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TOTAL PHENOLIC CONTENT AND ANTIOXIDANT ACTIVITY FROM ACIDIFIED AND NON-ACIDIFIED ETHYL ACETATE EXTRACT OF ACACIA, TUALANG AND GELAM HONEY

SITI NUR AFIQAH BINTI ZOLKEPLI

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ABSTRACT

Three local types of honey from different location the honey were examined for potential antioxidant activity and total phenolic content. They were Tualang, Gelam, and Acacia honey. Phenolic compounds from honey were extracted and separated from its sugar using solvent ethyl acetate.The extract were divided into two groups. The first group was further extracted with hydrochloric acid (HCl) whereas the second group was kept non extracted with HCl. Those two different extracts were prepared to evaluate the effect of HCl towards the content of phenolic compound and the antioxidant activity of ethyl acetate extract of the honey. The antioxidant and total phenolic content of both acidified and non acidified ethyl acetate extarcts were measured by DPPH assay and Folin- Ciocalteu assay, respectively. Results indicated total phenolic content varied from 4.38 to 41.6mg/100g honey as gallic acid equivalent for honey extracted without hydrochloric acid while for honey extracted with hydrochloric acid, total phenolic content ranged from 2.86 to 3.74mg/100g honey as gallic acid equivalent. Correlation was not existed between phenolic content and antiradical activity. Negative results were observed from the antioxidant assay. Further extraction with HCl effected the value of total phenolic content but indicated no effect on the antioxidant activity of acidified and non acidified ethyl acetate honey extracts. Thus, many factors should be considered during the experiment.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Honey is one of the oldest and widely used natural food products (Dimins et al., 2010). Honey has been consumed as a sweetening agent as well as a traditional remedy (Saric et al., 2012). A number of studies were carried out to justify its beneficial properties, for instance a study reported honey was effective in gastrointestinal disorders, wound healing and burns (Hussein et al., 2011b). Therefore, honey was recommended as highly nutritional with diseases preventive value.

Interest on honey is increasing from time to its antioxidant properties of honey (Chua et al., 2013). The imbalance condition between the presence of free radical and antioxidant is known asoxidative stress. Oxidative stress has been found contributing to the disease development by oxidation such as tissue aging and atherosclerosis (Hussein et al., 2011b). The presence of antioxidant may provide the protective mechanism against diseases caused by oxidative stress. Several studies have revealed