



Removal of glycerides from rice bran acid oil by hydrolysis with subcritical water

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Generally, rice bran acid oil needs to be hydrolyzed to remove glycerides, one of the most troublesome impurities. Based-catalyzed hydrolysis has commonly been used, however, large amount of wastewater is generated by the process and need to be treated prior to releasing it to the environment. Therefore, subcritical water hydrolysis which is a more environmentally friendly non-catalyst process is a potential alternative, and the focus of this work. To determine the suitable condition, the effects of temperature (200, 220°C) and hydrolysis time (10-60 min) were determined based on the percentage of removed glyceride and the remaining concentration of γ -oryzanol. The results showed that, with increasing reaction temperature and time, the percentage of removed glyceride increased from 66.73 to 100, while on the other hand, the remaining γ -oryzanol in hydrolyzed products decreased from 86.98 % to lowest at 9.78 %. The most suitable temperature and time for hydrolysis of glycerides in rice bran acid oil was found to be 200 °C and 30 min, respectively. At this condition, the percentage of removed glyceride and the remaining concentration of γ -oryzanol were 86.49 and 80.34%, respectively. The antioxidant activity of the hydrolyzed products at suitable condition will be determined and compared with that resulted from the conventional base catalyzed hydrolysis.

Keywords: γ -oryzanol; Subcritical water hydrolysis; Rice bran acid oil