UNIVERSITI TEKNOLOGI MARA

COMPARISON ON ANTIOXIDANT ACTIVITY OF FRESH AND OVEN DRIED EXTRACTED MIXTURE OF FIVE DIFFERENT TYPES OF TRADITIONAL HERBS (*PSIDIUMGUAVAJAVA, FERN, CYMBOPOGONN, PANDANUS AMARYFOLLIUS AND BETEL*)

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ABSTRACT

This study aimed to assess the effect of solvent concentration and temperature during extraction on chemical composition and antioxidant activity of fresh mixture and dried mixture of Psidiumguavajava, Fern, Cymbopogonn, Pandanus amaryfollius and Betel using DPPH radical scavenging analysis and gas chromatography-mass spectrometry (GC-MS) analysis. The herbs were divided into two which are fresh sample and oven dried sample. The sample were then extracted using different concentration of methanol (0,30,50,70 %) in a shaking water bath at temperature 60°C and 90°C for 30 min at 100 rpm. The antioxidant activities were dependent on the solvent concentration used and the temperature during extraction. The condition of the sample whether dried or fresh also shows different antioxidative activities. The optimum conditions for extraction of antioxidant from the herb mixture appeared with methanol composition of about 30% at 60 °C for 30 min with oven dried sample followed by distilled water extraction at 60°C with oven dried samples. The antioxidant activity in oven dried samples was higher than that in the fresh samples due to the high moisture content of the fresh sample. The GC-MS analysis characterized Octen-1-ol,3,7-dimethyl (0.240%), cis-á Terpineol (0.334%) and 6-Octenal, 3,7-dimethyl (0.205%) as a major component in the extracts.

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CHAPTER 1
INTRODUCTION

1.1 RESEARCH BACKGROUND

Traditional medicine is the sum total of the knowledge, skills, and practices based on the theories, beliefs and experiences of our ancestors, whether reasonable or not, used in the maintenance of health as well as in the inhibition, diagnosis, and treatment of physical and mental disease. The major mutual reasons for using traditional medicine are that the price is reasonable, more closely corresponds to the patient's ideology, relieve concerns about adverse effects of chemical medicines and fulfill a desire for more personalized health care. Nowadays, herbs are used to the treatment of chronic and acute conditions and variety of ailments and complications such as cardiovascular disease, prostate problem, depression, inflammation, and to improve immune system and many more (Watchel-Galor, 2011).

Previous study has been conducted to examine the antioxidant activity of various solvent extracts using different in vitro models and to determine the most antioxidant content of each *Psidiumguavajava*, Fern, *Cymbopogonn, Pandanus amaryfollius* and betel leaves. According to Fernandes *et al* (2014), *Psidiumguavajava* leaves extract showed present potential antioxidant and antimicrobial activities. Fern, *Cymbopogonn* and *Pandanus amaryfollius* also studied for its antioxidant activities and showed high antioxidants content.(Ding et al., 2008; Ghasemzadeh & Jaafar, 2013 ; Balakrishnan, Paramasivam, & Arulkumar, 2014).

In spite of the improvement of new extraction techniques, classic extraction monopolize in many laboratories usually due to its simplicity and low economic outlay such as soxhlet, percolation and maceration. The effectiveness for the process of extraction can be controlled here by the selection of appropriate solvents and application of possibly effective duration of extraction (Nora, 2013). In this research, to imitate the traditional method of extraction, extraction using shaking method are used as traditionally, the mixture of selected compound are boiled with water and the infused water is used during bath. However for the purpose of study and commercialization, the