

UNIVERSITI TEKNOLOGI MARA

**THE COMPARISON OF ANTIOXIDANT CONTENT
BETWEEN RAW AND EXTRACT OF ACACIA AND
TUALANG HONEY USING 96-WELLS PLATE METHOD**

IFFA FARIZA BT MD ANUAR

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CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Honey is a natural product that is sweet and very well known for its high nutritive value. It has been used by countless cultures all around the world for many decades, for different purposes. The two types of honey that are on high demands and are most commonly used in Malaysia are Acacia and Tualang (Moniruzzaman et al, 2013). Not only they serve as an important element of traditional medicines such as Ayurvedic, Malay and Chinese treatments, but they are also believed to have benefits in relation to modern medicine (Nizam et al, 2014). There are many potential health biological activities of honey which includes quality, immune-modulatory, anti-proliferative and neurological properties at in vitro and in vivo levels (A et al., 2016) Besides that, many researchers have shown that honey acts as a natural source of antioxidant and hence, it is said to reduce the risk of cancer, heart disease, cataracts, declination of immune system and different inflammatory process (Hussein et al, 2011).

Studies have reported that there are approximately 200 phytochemical compounds that are present in honey and it has been proven that they show different antioxidant activity levels depending on their origin, bioavailability and chemical structure (Moniruzzaman et al., 2013). In fact, some of these compounds even work together in preventing many critical disorders including stroke, cancer, Parkinson's disease, Alzheimer's disease, and cardiovascular problems (Šarić et al., 2012) Among these varied compounds, polyphenols and flavonoids are reviewed as the main components that contribute the most in the potential anti-oxidant activity in honey (Moniruzzaman et al, 2013). Basically this study focuses on the anti-oxidant content of honey.

There are two anti-oxidant parameters that are been tested in this study which are total phenolic compounds and total flavonoid content. These parameters are tested by using 96 wells plate method.

1.2 PROBLEM STATEMENT

Currently in Malaysia, there is not much honey studies been done using honey extract. In most studies, the honey researchers use raw honey to study the properties of honey. Therefore, this research aims to study if the antioxidant content in honey extract is comparable to the one in raw honey. Also, based on previous studies, it is claimed that the type and amount of antioxidant content in honey varies according to several factors. Therefore, this study aims to identify these differences and the factors contributing to it by using Acacia and Tualang honey.

1.3 RESEARCH OBJECTIVES

1. To investigate the difference in antioxidant content between raw honey and honey extract.
2. To compare the antioxidant content between Acacia and Tualang honey.

1.4 LIMITATIONS

The type of honey used in this study is limited to only two types, which are the Acacia and Tualang. Also, the antioxidant parameters that are tested for the honey evaluation are only limited to two types, which are the Total Phenolic Content (TPC) and the Total Flavonoid Content (TFC).