

UNIVERSITI TEKNOLOGI MARA

**EFFECT OF KELULUT HONEY ON GRAM POSITIVE
BACTERIA**

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TABLE OF CONTENTS

	Page
TITLE PAGE	i
APPROVAL	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	vi
LIST OF FIGURES	vii
LIST OF ABBREVIATION	viii
ABSTRACT	ix
CHAPTER ONE (INTRODUCTION)	1
1.1 Background	1
1.2 Problem statement	2
1.3 Objectives	2
1.4 Significance of study	3
1.5 Hypothesis	3
CHAPTER TWO (LITERATURE REVIEW)	4
2.1 Honey	4
2.2 Type of honey	7
2.3 Medicinal effect of honey	9
2.3.1 Tualang honey	9
2.3.2 Kelulut honey	14

ABSTRACT

Honey is one of remedies that have been used for centuries as cough and sore throat reliever. But it also can be used to heal infected surgical wounds, burns and decubitus ulcer, and as antioxidant. In this study, Kelulut honey produced by *Heterotrigona itama* sp. and *Geniotrigona thoracica* sp. and Tualang honey produced by *Apis dorsata* sp. were be tested with Gram-positive bacteria, *Staphylococcus aureus*, *Bacillus subtilis* and *Micrococcus luteus* as antimicrobial agent. There is five different concentration of both honey were used (5, 10, 25, 50 and 75% v/v). The antimicrobial test was conducted using the disk diffusion method. As results, Kelulut honey has been proven to have more profound effect as antimicrobial agent compared to Tualang honey due to the presence of hydrogen peroxide, acidity and osmolarity of the Kelulut honey. Kelulut honey showed inhibition to all three Gram-positive bacteria and showed the most effective on inhibit *M.luteus* growth with 8.0 mm diameter zone of inhibition. In contrast, Tualang honey can only showed inhibition to two Gram-positive bacteria (*S. aureus* and *B. subtilis*). The biggest diameter of zone of inhibition that Tualang honey can produce was 7.5 mm. The statistical analysis that has been carried out was one sample t-test showed that the value of two-tail significance for both Kelulut and Tualang honey is less than 0.05 indicates that the difference between means was significance ($p<0.05$).

Keywords: Kelulut honey, Tualang honey, Gram-positive bacteria, Disk Diffusion method

CHAPTER ONE

INTRODUCTION

1.1 Background

One of the natural and traditional remedies that still in the process of discovering is honey. It is one of the ancient medicines that have been used for a long time ago until today. Honey has been found to heal infected surgical wounds, burns and decubitus ulcer (Lulat, 1989). It also contains antioxidant and anti-inflammatory properties and has been used as an antimicrobial agent. Most of the above-mentioned studies have been reported on Tualang honey, which is produced by stinging bees. However, Kelulut honey, honey produced by stingless bee is still lacking. This study is about the antimicrobial effect of Kelulut honey in Malaysia. In Malaysia, there are many stingless bee species but in this study, the Kelulut honeys that had been used were such as *Hetrotrigona itama* (Kelulut Hitam) and *Geniotrigona thoracica* (Kelulut Sawo).