EXTRACTION AND IDENTIFICATION OF ACTIVE COMPOUNDS FROM *CHRISTIA VESPERTILIONIS* EXTRACTS BY SELECTED EXTRACTION TECHNIQUES

NORADAWIYAH BINTI MAHAYUDDIN

BACHELOR OF CHEMICAL ENGINEERING (ENVIRONMENT) WITH HONOURS

UNIVERSITI TEKNOLOGI MARA

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AUTHOR'S DECLARATION

I declare that the work in the thesis was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as reference work.

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

Signed : ……....

Date : ……

Noradawiyah binti Mahayuddin

Student ID : 2014221918

SUPERVISOR'S CERTIFICATION

We declared that we read this thesis and in our point of view this thesis is qualified in terms of scope and quality for the purpose of awarding the Bachelor of Chemical Engineering (Environment) with Honours.

Signed : ……....
Date : ……

Main supervisor
En. Mohamed. Syazwan Osman
Faculty of Chemical Engineering
Universiti Teknologi MARA
Cawangan Pulau Pinang
13500 Permatang Pauh
Pulau Pinang

Signed : ……....
Date : ……

Co-Supervisor
Dr. Nor Aziyah Bakhari
Department of Applied Science
Universiti Teknologi MARA
Cawangan Pulau Pinang
13500 Permatang Pauh
Pulau Pinang

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ABSTRACT

C. Vespertilionis known as red butterfly wings leaf has high potential in having active compounds that can be extracted which plays a crucial part in medicinal section and also being in a part of research. The objective of this study are to identify active compounds present in *C. Vespertilionis* using selected extraction techniques and to determine qualitatively phytochemical activities present in the *C. Vespertilionis* extracts. Maceration and supercritical-fluid-extraction (SFE) are chosen as the selected extraction techniques in hexane, chloroform, ethyl acetate and ethanol for maceration. The active compounds of the extracts were determined by using liquid chromatography mass spectrometry (LCMS) and Fourier transform infrared spectroscopy (FTIR). The antioxidant activity on the extracts were tested using free radical scavenging activity of 1,1-diphenyl-2-picrilhydrazyl (DPPH) assay as well as to determine phytochemical components, alkaloid and flavonoid using the suitable chemical tests. There were about more than 70 active compounds had been determined by using extract from SFE with ethanol co-solvent. The percentage of inhibition in antioxidant showed that ethyl acetate extract was the highest and SFE without ethanol co-solvent the lowest. Overall possible functional group that present in this plant were alkane, alkyl halide, aldehyde, alcohol and carbonyl. Alkaloid was present in all extracts meanwhile flavonoid only present in ethanol extract and SFE with and without co-solvent extracts. The maceration and SFE techniques contributed the same results but the time consumed and the ease of techniques were the differences between them.

Keywords: *C. Vespertilionis*, red butterfly wings leaf, SFE, maceration, active compounds, antioxidant, DPPH, alkaloid, flavonoid