# UNIVERSITI TEKNOLOGI MARA

# EFFECT OF MASS OF SOLID AND SOAKING EFFECT ON CHEMICAL COMPONENT OF *PHYSALIS MINIMA* LINN BY SOLVENT-FREE MICROWAVE EXTRACTION (SFME)

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# ABSTRACT

Essential oils extraction from *Physalis minima* Linn plant was performed by using solvent-free microwave extraction (SFME) method. The aim of this research is to study the effect of mass of solid and soaking effect on chemical component were studied. The mass of solid and soaking days applied in this research are 4,6,8,10 g and 1,2,3 days respectively. GC-MS was used in determination of chemical components in the essential oils. It is found that the main constituents identified in relative higher abundance is 9,19-Cyclolanost-24-en-3-ol, acetate or known as Cycloartenol acetate ($C_{32}H_{52}O_2$). The optimum parameters for mass of solid and soaking days are 8 g and 1 day sccordingly. This is because the selected active compound for mass of solid experiment which is Cycloartenol acetate and for soaking experiment Diethyl acetal ($C_6H_{14}O_2$) are found highest in abundance. Therefore, it is demonstrated that the SFME method is an excellent alternative for extraction of essential oils from *P. minima* and other type of plant.

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## INTRODUCTION

### 1.1 Research Background

Medical plants have high potential which comprises of complex structure and are capable in giving interaction for pharmacological and biological activities (Murad et al., 2009). The search for remedies originate from medical plants have been broaden since numerous benefits were discovered in medical plants. The bioactive potentials which are well-being advantages and functional ingredients contain in fruits, leaves, branches as well as roots of different plants have a universal propensity to application of natural phytochemical (Farzaneh &Carvalho, 2015).

*Physalis minima* Linn, a species belonged to Solanaceae family, is a valuable plant that can be found at warm temperate and regions of subtropical throughout the world specifically in India, Baluchistan, Afghanistan, Tropical Africa, Singapore, Australia, Indonesia and Malaysia (Chotani & Vaghasiya, 2017). *Physalis minima* has its own local name according to the country where the plant has been found as shown in **Table 1**.

**Table 1** Local Name for *Physalis minima Linn* According to Countries

| Scientific Name | Country | Local Name | Author |
|---|---|---|---|
| *Physalis minima Linn* | Malaysia | Pokok Letup Kelambu | (Usaizan et al., 2014) |
| | English | Sunberry, ground-cherry, wild cape gooseberry | (Gupta, 1986) |
| | Indonesia | Cheplukan, chiplukan, chichiplukan | (Suriyati et al., 2011) |
| | Sudan | Chencendet, chechendetan | (Valvi & Rathod, 2011) |