UNIVERSITI TEKNOLOGI MARA

ANTIOXIDANT ACTIVITIES OF *PANDANUS SANDERI*

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ABSTRACT

Pandanus sanderi is studied due to its uses in the Malaysian society and its hyphothesized antioxidant activities are due to the colour of the leaves and phytochemical compound like polypeptides, phenolics, sterols, alkaloids, terpenoids. Three assays were carried out to determine the antioxidant properties of these extracts. consist of total phenolic content assay, ferrous ion chelating assay and DPPH free radical scavenging activity assay. is the methanolic extract of the root, green and yellow stripes leaves of *Pandanus sanderi* were measured for their total phenolic content, their ability to chelate ferrous ion and scavenge DPPH free radical. The yellow stripes leave extract showed the most potent antioxidant activity amongst the three extracts even though it had the lowest total phenolic content. However, the yellow stripes leave extract was less effective in chelation of ferrous ion compared to EDTA (a known iron chelator). All three extracts did not demonstrate the ability to scavenge DPPH radical as Trolox and ascorbic acid. As a conclusion, *Pandanus sanderi* yellow stripes leave extract showed the strongest antioxidant activity as compared to the green stripes leave and root extract. The antioxidant activity was not due to the phenolic compound present in the extract.

CHAPTER 1

INTRODUCTION

1.1 Introduction

Oxidation is a basic and important process in all organisms in order to produce energy to fulfill the biological processes. However, uncontrolled production of free radical produced during oxidation process also contributed to many diseases such as cancer, coronary heart disease, stroke, rheumatoid arthritis and diabetes mellitus as well as in degenerative process associated with aging (Frei et al., 1988; Floyd, 1990; Mau et al., 2002; Jain and Agrawal., 2008). Reactive oxygen species (ROS) include free radical such as $OH^{\bullet}$ (Hydroxyl radical), O_2^{-} (superoxide anion radical), H_2O_2 (hydrogen peroxide) and $^1O_2$ (singlet oxygen) can cause cellular damages and initiates peroxidation of polyunsaturated fatty acid in biological membranes (Compori, 1985; Floyd, 1990).