UNIVERSITI TEKNOLOGI MARA

DETERMINATION OF **MEDICINAL COMPOUNDS IN PERSICARIA ODORATA USING SOLVENT EXTRACTION**

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ABSTRACT

In recent years, the use of herb for medicinal purposes has slowly been accepted into modern treatment. Various studies proved that herbaceous plant contains medicinal compounds that can be used in treatment regime. *Persicaria odorata* is a plant that grows natively in the South-East Asia. The plant is widely used in Malaysian cuisine and was believed to possess healing power. Although the locals believe that *P.odorata* leaves can benefit human in various ways, there was scarcity of information regarding the compounds present in the leaves that support the claim as it being a powerful healing agent. In this study, essential oil was extracted from *P. odorata* leaves by three solvents (hexane, acetone and ethanol). Soxhlet extractor was used as a method of extraction. The extract obtained was then analysed using GC-MS and FTIR to determine the presence of medicinal compounds in the oil. The result shows that extraction using hexane as solvent produced the highest yield of extract. However, acetone is able extract the most bioactive compounds from the dried plant sample (13 compounds) compared to other solvents. GC-MS analysis identified the presence of curlone (11.074%), turmerone (9.94%), squalene (9.94%) and limonene oxide (3.52%) as the major bioactive compounds in the oil. The results of FTIR analysis confirmed the presence of alcohols, phenols, aldehydes, nitro compounds and cellulose. These compounds can benefit human health due to their antioxidant, anticancer, antimicrobial and anti-inflammatory properties. They have great potential to provide alternatives to conventional drugs since the bioactivity of the of the compounds of were proven in various research.

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CHAPTER ONE: INTRODUCTION

1.1 RESEARCH BACKGROUND

In recent years, alternative medicine has been popularised due to excessive use of antimicrobial drugs. This is due to antibiotic resistance where some harmful microbes are immune to various drugs (Cantas et al. 2013). Because of that, the study on medicinal properties in plants is crucial to provide new perspective on natural medicine as a part of treatment procedure (Ridzuan et al. 2017). The use of herbs for healing purposes has been practised since the pre-historic time and these days it has been accepted in many parts of the globe, significantly within the past two decades.

Persicaria odorata (Polygonum odoratum Lour. family *Polygonaceae*) is an herbaceous plant which is autochthonous to tropical region in South East Asia. *Persicaria* is within the buckwheat family, put together referred to as smartweeds or pinkweeds. It grows best in tropical condition and can stand up to 15 to 30 cm in height. However, it can wither in cases of extreme conditions such as winter or ridiculously high temperature (Saad et al. 2014). *P.odorata* is known for the strong aroma it releases when the leaves are bruised. People of south east of Asia usually used them in their dishes and cuisine as aromatics. In Malaysia, people often include them in their famous *Laksa* dish hence giving the leaves its local name in Malaysia which is *Laksa leaves*.

Figure 1 *Persicaria odorata* leaves