

Extraction of Oil including Polyphenol from Sesame Cake using Supercritical Carbon Dioxide and Organic Solvent Extraction

윤준호, 이주희, 박정남, 이해연, 오준구, 정미림, 진병수*

부경대학교

(bschun@pknu.ac.kr*)

Polyphenol are generally further subdivided into tannins, and phenylpropanoids; lignin's and flavonoids. Polyphenol have antioxidant characteristics with great potential health benefits such as, reducing the risk of cardiovascular disease and cancer. Results have showed that using organic solvents for oil including polyphenol extraction from Sesame cake; materials are oxidized because of the use of high temperature required for organic solvent. However supercritical carbon dioxide (SCO₂) extraction can offer a non-oxidative environment and has a low critical temperature (31.05°C) which makes it suitable for processing thermal sensitive materials. The SCO₂ extraction was carried out at temperatures ranging from 35 to 55°C and pressures ranging from 15 to 25 MPa. The flow rate of CO₂ was 22 g/min and it was constant entire the extraction period. The extraction time was 1.5 hrs for each extraction conditions. At higher temperature and pressure, the oil yield was the maximum. The extracted oil was analysed by Gas Chromatography (GC) for fatty acids compositions. Extracts containing polyphenol were quantitatively analyzed using HPLC and UV-spectrometer.