UNIVERSITI TEKNOLOGI MARA

CHEMICAL PROFILE OF HERBS USING FOURIER TRANSFORM INFRARED SPECTROSCOPY (FT-IR) AND THIN LAYER CHROMATOGRAPHY (TLC)

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ABSTRACT

This research deals with mainly these three types of plants, which are *Strobilanthes crispus, Pereskia bleo* and *Brucea javanica*, in which the main objectives is to determine the chemical profile obtained from the methanolic extraction yield from these plants. The purposes of this study are to determine whether the chemical profiles of these herbs are different, and to observe the differences in chemical profile of these herbs using Fourier Transform Infrared Spectroscopy (FT-IR) and Thin Layer Chromatography (TLC). In Fourier Transform Infrared Spectroscopy (FT-IR) method, the prepared sample is place in the sample compartment for analysis to obtain the required spectrum. For Thin Layer Chromatography (TLC) method, retention factor (Rf) value is used to indicate the compounds present in the sample. TLC experiment is done to see the separation of bands between the plants and their differences in pattern by using 'trial and error' of different solvent system. For FT-IR, the infrared spectra can be seen and compared between these three plants to see the similarities and differences. *Pereskia bleo* and *Brucea javanica* have almost the same spectra while *Strobilanthe scrispus* are different from the other two plants.

CHAPTER 1

INTRODUCTION

1.1 GENERAL INTRODUCTION:

Chemical profiles of herbs are especially important in dealing with the authentication of the raw materials. Chemical profile can also be used to determine the pattern of each compounds present in the mixtures containing various types of herbs. This gives rise to the importance of authentication of herbal material. The most important objective of authentication is to ensure a constant of high quality of raw materials are used so that the therapeutic benefits can be delivered effectively. It involves the process of constant parameters, qualitative and quantitative that determines the quality, efficacy, safety and reproducibility (Kunle et al., 2012). According to WHO, standardization and quality control of herbs is the process involving the physicochemical evaluation of crude which covers many aspects, such as selection and handling of crude material, safety, efficacy, and stability assessment of herbal product.

Although it is generally believed that most herbal preparations are safe and effective for consumption, some herbs that contain most biologically active substances could