

Thesis Title	Application of Rice Bran Lipases in Concentration of EPA and/or DHA of Tuna Oil
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Candidate	Miss Kamonwan Promsak
Supervisors	Assoc.Prof. Dr. Kanit Krisnangkura Assoc.Prof. Narumon Jeyashoke
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Abstract

Tuna oil, by product of tuna canning industry, has high essential fatty acid of the ω -3 family which is very highly nutrition. In this study, EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) in tuna oil were concentrated by using lipases from deoiled rice bran, white sticky rice bran and black sticky rice bran. The bran moisture content were varied at 25, 30, 35% (w/w) and tuna oil was 10, 20, 30, 40, 50%(w/w). Twenty five percent moisture was the optimal condition for hydrolysis of 10% tuna oil. Free fatty acid was increased from 3.16 to 52.52% in 35 days. EPA and DHA were increased from 6.49% and 26.00% to 7.25% and 31.92% respectively, by rice bran lipase. On the other hand, white sticky rice bran with 10% isooctane could increase the concentration of DHA from 26.63% to 42.72% in 20 days but EPA was not changed. And when using black sticky rice bran at the same condition could increase the condition of DHA from 22.63 % to 37.17% and EPA from 5.42% to 6.67% in 35 days. In term of percent fatty acid composition, it was noticed that of EPA and/or DHA were increased considerably by lipase from deoiled rice bran, white sticky rice bran and black sticky rice bran.

On the other hand, yield of EPA/DHA were markedly decreased when using any rice bran at different conditions. It can be inferred that lipase of these rice bran are not positionally specific to fatty acid on the molecule of triglyceride. Therefore, it is suitable to use lipase from rice bran, white sticky rice bran and black sticky rice bran to concentrate EPA and/or DHA of tuna oil for commercialization by using the optimal conditions.

Keywords: Tuna oil / EPA / DHA / Concentration / rice bran lipase / white sticky rice bran lipase / black sticky rice bran lipase