

Hypocholesterolemic and hypoglycemic effects of dietetic flour in rats

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Background- Guar gum, a water soluble dietary fiber has been explored as a possible hypocholesterolemic and hypoglycemic agent and consequently contributes to the reduction of the risk of Diabetes and Cardiovascular diseases. Dietary patterns emphasizing foods high in complex carbohydrates and fiber are associated with reduced risk of coronary heart disease (CHD) and diabetes mellitus (DM), lower blood glucose (BG) and blood cholesterol (BC) levels.

Objective- To determine the nutritional and therapeutic role of guar gum on reduction of blood glucose and blood cholesterol.

Design- Dietetic flour was prepared by blending wheat flour with guar gum (GG) at different levels ie 1, 2 and 3 % respectively. Flat unleavened bread locally known as Chapattis were prepared from all the treatments. Sensory evaluation of the chapattis was carried out and it was noted that overall acceptability of dietetic flour prepared from GG at 3% was turned out to be the highest considering color, flavor, taste, texture, chewing ability etc. To examine the hypocholesterolemic and hypoglycemic effects of the selected dietetic flour, 14 young male Sprague-Dawley rats were fed a simple wheat flour (Control) and GG 3% dietetic flour.

Outcomes- Comparing the palatability of wheat flour and dietetic flour, there were non-significant changes between feed and water intake, but the weight gain showed significant results ($P \leq 0.05$). Plasma total Cholesterol, total Protein, Albumin and Globulin concentration showed non-significant results between given treatments. Plasma Glucose, triglycerides and LDL-cholesterol concentration (mg/dl) were significantly reduced ($P \leq 0.05$) in rats fed on dietetic flour while Plasma HDL-cholesterol concentration was significantly increased ($P \leq 0.05$) in rats fed on dietetic flour.

Conclusion- Dietetic flour prepared from Guar gum is related to the subsequent reduction of BG and BC suggesting it to be an essential part of the diet especially for CHD and DM patients.