

**CHEMICAL CONSTITUENTS IN VOLATILE OIL
OF *ZINGIBER OFFICINALE* ROSCOE**

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**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Chemistry
In the Faculty of Applied Sciences
Universiti Teknologi MARA**

JULY 2017

ABSTRACT

CHEMICAL CONSTITUENTS IN VOLATILE OIL OF *ZINGIBER OFFICINALE* ROSCOE

Zingiber officinale Roscoe is scientific name of ginger which came from family Zingiberaceae. It produce essential oils that has high benefits to human especially in traditional treatment which able to treat various kind of diseases such as antibacterial, anti-inflammatory, anti-oxidant and gastrointestinal disorder. Besides, it is also widely used in aromatherapy and as well as in flavouring food and drink industries. In this study, the essential oils obtained by hydrodistillation technique of the fresh and dried ginger rhizome and the chemical constituents were analysed by using GC-MS. Moreover, different solvents which were petroleum ether and chloroform used to extract compounds from ginger oils. The fresh rhizome of *Zingiber officinale* Roscoe (ginger) were purchased from a market in Bandar Jengka and dried in oven at 60 °C for one day. After the extraction process, rotary evaporator was used to remove the solvents and then ginger oils were obtained as a bright yellow liquid with distinctive aroma of ginger. By using the GC-MS, chemical constituents of ginger essential oils were identified. Several new chemical constituents were successfully found namely as tumerone, curlone, selina-4,7-diol, aR-tumerone, 3-acetoxy-4-(1-hydroxy-1-methylethyl)-1-methyl-cyclohexene, 3-Ethyl-2-hydroxy-2-cyclopenten-1-one, 3-deoxy-estradiol, oleic acid and cubebol. All these compounds are not yet reported in any ginger essential oils studies. Most of the compounds were exist in dried ginger essential oil from chloroform extraction. However, these new compounds have their own role to act as anti-angiogenesis, antibacterial and anticancer. While (E)-sesquisabinene hydrate, zingiberenol, α -farnesene, trans-nerolidol, neral, cis- β -farnesene, α -curcumene, α -cedrene, geranial, borneol, nerolidol and geraniol were the common compounds found in previous studies. Fresh ginger rhizome yields (0.14%) higher essential oils from chloroform extraction. Therefore, findings from this work can be used for further study on biological activities by other researchers such as anti-bacteria, anti-oxidant, anti-inflammatory and so on.

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