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THIN LAYER CHROMATOGRAPHY (TLC) CHEMICAL PROFILING OF ETHANOLIC AND AQUEOUS EXTRACTS FROM *GYNURA PROCUMBENS* PARTS

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TABLE OF CONTENTS

ABSTRACT

Herbal products identification is vital to ensure the safety of the product and to minimize the adverse effect from consumption of adulterated products. *Gynura procumbens (Lour.)Merr* is a herbal medicinal plant traditionally used for remedy of constipation, burn, hypertension and diabetes mellitus (Morat *et al.,*2013). Thus, it is important to identify the plant as a measure of quality control. Thin layer chromatography (TLC) is well established method for product identification with advantages of a simple technique and cheap. The purpose of this study is to obtain the chemical profile of *G.procumbens* by using TLC method in order to make comparison between the TLC profiles developed from two extraction solvents (ethanol and water) with various part of the plant for product identification. *G.procumbens* leaves, stems and roots were extracted with ethanol or water and later subjected for TLC profiling. The results showed TLC profile of *G.procumbens* ethanolic and water extractions from different parts are unique. The leaves TLC profile showed more bands developed followed with stems and roots for both extraction solvents. Ethanol extracts of *G.procumbens* TLC profile developed more bands than water extracts. By conducting this experiment, TLC chemical profile from various plant parts of *G.procumbens* extracted with ethanol and water were used to authenticate the Herb 1. TLC profile of Herb 1 was different and unique from the leaves ethanolic extract of *G.procumbens*. Ethanol and water extracts of *G.procumbens* leaves, stems and roots are suitable for chemical profiling using TLC method with the mobile phase of ethyl acetate:formic acid:glacid acetic acid:water (25:3:3:5) (v/v).

CHAPTER 1

INTRODUCTION

1.1 Importance of herbal products quality control

In additional to the effectiveness and efficacy of herbal plant, the safety of consuming herbal medical plant is a major priority. Number of reports shows patients experiencing negative health risk caused by the use of herbal medicines (Ahmad *et al.*, 2006) Major adverse effect relating to herbal medicine consumption is associated with unregulated herbal products and in effective quality controls(Barnes *et al.*, 2007).Quality control of herbal medicinal products does not only focused on the efficacy of the herbal medicine but include the raw medicinal plant materials(Ahmad *et al.* 2006). The quality control of herbal medicinal products are very important to minimize the possibility of adverse effect from its consumption which can be due to adulterated contamination of toxic and/or hazardous compounds, adulteration with toxic species, overdose and interaction with modern medicines(Ahmad *et al.*, 2006).

Quality control of herbal medicinal plant is facing high challenges because plant constituents are easily affected by various factors, both the intrinsic (genetically) and extrinsic (environment) factors. Despite the plant is harvested from the wild or cultivated, the plant will have diurnal and seasonal variation that influence intrinsic factor affecting