

**UNIVERSITI TEKNOLOGI MARA**

**THIN LAYER CHROMATOGRAPHY  
PROFILING OF MALAY TRADITIONAL HERBS**

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## ABSTRACT

Malay traditional herbs have been widely used in both traditional as well as modern communities in Malaysia. These herbs have become a natural alternative for individuals who have strong beliefs in the safety and efficacy of traditional medicines. These traditional herbs are generally used in the treatment of certain medical conditions or even in maintenance of general health. Therefore, there is a need for a method development in profiling Malay traditional herbs. In this research, thin layer chromatography is applied as it is a fast technique used to determine separation of compounds in mixtures. The thin layer chromatography carried out in the research uses silica gel as the stationary phase and mixtures of solvent as the mobile phase. Different solvent systems comprising of hexane, ethyl acetate, chloroform, and methanol are used at different ratios to obtain the optimal separation of compounds. Optimization of solvent system has also been done to determine the best solvent system for each of the selected 12 herbs. Comparisons between herbals of same families have also been done. In addition, the presence of herbal extracts in a product is also determined through comparison of  $R_f$  values between the plant's extracts and product's extracts. Based on the  $R_f$  values, colours of the bands and fluorescence, results have shown that the similarities of the bands observed in hexane, chloroform and butanol extracts of the plant and products are 50.00 % , 66.67 % , and 41.18 % respectively. Thin layer chromatography has been found to be an effective, reliable, rapid and relatively inexpensive method in doing separations and identifications of compounds.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Introduction

The use of traditional and alternative medicine has increased worldwide over these few years (Ang and Lee, 2005). Nowadays, more individuals opted to have alternative medicine rather than conventional medicines as they believed in their safety and efficacy. Therefore, a profiling method is necessary to be developed to assist in the verification of the traditional herbal medicine. In China, chromatographic fingerprinting is gradually being applied in the quality assessment of traditional Chinese herbal medicine preparations. It is currently required by the Chinese State Food and Drug Administration, to ensure the quality control of injectable herbal preparations and is promoted for use in the manufacture of oral preparations (Xie et al.,2006).

Chromatography is defined as a separation process that is achieved by distributing the substances to be separated between a moving phase and a stationary phase ( Scott R. P. W.,1995 ). Thin layer chromatography ( TLC ) is a fast and simple technique used to separate mixtures of two or more compounds into its individual components. The thin layer chromatography carried out in the research uses silica gel as the stationary phase and mixtures