البحث تم نشره بمجلة:

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The physiological effects of different types of soluble dietary fiber (Guar gum, locust bean gum and pectin), on serum lipids and liver tissue in rats.

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Abstract

This study was designed to determine the effects of administering soluble indigestible polysaccharides separate and in combinations on body weight, serum lipids and liver histology in rats. Thirty six Sprague-Dawley rats divided into 6 groups, and were fed as the following: group (A) on basal diet, group(B) on basal diet supplemented with 5% guar gum (GG), group (C) on basal diet supplemented with 5% pectin (P), group (D) on basal diet supplemented with 5% locust bean gum (LBG), group (E) on basal diet supplemented with (2.5% GG + 2.5 % P) and group (F) on basal diet supplemented with (2.5% LBG + 2.5 % P) for 6 weeks. The investigated parameters included: changes in food intake, body weight, FER, total serum cholesterol, triglycerides, HDL-C, LDL-C, VLDL-C, and the histological changes in liver. Results showed a significant reduction in body weight at ($P \leq 0.05$) in both pectin and LBG fed groups. However groups fed on combination of soluble dietary fiber showed the lowest values ($P \leq 0.01$) compared with the control group. There were a highly significant decrease in triglycerides in groups fed on GG and pectin at 5% ($P \leq 0.01$, $P \leq 0.05$) respectively. While, there were a highly significant decrease at ($P \leq 0.01$) in VLDL-C in both groups of rats fed on GG 5% and pectin 5% compared with the control group. No histological changes were observed in rats' liver of groups fed on GG and pectin at 5% level. The findings provide evidences that, the supplementation of soluble dietary fiber separately were more effective than the combinations of two different types of soluble fibers. The study recommended that supplementing diet with guar gum, locust bean gum and pectin of dietary fiber individually might cause great beneficial effects in case of obesity and incidence of hyperlipidemia.

Key words: Guar – Locust bean -Pectin- serum lipids - Triglycerides- (HDL-C) and (VLDL-C) - liver histology

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