

UNIVERSITI TEKNOLOGI MARA

**TLC PROFILING OF MALAY TRADITIONAL
HERBS**

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ABSTRACT

There are several techniques that can be used in analyzing of herbs. One of the techniques is by performing Thin Layer Chromatography. TLC is a simple, quick and inexpensive technique that is often used to identify and separate mixtures of substance into their components. One of the advantage of TLC against other technique is it is quick because it can analyze up to 30 samples and standards at same time. It is a technique in which a mixture of pure substances is separated into the individual substances by using a mobile phase (usually a liquid) to push the mixture along a stationary phase (solid). Because the individual substances have different molecular structures, they interact differently with both the stationary and mobile phases, and consequently are developed at different rates by the mobile phase. The objective of this study is to get the TLC profiling of selected Malay Traditional Herbs. Besides, this study also was done to compare the TLC profiles of the product which was Herbal Tea that was claimed to have Limau Purut with the standard references of Limau Purut. Thin Layer Chromatography procedure was performed to 12 different herbs from hexane, chloroform and butanol extracts. At first each sample extract were made to 20mg/ml by dissolving them in combination of solvents with ratio 1:1. Silica Gel 60 F₂₅₄ was used and the samples were spotted on the TLC plate, sized 10cm x 3.3cm. The mobile phase that were used were hexane, ethylacetate, chloroform and methanol with a variety of ratio such as 8:2, 7:3, 6:4, 5:5, 3:7, 2:8 and so on. Some plants used chloroform/methanol 10:1 to get best separation. Besides, the extraction process of the product was done by using 3 x 10ml methanol and 3 x 2ml of hexane, chloroform and butanol and % of yield were determined. Lastly, R_f values were calculated. For a conclusion, TLC is the simplest method that can be used to separate mixture into their components. It can detect a type of compounds but we can not identify that compound specifically.

CHAPTER 1

INTRODUCTION

Thin Layer Chromatography (TLC) is a reliable and highly sensitive analytical technique which requires only microgram quantities of a sample that allows us to identify herbs and measure their quality. TLC can be used to simply check the purity of a substance, to attempt to separate and identify the components in a mixture and to obtain quantitative analysis of one or more of the compound present. (Joseph C., 1992) The objective of this study is to get the TLC profile of Malay traditional herbs. There are twelve different herbs used in this study that comes in the form of hexane, chloroform and butanol extracts. Besides, this study also was done to compare the TLC profiles of the product which was Herbal Tea that was claimed to have Limau Purut with the standard references of Limau Purut.

There are several advantages of TLC compared to other chromatographic methods. TLC involves the concurrent processing of multiple samples and standards on an open layer developed by a mobile phase. It is performed without pressure in variety of modes including simple one dimensional, multidimensional and circular. A significant advantages TLC over HPLC is that detection is static rather than dynamic online. This eliminates time constraints of detection and permits a variety of compatible detection techniques in combination. TLC is the most versatile and flexible chromatographic