ANTIOXIDANT PROPERTIES OFWATER SOLUBLE POLYSACCHARIDES FROM THE SHOOTS OF *BULUH BETING (Gigantochloa levis)*

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ABSTRACT

ANTIOXIDANT PROPERTIES OF WATER SOLUBLE POLYSACCHARIDE FROM THE SHOOTS OF *BULUH BETING (GIGANTOCHLOA LEVIS)*

The aims of this study are to characterize water soluble polysaccharide from the shoot of *Buluh beting (Gigantochloa levis)* and to determine the antioxidant properties as well as chemical composition it contains.The hot water extraction methodproduced about 2.5±0.02 % of water soluble polysaccharide in dry basis. Investigations showed that the extract contained 4.46±0.02 % of moisture, 3.45±0.08 % of ash, 0.01±0.01 % of protein, 20.1±0.11 % of glucose and 96.15 % of solubility. The antioxidant properties tested for the water soluble polysaccharides extracted were Total Phenolic Content (TPC), 1,1-diphenyl-2-picrylhydrazyl (DPPH) and Ferric Reducing Antioxidant Power (FRAP). For the TPC measured by Folin-Ciocalteau methods the phenolic amount obtained was 4.44 mgGAE/100 g extract. The FRAP conducted resulted in84.14±2.93mgTE/g. For the DPPH analysis, 96.16±0.04 % scavenging effect was evaluated. As a conclusion, the synthetic antioxidant (BHA and BHT) was found higher in antioxidant properties than the natural antioxidant properties contained in the shoots of *Buluh beting (Gigantochloa levis)*.

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CHAPTER 2

LITERATURE REVIEW

2.1 Bamboo

2.1.1 Morphology of bamboo plant

Bamboos are a group of genera of evergreen plants belonging to grass family (Park *et al.,* 2010). It has long been exploited by various purposes in many undeveloped and developing countries in Asia, Africa and South Africa. Bamboo has woody stem or culm arising from rhizome buds. The buds will develop into bamboo shoots at certain times of year. Generally, each of the bamboo clumps produces 8- 14 shoots within a year. It takes 2- 3 months for the bamboo shoots to reach maximum height. Most bamboo species have small branches, or several small branches with torns. Bamboos arevarying in culm diameter and height. Most bamboos that are found in Malaysia grow erect in clump or sympodial formation. In garden or plantation, propagation of bamboos is quicker by vegetative or in other words, by the usage of seed.Commonly, bamboos occur naturally in the foothills and mountains, some occur from lowland to hills. Different species of bamboos have different growth habitats and distribution(Wong, 1995).The characteristics growth habits of bamboo is due to interwoven system of rhizomes and root that shows the function of cohesion. Bamboos have enourmous possibilities for alleviating many environmental conditions such as soil erasion control, water conservation, land rehabilitation and carbon sequestration (Benzhi*et al.*, 2005). Figure 2.1 and 2.2 shows the clump of bamboo plant in Kedah.