

Effective of solvents on rice bran oil extraction

Rice bran oil is becoming popular as an edible oil and also as an ingredient in pharmaceutical manufacturing industry due to its excellent characteristics such as ability to reduce the blood serum cholesterol level and high oxidative stability. Solvent extraction using organic solvents is the commonly used method for extraction of rice bran oil.

In this study extraction of rice bran oil using organic solvents were compare with aqueous extraction. Rice bran oil was extracted from pretreated rice bran using hexane, isopropyl alcohol (IPA) and water as solvents and the results showed that the two organic solvents showed similar extractability compared to aqueous extraction. Rate of extraction for hexane was slightly higher than that for IPA. The solubility of rice bran oil in water is less than that in organic solvents and hence higher solvent / bran ratio higher degree of agitation were required for aqueous extraction.

Significant increase in yield was shown in increasing temperature for both hexane and IPA. However, the effect of temperature on the yield in aqueous extraction was negligible. Increasing yield for aqueous extraction was shown with increasing pH and the aqueous extracted oil was comparatively pale in colour due to low temperature operation and low solubility of pigments and wax in water. Aqueous extraction eliminates the contamination of the oil with organic solvents and atmospheric pollution from solvent mist. However, high pH residual water should be treated before disposal.