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BEARCHOL: Tempeh mold-fermented rice bran water extract improves lipid profile in hypercholesterolemia rats

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Background & Aim: Hypercholesterolemia is risk factor for non-communicable disease. Dietary fiber consumption is known to lower blood cholesterol level. One of food ingredients which is known to contain high dietary fiber is rice bran. The content of dietary fiber and γ-oryzanol in bran is known to be capable in lowering cholesterol by lowering cholesterol absorption and increasing its excretion. The potency of bran in lowering cholesterol may increase if fermentation is done. Thus, this study aims to determine the effect of tempeh mold-fermented rice bran water extract on lipid profile in hypercholesterolemic rats.

Method: Rice bran is fermented with the commercial tempeh mold known as Raprima® and extracted with Aquadest. Twenty-four (24) male Sprague dawley rat were divided into 4 groups, namely normal control (NOC), negative control (NEC), RBE1 and RBE2. Induction of hypercholesterolemia is performed on all groups except NOC. RBE group is given fermented rice bran water extract with doses of 1102.5 mg/kg body weight (RBE1) and 2205 mg/kg body weight (RBE2). The hypercholesterolemia model is made by giving high-fat high-fructose diet. Lipid profile is measured and One Way ANOVA is used for parameter analysis with significance $p<0.05$.

Results: Groups given fermented rice bran water extract have lower total cholesterol, triglyceride and LDL levels as well as levels HDL was significantly higher ($p<0.001$) than NEC. There is a decrease in total cholesterol and triglycerides also an increase in HDL levels in RBE2 compared to RBE1.

Conclusion: Tempeh mold-fermented rice bran water extract improves lipid profile in hypercholesterolemic rats.

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