EFFECT OF FAR INFRARED DRYING TEMPERATURE ON THE PHYSICAL AND CHEMICAL PROPERTIES OF WATER EXTRACT OF *A.Malaccensis* LEAVES

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ABSTRACT

A.Malaccensis have been proven by many researcher that there are alkaloids, tannins, saponins, flavonoids, terpenoids and phenolic compound in this species. In order to study the effect of drying temperature on chemical and physical properties of this leaves and to study the amount of active compound, Far Infrared Radiation (FIR) dryer and hydrodistillation method were used. For the drying process, *A.Malaccensis* leaves were dried at 40°C, 50°C and 60°C using FIR dryer and being extracted using hydrodistillation for 4 hours. From drying process, color of the leaves became darker (more brownish) and the moisture content evaporated percentage were increased proportionally with the increasing temperature (40°C:58.97%, 50°C:69.12%, 60°C:78.37%). From Elemental Analyzer analysis, carbon at temperature 60°C has the highest amount (47.9358) and Gas Chromatography-Mass Spectrometry (GC-MS) analysis shows that 48 active compounds were found in sample A (40°C), 35 compounds in sample B (50°C) and 33 compounds in sample C (60°C). Result from this research show that drying temperature at 40°C have higher amount of compound extracted from the hydrodistillation method.

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CHAPTER 1

INTRODUCTION

1.1 Background Study

Nowadays, gaharu or agarwood are getting attention from researcher because of their advantage in health and medical industry. This agarwood are from Thymelaeceae family has been recorded more than 2000 years ago. It has been supplied from sources all around the world in Middle East and East Asia market. Long time ago, agarwood has been used in Indian and Chinese culture for an important treatment in their culture. Based on Indian Council, they conclude that agarwood is considered stimulant, antiasthmatic, carminative, tonic, aphrodisiac and astringent. It also can cured diarrhea, gout, rheumatism, liniment in various skin diseases and paralysis *A.Malaccensis* is a tree that have ability to produce resin in order to recover themselves from bacteria or wounded. There are many compound that can be found in this species such as phenolic compound, flavonoids, terpenoids, alkaloids saponins and many more. For example, this species is currently being researched for health applications (Veronica Alexander Jok, 2015) like alternatives herbs that can reduce fever because of this species has natural phenolic compound. The objective of this research are to study the effect of drying temperature on chemical and physical properties of