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The Effect Of Diets Varying In Curcuma (*Curcuma xanthorrhiza* Roxb) On Blood Plasma LDL-peroxidation In Rabbits

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Abstract

In Indonesia, the rhizome of *Curcuma xanthorrhiza* Roxb.(Zingiberacea family) as a hepatoprotector and lipid regulator has a long tradition. One of the active compounds curcumin, is perhaps the most important constituent to develop it as a modern drug.

The lipid peroxide level in the blood has been found to increase markedly in patients suffering from various diseases such as liver disease. If lipid peroxides in the blood increase this is associated with atherosclerosis. Thus, suppression of lipid peroxide formation would be an important strategy for prevention and treatment of these diseases.

Forty growing male New Zealand rabbits of similar body weight were used. Four iso-energetic and iso-atherogenic diets with different levels of curcuma were prepared. The diets A, ALC, AMC and AHC represented Atherogenic, Atherogenic Low Curcuma, Atherogenic Medium Curcuma and Atherogenic High Curcuma diets contained 0, 0.2, 0.3 and 0.4 % curcuma respectively. Body weight was measured weekly. Animals were fasted overnight and were bled from the vena jugularis of the ear at the beginning of study and at 4, 9 and 17 weeks. Plasma were separated by centrifugation at 10 000 g for 20 minutes at 4°C. Lipid peroxidation was measured by isoprostane immunoassay kit. Isoprostanes are prostaglandin-like compounds that are produced by free radical mediated peroxidation of lipoproteins.

The results on the influence of levels of curcuma on LDL-peroxidation after four months shows that dietary curcuma decreased plasma LDL-peroxidation in rabbits fed atherogenic diets with different curcuma levels. There were significant differences ($p < 0.01$) in LDL-peroxidation concentrations at 0.2, 0.3 and 0.4 % of curcuma diet. Lipid peroxidation induced by atherogenic diets was completely prevented by 0.3 and 0.4 % curcuma inclusion diets.

Results from this study showed that curcuma when included in diets for rabbits significantly affected has anti-oxidative activity. There is potential for the use of curcuma as a phytotherapeutic agent especially as regards atherosclerosis and cardiovascular disease.

Keywords: Agriculture, pharmacology, traditional medicine