

ANTIOXIDANT ACTIVITY OF ISOLATED FLAVONOIDS  
FROM THE DRIED PERICARP OF  
*Garcinia Parvifolia* Miq.

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# TABLE OF CONTENTS

	<b>PAGE</b>
<b>ACKNOWLEDGEMENT</b>	i
<b>TABLE OF CONTENTS</b>	ii
<b>LIST OF TABLES</b>	iv
<b>LIST OF FIGURES</b>	vi
<b>LIST OF ABBREVIATIONS</b>	vii
<b>ABSTRACT</b>	viii
<b>ABSTRAK</b>	ix
<b>CHAPTER 1: INTRODUCTION</b>	
1.1 Background of Study	1
1.2 Problem Statement	2
1.3 Significance of Study	2
1.4 Objectives of the Study	3
<b>CHAPTER 2: LITERATURE REVIEW</b>	
2.1 Flavonoids	4
2.1.1 Classes of Flavonoids	4
2.1.2 Bioactivities of Flavonoids	6
2.1.3 Importance of Flavonoids to:	7
2.1.3.1 Humans and Animals	7
2.1.3.2 Plants	8
2.2 Flavonoid Compounds Isolated from Some Plants Belonged to Genus <i>Garcinia</i>	9
2.3 Flavonoid Compounds Isolated from <i>Garcinia parvifolia</i>	10
2.4 Experimental Studies	
2.4.1 Sample Extraction Methods	11
2.4.2 Column Chromatography	12
2.4.3 Thin Layer Chromatography	13
2.4.4 Antioxidant Evaluation Method	14
<b>CHAPTER 3: METHODOLOGY</b>	
3.1 Materials	
3.1.1 Raw Materials	17
3.1.2 Chemicals	17
3.1.3 Apparatus	17
3.2 Methods	
3.2.1 Sample Extraction	18
3.2.2 Column Chromatography	19
3.2.3 Thin Layer Chromatography	19
3.2.4 Antioxidant Evaluation by DPPH Method	
3.2.4.1 Preparation of Stock Solution	20

3.2.4.2 DPPH Assay	21
3.2.5 Statistical Analysis	23
<b>CHAPTER 4: RESULT AND DISCUSSION</b>	
4.1 Isolation of Flavonoid Compounds	
4.1.1 Column Chromatography Fractionation	24
4.1.2 Thin Layer Chromatography	26
4.2 Antioxidant Activity	
4.2.1 Ascorbic Acid	31
4.2.2 Crude Extract	34
4.2.3 Isolated Compounds	37
<b>CHAPTER 5: CONCLUSION AND RECOMMENDATIONS</b>	41
<b>CITED REFERENCES</b>	42
<b>APPENDICES</b>	47
<b>CURRICULUM VITAE</b>	55

## ABSTRACT

### ANTIOXIDANT ACTIVITY OF ISOLATED FLAVONOIDS FROM THE DRIED PERICARP OF *Garcinia Parvifolia* Miq.

There are still many plants in this world with health benefits that have not been explored and commercialized, and *Garcinia parvifolia* is one of them. Currently, there are few reported studies done on the leaves, stem and root bark of *Garcinia parvifolia* Miq., but not much are concentrated on the fruits, especially the dried pericarp of the fruit. The purpose of this study is to isolate flavonoid compounds from dried fruit pericarp of *Garcinia parvifolia* Miq. and to determine the antioxidant property of the isolated flavonoid compounds. The samples were extracted using chloroform, hexane, ethyl acetate and methanol successively. The crude underwent column chromatography using toluene-ethyl acetate (50:50) yielding 71 fractions. After running through thin layer chromatography, it was discovered that 26 fractions contained flavonoids. The R<sub>f</sub> values ranging from 0.69 to 0.85 is suggested to be rutin while R<sub>f</sub> values ranging from 0.90 to 0.99 is suggested to be digoxin. The crude extract showed positive antioxidant activity, with the highest percentage of scavenging activity of 94.15% at 390mg/mL. All concentrations of crude extract have lower scavenging ability than the ascorbic acid control. The antioxidant activity of crude extract is 98.7% as good as ascorbic acid at different concentrations, while the isolated flavonoids antioxidant activity is between 74 to 98%. Rutin is the flavonoid most responsible for the antioxidant activity of the dried fruit pericarp of *Garcinia parvifolia* Miq. This study is hoped to help increase the commercialization of *Garcinia parvifolia* Miq.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

*Garcinia parvifolia* Miq. comes from the family Guttiferae or Clusiaceae (Ee *et al.*, 2007). It is commonly known as ‘takob-akob’, ‘cherry mangosteen’, ‘kandis’, ‘kedundong’, or ‘asam kandis’ (Lim, 2012; Syamsudin *et al.*, 2007). It has pale yellow-coloured flowers, and yellow fruits with small seeds enwrapped in thin-layered skin. The plant is originally found in Peninsular Malaysia, Thailand, Borneo and Sumatra. The natives used to mixed young leaves with other ingredients to form a jelly-like food. Dried fruits are consumed raw or added in curries as additional flavour (Lim, 2012). Not only that, the natives also have been exploiting this plant as a use for traditional medicines (Syamsudin *et al.*, 2007).

Flavonoids or bioflavonoids are a class of plant’s polyphenolic secondary metabolites (Heim *et al.*, 2002). They are primarily found as glycosides and polymers which are digestible and can be found concentrated in cocoa, teas, wines, vegetables and fruits (Heim *et al.*, 2002; Barnes *et al.*, 2001). Flavonoids have been reported to have antioxidant, antibacterial, anti-