CHARACTERIZATION OF *CINNAMOMUN VERUM* OIL FROM SOXHLET EXTRACTION

NUR FATIN BINTI ABDUL RASHID

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ABSTRACT

The usage of synthetic chemical which produce harmful effect to health have led to increase in interest on the medicinal and herb. More research has been conduct to determine new compound and application of herb constituent. *Cinnamomun Verum* is a type of spice that has been used as traditional medicine and remedy for many health problems. The compound in *Cinnamomun Verum* is believed to have potential medicinal values. Therefore, in this research, focus will be on the determination of the component and medical properties in *Cinnamomun Verum* oil. Gas Chromatography-Mass Spectrometry (GC-MS) is used to characterize the components in *Cinnamomum verum* and Fourier Transform Infrared Spectroscopy (FTIR) to identify the chemical structure in *Cinnamomun verum*. Soxhlet extractor is used to extract the essential oil using ethanol, hexane and dichlomethane solvent. Based on the result obtained, ethanol extract had the highest essential oil yield (13%) and contained high percentage of E-Cinnamaldehyde (55.3%). The component determined from different types of solvent is similar however the composition is varying from each sample. Others major compound in *Cinnamomun verum* oil are gurjunene(15.97%), citronelly isobutyrate(3.69%), humulane-1,6-dien-3-ol (2.11%), 1-methylpiperidine(1.27%), spathulenol (1.19%) and elemene (1.11%) based on ethanol extract. These compounds were mainly reflected in the alkane, alkene, amide, aromatic and aldehyde group. There are ten compounds that was determined to exhibit therapeutic activities such as E-Cinnamaldehyde, spathulenol, elemene, caryophyllene, aromadendrene, champhene, squalene, a-pinene and aristolene. Most of the compound in the *Cinnamomun verum* oil showed antimicrobial, anti-cancer, anti-tumor, anti-oxidant and anti-inflammation properties.

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CHAPTER ONE

INTRODUCTION

1.1 RESEARCH BACKGROUND

1.1.1 Preamble

Cinnamomun is an evergreen tropical tree which belongs to *Lauraceae* families with about 21 species in Peninsular Malaysia over approximately 250 to 350 species distributed worldwide in tropical and subtropical region (Abdelwahab et al.,2014). Cinnamomun is commercially known as cinnamon. The term 'cinnamon' is derived from *Kinnamomon,* a Greek word which bring the meaning of spice. In Malaysia and Indonesia, cinnamon is known as 'kayu manis'. Cinnamon also called "kurundu" in Sri Lanka and is recorded as Korunda in English (Kasim et al., 2014). There are hundred types of cinnamon but only four types are commercially used which are Ceylon cinnamon, Cassia cinnamon, Saigon Cinnamon and Korintje Cinnamon. The scientific names for each of the cinnamon are *Cinnamomum verum, Cinnamomum aromaticum, Cinnamomum loureiroi* and *Cinnamomum burmanni* respectively. These four types are slightly different in color, taste, shape and Coumarin content. Figure 1 shows the sample of cinnamon stick and powder