Effects of different stabilization conditions and extraction methods (Soxhlet and ultrasonic-assisted) on quality of rice bran oil

ABSTRACT

High rice production produces a high amount of waste, especially rice bran (~10%), suitable as cooking oil. This study was performed to investigate the rice bran dried at different temperatures and times for stabilization treatment and the oil extracted using Soxhlet and Ultrasonic-assisted extraction (UAE). The rice bran produced the highest oil yield (31.9%) and β-carotene (7.82%) than control after stabilized at 50 ºC for 1 h. Unstabilized rice bran (control) and stabilized rice bran (50 ºC for 1 h) were used to compare the changes in viscosity, oxidative stability and fatty acids composition of the extracted oil using Soxhlet and UAE. The rice bran oil's viscosity obtained by stabilization and different extraction methods were decreased compared to the non-stabilized treatment. Meanwhile, stabilized rice bran oil extracted by the Soxhlet method produced higher oxidative stability than the control for both extraction methods due to the low amount of unsaturated fatty acids. Therefore, the Soxhlet extraction method had more stable rice bran oil than the UAE process, and selected parameters (50 ºC for 1 h) for stabilization treatment are the most suitable for reducing rice bran oil oxidation.

Keyword: Rice bran oil; Stabilization; Soxhlet; Ultrasonic-assisted extraction; Oxidative stability