EXTRACTION AND DETERMINATION OF THE TOTAL PHENOLIC CONTENT FROM DIFFERENT PARTS (LEAVES AND STEMS) OF *SPINACIA OLERACEA* BY USING WATER AND ETHANOL

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ABSTRACT

This study was carried out to determine the total phenolic content in spinach by using water and ethanol as the solvent for extraction. This study also compared the total phenolic content of the spinach leaves and stems. The total phenolic content was determined by using Folin-Ciocalteu reagent with the standard gallic acid measured at 725 nm using the Uv-Visible spectrometer. The total phenolic content of the spinach leaves in water extract was 0.8384 mg/g GAE while in ethanol extract was 0.7120 mg/g GAE. For the spinach stems, the total phenolic content in water extract was 0.4110 mg/g and 0.3848 mg/g in ethanol extract. From this finding, it shown that the phenolic content for both spinach leaves and stems in water extract is higher than ethanol extract. Besides that, it also shown that spinach leaves have higher total phenolic content than spinach stems.

CHAPTER 1

INTRODUCTION

1.1 Background

As everyone knows, fruits and vegetables are good for our health. As level of technology increases, humans nowadays are exposed to environmental pollution and it is harmful to humans' health. Previous research study showed that, fruits and vegetables have many compounds that are related to the total phenolic contents.

Instead of that, there are many alternative medicines and supplements are introduced to the market to solve the problems and fulfill the demand. But are they good for the consumers? Of course not. This is because some of the medicines are added with something else that may be toxic and can give side effect to the consumers.

So, as the solution, taking the natural product of the fruits and vegetables are better other than taking alternative or synthetic medicine. Fruits and vegetables have high levels of total phenolic compounds. Phenolics compounds are a group of phytonutrients that exerts strong antioxidant properties and it can be classified into simple phenols, phenolic acids, hydroxylcinnamic acids derivatives and flavonoids.