

**ISOLATION OF ANTIOXIDATIVE CONSTITUENTS OF *Cosmos  
caudatus* AND ITS ANTIBACTERIAL ACTIVITY AGAINST PLANT  
DISEASE - CAUSED MICROBE**

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## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENT</b>	<b>iv</b>
<b>TABLE OF CONTENTS</b>	<b>v</b>
<b>LIST OF TABLES</b>	<b>vii</b>
<b>LIST OF FIGURES</b>	<b>viii</b>
<b>LIST OF ABBREVIATION</b>	<b>ix</b>
<b>ABSTRACT</b>	<b>xi</b>
<b>ABSTRAK</b>	<b>xi</b>
<b>CHAPTER 1 INTRODUCTION</b>	<b>1</b>
1.1 Background of the study	1
1.2 Problem statement	3
1.3 Significant of study	3
1.4 Objective	4
<b>CHAPTER 2 LITERATURE REVIEW</b>	<b>5</b>
<b>2.1 Common family (Asteraceae)</b>	<b>5</b>
2.1.1 Active compounds of Asteraceae	5
2.1.2 Antibacterial properties of Asteraceae	7
<b>2.2 Common species (Cosmos)</b>	<b>8</b>
2.2.1 Active compounds	8
2.2.2 Properties	9
<b>2.3 <i>Cosmos Caudatus</i> Kunth</b>	<b>10</b>
2.3.1 Active compounds of <i>C.caudatus</i>	10
2.3.2 Antimicrobial properties of <i>C.caudatus</i>	12
<b>CHAPTER 3 METHODOLOGY</b>	<b>16</b>
3.1 Preparation of leave extracts	16
3.2 Phytochemical screening test	16
3.2.1 Alkaloid	17
3.2.2 Tannin	17
3.2.3 Saponin	17
3.2.4 Steroid and Triterpenoid	17
3.2.5 Glycoside	17
3.2.6 Flavonoid	18
3.3 FTIR	18
3.4 Thin layer chromatography (TLC) analysis	18
3.4.1 Preparation of developing solvents	18
3.4.2 TLC development	18
3.5 Preparation of spraying reagents for phytochemicals detection	19
3.5.1 Dragendorff's reagent (to detect the presence of alkaloids)	19
3.5.2 Ferric chloride spraying reagent (to detect the presence of phenolic compounds)	19

3.5.3	Vanillin/H <sub>2</sub> SO <sub>4</sub> spraying reagent (to detect the presence of terpenoid compounds)	20
3.5.4	DPPH spraying reagent (to detect the presence of antioxidants)	20
3.6	Nuclear Magnetic Resonance (NMR)	20
3.7	Disc Diffusion Method	21
3.7.1	Preparation of microbial inoculum	21
3.7.2	Serial dilutions	21
3.7.3	Antibacterial activity assay	21
3.8	Isolation of compounds from plant species	22
3.8.1	Preparation of TLC	22
3.8.2	Development of TLC	22
3.8.3	Isolation of compounds	22
3.8.4	Purity testing	23
<b>CHAPTER 4 RESULTS AND DISCUSSION</b>		<b>24</b>
4.1	<b>Phytochemical screening test</b>	<b>24</b>
4.2	<b>Thin layer chromatography analysis</b>	<b>25</b>
4.3	<b>FTIR</b>	<b>29</b>
4.4	<b>Isolation of antioxidative compounds of A1 and A2 using preparative Thin Layer Chromatography (TLC)</b>	<b>33</b>
4.4.1	Purity testing of compound A1 and A2	33
4.5	Nuclear Magnetic Resonance (NMR) analysis	34
4.6	Antimicrobial activity assay	37
<b>CHAPTER 5 CONCLUSION AND RECOMMENDATIONS</b>		<b>42</b>
<b>CITED REFERENCES</b>		<b>44</b>
<b><i>CURRICULUM VITAE</i></b>		<b>49</b>

## LIST OF TABLES

<b>Table</b>	<b>Caption</b>	<b>Page</b>
3.1	Observations for visualizing results of spraying reagents	20
4.1	Phytochemical analysis of methanolic extract of <i>C.caudatus</i>	24
4.2	TLC characteristic of compounds in hexane extract	26
4.3	TLC characteristic of compounds in EA extract	27
4.4	TLC characteristic of compounds in MeOH extract	28
4.5	IR spectrums for all crude extract and interpretations	30
4.6	In vitro antibacterial activity for each crude extract of <i>C.caudatus</i>	37

## ABSTRACT

### INVESTIGATION OF ANTIOXIDATIVE CONSTITUENTS OF *COSMOS CAUDATUS* AND ITS ANTIBACTERIAL ACTIVITY AGAINST PLANT DISEASE - CAUSED MICROBE

*Cosmos caudatus* Kunth or known as 'Ulam Raja' in Malaysia, is a traditional herb to cure and improve human illness. Many studies have showed the secondary metabolites of the plant to be antioxidants and have antibacterial properties. The plant was extracted using solvents of different polarity which were hexane, ethyl acetate and methanol. Phytochemical screening using certain spraying reagent, FTIR analysis, compound isolation using preparative TLC, proton NMR analysis and disc diffusion method were conducted to investigate the presence of antioxidant compounds and antibacterial activity of *C.caudatus*. From the phytochemical screening test, the plant was found to contain flavonoid, tannin, alkaloid, glycoside and terpenoid compounds. The isolated compounds (phenolic and terpenoid) using preparative TLC are antioxidants. From FTIR and proton NMR analysis, the absorption peaks of the phenolic compound were predicted as phenolic glycoside, while for the terpenoid compound was suggested as a terpenoid glycoside. From the antimicrobial study of disc diffusion method, the most effective extracts used were methanol and hexane extract with the largest inhibition zone of 12 mm and 11 mm, respectively towards *Erwinia chrysanthemi*. This study has achieved its objectives by investigating the antioxidative compounds and evaluating the effectiveness of *C.caudatus* as antibacterial agent against plant pathogen.