# UNIVERSITI TEKNOLOGI MARA

# EXTRACTION OF BIOACTIVE COMPOUND FROM STAR ANISE (*ILLICIUM VERUM*) USING SOXHLET EXTRACTION

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**JULY 2017** 

## ABSTRACT

To date, people around the world are demanding natural constituents in food and pharmaceutical product due to its medical value within the plant such as antimicrobial and antifungal properties. Star anise or *Illicium verum* is star shaped fruit which normally used as a flavor in cooking and also as healing herbs where its shows medicinal properties that serve notable health benefits. In this research, *Illicium verum* is used to study the highest oil content in it by using three different solvents, to determine its major phytochemical compound by using GCMS and to identify its chemical structure by using FTIR. The sample of *Illicium verum* is prepared and the oil content is obtained using soxhlet extraction method. Solvents used in this research are distilled water, methanol and ethanol where the ratio of solvent to sample is 10 : 1. The essential oil obtained from the extaction is characterized using GCMS to determine its chemical compound and FTIR to determine its chemical structure. Methanol acts as the best solvent since it extracts the highest amount of oil from *illicium verum*. From GCMS, estragole which has antimicrobial, antispasmodic, antioxidant antivities is detected as the major compound found in the *illicum verum* in both methanol and ethanol solvent while from FTIR analysis, chemical compound presence in the extracted oil are hydroxyl group, alkyl halides, carboxylic acid, alkanes and aldehydes.

### ACKNOWLEDGEMENT

Alhamdulillah. First of all, praise to The All Mighty, Allah S.W.T for giving me a good state of health and strength in completing this project. With all of His willing, I have given all my effort in which this thesis finally has come to successful in completion.

First and foremost, I would like to express my deepest gratitude to my supervisor, Dr. Norhuda Ismail for her invaluable guidance, continuous encouragement and constant support in making this research possible. I really appreciate her guidance from the initial to the final level that enabled me to develop an understanding of this research thoroughly. Without her advice, it would be tougher to complete this thesis. I also sincerely thank for the time spent proofreading and correcting my mistakes.

Next, I would like to thank my parents because they always be my strongest backbone and encouranging me with their best wishes. I cannot find the appropriate words that could properly describe my appreciation towards their devotion, support and faith in my ability to achieve my dreams.

Lastly, I would like to thank whoever person who contributes to my final year project directly and indirectly. I would like to acknowledge their comments and suggestion, which was crucial for the successful completion of this study.

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#### **CHAPTER 1**

#### **INTRODUCTION**

#### 1.1 RESEARCH BACKGROUND

*Illicium verum* which is the scientific name for star anise is the star shaped fruit originating in southern China. It has an anise- or licorice like flavor, even though it is not correlated to the true anise plants family to the Mediterranean basin and Middle East. It is significant to differentiate between Japanese star anise, which is high in toxic. *Illicium verum* belong to magnolia family, a small to medium evergreen tree and it can reach up to 8m (26 ft). The leaves of *illicium verum* are narrow and tapering to a point at each end, while the axiallary flowers colored in yellow. The fruits are harvested before it matures, then dried under the sun (Star anise, n.d).



Figure 1.1: Illicium verum tree

*Illicium verum* usually used as spice and also as a healing herbs, it shows medicinal properties that provide significant health benefits. *Illicium verum* give benefits to human health where it is containing a lot of Shikimic Acid, a plant based compound that is parent to oseltamivir,