of Science (Hons.) Biology
Faculty of Applied Sciences
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JUNE 2015

TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS	ii
TABLE OF CONTENTS	iii
LIST OF TABLES	v
LIST OF FIGURES	vi
LIST OF ABBREVIATIONS	vii
LIST OF SYMBOLS	viii
LIST OF APPENDICES	ix
ABSTRACT	x
ABSTRAK	xi
1.0 INTRODUCTION	
1.1 Background of study	1
1.2 Problem statement	3
1.3 Significance of study	3
1.4 Objective of study	4
2.0 LITERATURE REVIEW	
2.1 <i>Melastoma malabathricum</i> Linn. (Senduduk)	5
2.2 Phytochemical Screening	7
2.3 Test Organisms and Control Antibiotic	
2.3.1 Bacteria	8
2.3.2 Antibiotic	9
2.4 Modified Kriby-Bauer Disc Diffusion Method	9
2.5 Minimum Inhibitory Concentration (MIC)	10
2.6 Minimum Bactericidal Concentration (MBC)	11
3.0 METHODOLOGY	
3.1 Material	
3.1.1 Raw material	12
3.1.2 Test Organisms, Antibiotic, and Media	12
3.1.3 Chemicals	12
3.1.4 Apparatus	13
3.2 Method	
3.2.1 Collection and Preparation of Plant Samples	13
3.2.2 Method of Extraction	13
3.2.3 Phytochemical Screening	14
3.2.4 Antibacterial Activity Evaluation	17

4.0	RESULT AND DISCUSSION	
4.1	Phytochemical screening	22
4.2	Modified Kriby-Bauer Disc Diffusion Method	25
4.3	Minimum Inhibitory Concentration (MIC)	29
4.4	Minimum Bactericidal Concentration(MBC)	32

5.0	CONCLUSION AND RECOMMENDATIONS	
5.1	Conclusion	37
5.2	Recommendations	38

CITED REFERENCES	39
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APPENDICES	
Appendix A	45
Appendix B	47
Appendix C	50
CURRICULUM VITAE	51

ABSTRACT

PHYTOCHEMICAL CONSTITUENTS AND ANTIMICROBIAL ACTIVITIES OF *Melastoma malabathricum* LINN AGAINST DIARRHEAGENIC BACTERIA

Melastoma malabathricum Linn. (Senduduk) is a small shrub with various medicinal uses. In the present study, the aims of this research are to detect the phytochemical constituents on the ethanolic leaves and flowers extracts of *Melastoma malabathricum* and to evaluate the antibacterial property of *Melastoma malabathricum* extracts against *Escherichia coli* (ATCC 11229) and *Salmonella typhimurium* (ATCC 14028). Through phytochemical screening alkaloid, tannins, terpenoids, saponins, glycosides, proteins, steroids and flavonoids compounds were detected in leaves extract. Alkaloid, tannins, terpenoids, saponins, glycosides and flavonoids compounds were detected in flowers extract. While steroid and protein were not detected in the flower extract. These shows both extract have high potential as antibacterial and antidiarrheal against diarrheagenic bacteria. Antimicrobial evaluation using modified Kirby-bauer method showed that leaves extract is susceptible toward *S. typhimurium* while ethanolic flowers extract is intermediate toward *E. coli*. Leaves extract shows more efficiency towards against *E. coli* and *S. typhimurium* with minimum inhibition concentration at 0.001mg/ml. While ethanolic flowers extract shows intermediate against *E. coli* and *S. typhimurium* with minimum inhibition concentration at 0.01mg/ml. Therefore, both extract are shows bactericidal properties against *S. typhimurium* while leaves extract is shows bactericidal properties against *E. coli* at minimum concentration 0.1mg/ml. These results show the potential of antibacterial and antidiarrheal properties which present in both extract against *E. coli* and *S. typhimurium*. Further analysis is required to assess the efficacy of leaves and flowers extract of *M. malabathricum* plant when applied in medicinal treatments. Both extracts also have the potential to be commercialized in the pharmaceutical industry with appropriate concentration against *E. coli* and *S. typhimurium*.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Melastoma malabathricum Linn. is locally known as *senduduk*, *sekeduduk*, *kenduduk* (Suhaidah *et al.*, 2011), *sikadudok*, *seduduk*, *kemunting* (Iban), *lingangadi* (Murut); *gasing-gasing*, *gagabang*, *ngongodo*, *gata-gata* (Kadazandusun), *kelarit* (Murut) by local communities in Malaysia. This plant belongs to *Melastomataceae* family (GlobinMed, 2011). This plant has been claimed as to possess variety of medicinal values according to the ethnical groups' traditional beliefs and the whole part of plant which could be as an herbal medicine. It is also a known as herb in Malaysia, where its different parts of plants were prepared in different ways to treatment the difference of disease and ailments (Suhaidah *et al.*, 2011).

Diarrhea refers to the frequent passage of loose or watery stools in human and usually occurs at least three times in a day. Diarrhea of difference time can causes the dehydration, which means the body loss of fluids and chemical charges which to function properly (Fordtran and Donowitz, 2013). There are three common categories of diarrhea which are acute