DETERMINATION OF DISTRIBUTION COEFFICIENT OF CATECHIN IN ARECA CATECHU USING SUPERCritical CARBON DIOXIDE EXTRACTION

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ABSTRACT

Areca Catechu is better known in Malaysia as ‘buah pinang’ is one of the plant in this region that is useful for the pharmaceutical, medicine and textile industries. This study is carried out since there is no research yet has been studied on distribution coefficient of catechin in Areca Catechu oil from Areca Catechu. The aim of this study is mainly to determine and to analyze the distribution coefficient of catechin from Areca Catechu. This study is also aim to study the effect of operating temperature of the supercritical fluid extraction on the distribution coefficient of catechin. The determination of distribution coefficient, K of catechin in Areca Catechu is done by using the supercritical fluid extraction by using carbon dioxide as the solvent. The extraction process is done extraction temperature of 40°C, 50°C and 60°C as the parameter. A preliminary stage of Soxhlet extraction is done to obtain the suitable and best particle size, Dpi to be used for the SFE extraction and to obtain the total amount of extract in the sample, y. Gas chromatography is used in the quantification process of catechin in the oil extracted from Areca Catechu. Analysis of the results shows that the distribution coefficient decrease with the increase of extraction temperature in SFE. Distribution coefficient is parameter that can be use as an optimization parameter to obtain a higher yield of oil from the extraction process since higher distribution coefficient shows higher selectivity of the solute and higher rate of extraction. Therefore, for commercial use in industries, the best extraction temperature to be used is 40 °C.
ABSTRAK

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