UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF CHEMICAL PROFILE OF DIFFERENT PLANT PARTS FROM *CURCUMA LONGA* LINN BY THIN LAYER CHROMATOGRAPHY

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ABSTRACT

In Malaysia, *Curcuma longa* Linn or also known as turmeric or kunyit has been widely used in traditional medicine to treat biliary disorder, cough, diabetic wounds, hepatic disorder and also rheumatism. For past years, there have been available chemical profile of *C. longa* rhizomes by using thin layer chromatography (TLC) but so far there are no study of chemical profile of *C. longa* leaves using TLC. Purpose of this study is to determine the similarities between the TLC chemical profile of *C. longa* rhizomes and leaves, to find the most suitable mobile phase for chemical profiling of *C. longa* leaves that will give the best separation and to confirm the commercial product contained *C. longa*. The study is done by using TLC method in order to make comparison between TLC chemical profile of *C. longa* rhizomes and leaves developed from two extraction solvents which were ethanol and water. Later they were subjected to TLC profiling. The result showed that both have same curcuminoid compounds (curcumin, demethoxycurcumin, bisdemethoxycurcumin) in ethanol extract but some of them were absent in aqueous extract. From the TLC that had been developed, among all the tested mobile phases, dichloromethane: methanol with ratio 27:1 (v/v) showed the best separation of the bands of *C. longa* leaves ethanol and aqueous extract. Authentication of commercial product was also been done by using TLC technique. The developed chemical profile showed that the many similarities that support the presence of *C. longa* in commercial product. Several distinctive bands formed indicated the presence of other extract that has been claimed by the product. Rf values for all of the developed bands were measured and recorded.

CHAPTER 1

INTRODUCTION

1.1 GENERAL INTRODUCTION

Based on the folk medicines around the world, medicinal plants have been used for the treatment of many diseases. In pharmaceutical preparation, natural products from plants, fungi, bacteria and other organisms have been used as pure compounds as well as extracts (Araújo & Leon, 2001). In China, the term medicinal plant indicates that it has medicinal activities because it rich with ingredients that is useful for the drug development and synthesis (Hassan & Abdul, 2012) . According to the World Health Organization (WHO), 80% of the world's population are rely on plant-derived medicines for their healthcare especially to those who stay in developing countries. For example, 80% of the population in Pakistan depend on plants to treat and cure themselves while in China 40% of the population are also doing the same (Gurib-Fakim, 2006).

But, nowadays there are issues on adulterated medicinal herbs which caused a major drawback in promotion of the herbal products. By definition, adulteration is a method of mixing or substituting the original drug material with other spurious, inferior, defective, spoiled, useless other parts of the same or different plant or