

Supercritical Fluid Extraction of the Rape Seed Oil

김영애, 김재덕¹, 임종성², 이윤우*
서울대학교; ¹한국과학기술연구원; ²서강대학교
(ywlee@snu.ac.kr*)

Rapeseed oil has been used for centuries as a crop for a variety of uses. From these earlier times the use of the rapeseed oil has recently become very widespread, including end production which range from margarine to a refined biodiesel fuel, and from environmentally friendly lubricants to meal for livestock. The trait considered of rape seed oil is the erucic acid content in the oil. Erucic acid is a 22-carbon fatty acid desired in high concentration for the industrial uses and desired in very low concentrations for edible canola oils and meal for livestock. Supercritical fluid extraction (SCFE), particularly concerning the recovery of essential oil, is an attractive alternative to the traditional separation methods, such as solvent extraction, since thermal degradation and solvent contamination of the extract are avoided. In this study, the oil was extracted from the rape seed using supercritical carbon dioxide. The supercritical fluid extraction experiment was performed to investigate the effects of extraction pressure, temperature and fluid flow rate. The yield of oils obtained from the SCFE was predicted using the simple mathematical model. The extracts were compared with extracts using the solvent extraction method. The used solvent was n-hexane. All extracts were analyzed with GC.