

Effect of Chitosan (From the Exoskeletons of Shrimp) on Body Weight and Blood Lipid Profile in Rats

¹Dalia R. Hassan, ¹Salem A. Salem and ²Aida R. Mowafy

¹Department of Home Economics, Faculty of Specific Education, Fayoum University, Egypt

²Department of Nutritional Biochemistry, National Nutrition Institute, Cairo, Egypt

Abstract: Chitosan is a dietary fiber which obtained as a by-product from shellfish processing. It is a polysaccharide deacetylated from Chitin, that constitutes the exoskeletons of shrimp and other crustaceans. The present study was carried out to investigate the effect of Chitosan alone and mixture of Chitosan with certain vitamins (Vitamin C and Folic acid) on Body weight, serum lipid profile and liver histology in rats. Twenty four Sprague-Dawley rats divided into 4 groups and fed on basal diet (control group), diet supplemented with 2% Chitosan, Chitosan+1g Vitamin C /kg diet and Chitosan+40mg Folic acid / kg diet, for 4 weeks. The studied parameters included: food intake, body weight, % liver weight/ body weight, FER, Total cholesterol, Triglycerides, HDL-C, LDL-C, VLDL-C, and the histological changes in rats liver. Results showed that, there was a highly significant ($P \leq 0.01$) decrease of body weight, Triglycerides, VLDL-C in group fed on Chitosan+vitamin C. In contrast, there was a significant ($P \leq 0.01$) increase of Triglycerides and VLDL-C in group fed on Chitosan 2%, when compared with control group. Histological changes were observed in rats group fed on Chitosan mixed with Vitamin C. Our findings provide evidence that; the supplementation of mixtures of Chitosan with certain vitamins might be of beneficial effect on obesity and the incidence of hyperlipidemia.

Key words: Chitosan • Vitamin C • Folic acid • Body weight • Triglycerides • VLDL-C
