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Measurement of Serum Total Cholesterol and Kidney Malondialdehyde Levels on High-Fat Induced Rats (Rattus Norvegicus) after Intervention of Synbiotic Drink of Stelechocarpus burahol with Lactobacillus casei and Lactobacillus plantarum Isolates

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Objectives: Dyslipidemia may lead to renal damage due to the accumulation of cholesterol in kidneys, resulting oxidative damage, i.e. generating reactive oxygen and lipid peroxidation. One of the final products from lipid peroxidation in cells is malondialdehyde (MDA). Synbiotic have been proposed to reduce cholesterol profile through variety of mechanisms in some studies. This study aimed to measure kidney MDA levels after intervention of synbiotic drink of Kepel (*Stelechocarpus burahol*) with the addition of *Lactobacillus casei* and *Lactobacillus plantarum* isolates.

Methods: The study utilized post-test randomized control group design. Twenty-five rats were divided into five groups. After one-week acclimatization the normal group was fed by standard diet 20 grams/day, while the negative control group and interfered groups (P1, P2, P3) were fed by 20 grams of high-fat diet for four weeks. The lipid profiles were checked to ensure the negative control group and interfered groups contracted dyslipidemia prior to receiving synbiotic drink (P1=1.2, P2=1.8, and P3=2.4) mL/day for four weeks. At the end of the study, serum total cholesterol were measured and tissue samples from kidney were taken to determine the MDA levels.

Results: The mean of total cholesterol (TC) of normal group 96.79 (±2.44), negative control group 210.21 (±3.79), P1 group 161.97 (±3.05), P2 group 136.46 (± 3.79), P3 group 119.01 (±3.89). MDA levels of normal group 2.23 (±0.28134), negative control group 9.546 (±0.39627), P1 group 5.31 (±0.19609), P2 group 3.672 (±0.29761), P3 group 2.95 (±0.35391). One-way ANOVA and post-hoc Bonferroni test showed significant differences of both serum TC and MDA level between all groups after given synbiotic drink with the p-value = 0.000 ($p<0.05$).

Conclusions: The intervention of synbiotic drink can lower serum total cholesterol and decrease oxidative damage in kidneys showed by decreased MDA levels.

Figure 1. Graphic of Serum Total Cholesterol Level

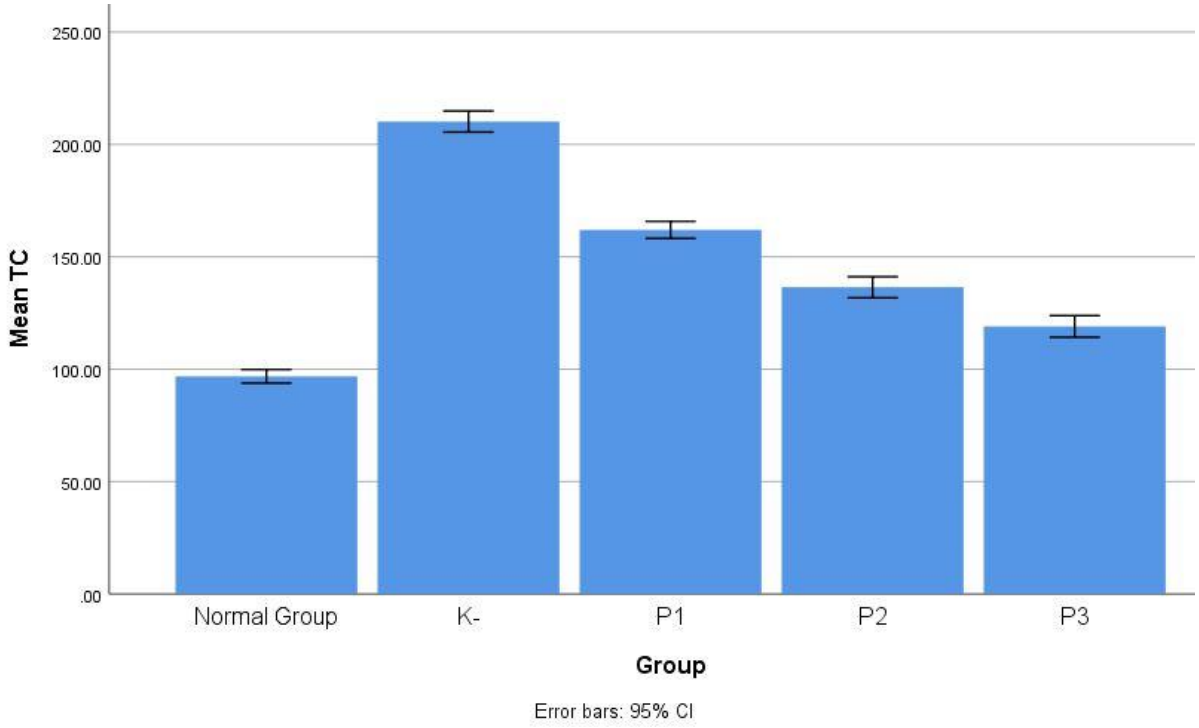

Figure 2. Graphic of Renal MDA Level