Effects of supercritical carbon dioxide extraction parameters on virgin coconut oil yield and medium-chain triglyceride content.

ABSTRACT

The extraction of coconut oil has been performed using supercritical carbon dioxide (SC-CO2). The extractions were performed at pressure and temperature ranges of 20.7–34.5 MPa and 40–80 °C, respectively. It was observed that almost all (more than 99%) of the total oil could be extracted. Response surface methodology (RSM) was applied to evaluate the effects of the parameters (pressure, temperature and CO2 consumption) on the extraction yield and medium-chain triglycerides (MCTs), in terms of the fatty acid content in the extracted oil. A correlation was established with p-values for both responses significant at the 95% confidence level.

Keyword: Virgin coconut oil; Medium chain triglycerides; Supercritical CO2; Extraction; Response surface methodology.