EFFECT OF SUPERCRITICAL FLUID EXTRACTION (SFE) PARAMETERS ON ANTIOXIDANT OF HIBISCUS ROSA SINENSIS LEAVES

NUR RIANA ANIS BINTI MOHD RAZALI

BACHELOR OF CHEMICAL ENGINEERING (ENVIRONMENT) WITH HONOURS

UNIVERSITI TEKNOLOGI MARA

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By

NUR RIANA ANIS BINTI MOHD RAZALI

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ABSTRACT

Plants have always been used as traditional remedy in treating critical diseases. Free radical that causing diseases are scavenged by the antioxidant compound contains in plant. By using carbon dioxide (CO_2) as the main solvent and ethanol as the co- solvent, the SFE operates at manipulated variables. The *Hibiscus rosa sinensis* leaves are collected in Dungun, Terengganu and consequently cleaned, dried, grinded, and sieved. 15 grams of sample is used for each of the extraction on SFE machine. The temperature is manipulated at 40°C to 80°C. The optimum temperature was 50°C with extraction yield of 2.547%. The pressure is also varied is in a range of 150 bar to 350 bar which have optimum pressure of 300 bar with percentage yield of 2.553%. The difference sample particle size of 45 µm, 500 µm and 2000 µm is also studied to determine its effect on the percentage of yield extract. The optimum extraction yield was 2.767% at 45 µm. Radical scavenging activity of sample extracts were also determined based on the percent inhibition of DPPH which the highest percent is at 54.5% and concentration of 60 µg/ml. The half-maximal inhibitory concentration (IC50) is also calculated which Hibiscus rosa sinensis leaves has the IC50 of 58.54 µg/ml. It is concluded that the used of different extraction parameters of temperature, pressure, and particle size yield high amount of extract with a medium-active of antioxidant activity.