

UNIVERSITI TEKNOLOGI MARA

**COLLECTION, EXTRACTION, FRACTIONATION AND
ISOLATION OF PHYTOCHEMICAL CONSTITUENTS OF
*HEDYOTIS DIFFUSA***

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ABSTRACT

Hedyotis diffusa, traditional Chinese medicines consist of complex constituents. Thus it requires a proper analytical technique for their rapid and simultaneous analysis. The main objective of this study is fractionation and isolation of compound from this herb. Generally the methods used involved extraction, fractionation, isolation and compound analysis. Initially, compound of interest was obtained through fractionation of *n*-hexane extract by using Thin Layer Chromatography (TLC) technique. Next the compound was purified by preparative TLC. Eventually, the pure compound of interest was subjected to Nuclear Magnetic Resonance ($^1\text{H-NMR}$) analysis to identify the real structure of the compound. Based on interpretation of NMR spectra, the compound of interest is suspected as ursolic acid. But we failed to obtain enough evidence to prove it as ursolic acid as the quantity of compound was not sufficient and adequate for further $^{13}\text{C-NMR}$ and 2D-NMR analysis. However, throughout this study we managed to detect several unknown compounds by using TLC technique. Further study need to be conducted to identify those unknown compounds.

CHAPTER 1

INTRODUCTION

1.1. *Hedyotis diffusa* sp.

In ancient time, traditional Chinese medicines have been used to treat human diseases in China and perhaps it prolongs until nowadays. In the last three decades, pharmaceutical explorations of bioactive components in traditional medicines have attracted lots of scientific attention. Most traditional Chinese medicines consist of complex constituents, thus it requires a proper analytical technique for their rapid and simultaneous analysis.

Hedyotis diffusa (syn. *Oldenlandia diffusa*), a member of the family Rubiaceae, is a traditional herb which is included in numerous traditional Chinese herbal formulations for cancer treatment. It is widely distributed in North-East Asia. It is also found to have other pharmacological activities, including anti-inflammatory, antibacterial and central nervous system regulatory actions. In clinical application, *Hedyotis diffusa* also called 'Ped-Hue-Juwa-Chji-Cao' is widely used in the therapies against liver, lung, colon, brain, pancreas and other cancers. In ancient Chinese medicine, this herb has been used to boost the immune system.