

Helwan University
Faculty of Home Economics

**Effect Of Gums On Bread Quality
And Their Biological
And Biochemical Effects On Rats**

Thesis

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By

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ABSTRACT

Effect Of Gums On Bread Quality And Their Biological And Biochemical Effects On Rats.

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This study was under taken to study the effect of gums on bread quality and their biological and biochemical effects on rats. First, gums (Locust bean and Arabic gum) were incorporated into wheat flour at 2.5 and 5% to determine the feasible amounts as partial replacement of flour in the bread products which will give better quality characteristics. Second the prepared bread samples were evaluated objectively and subjectively. Percentage of gums (Locust bean and Arabic gum) that gave good bread quality was subjected to animal feeding experiment. The animal experiment was carried on fifty eight adult male albino rats Sprague Dawely strain which were divided into (7) groups. One group was kept on the normal basal diet and referred to as normal control, all other groups were fed on experimental diets for (6) weeks. The other groups were supplemented with one of the following gums: Whole seed of locust bean gum, Fine flour of locust bean gum, outer coat of locust bean gum, gum Arabic, gum Arabic + whole seed of locust bean gum and gum Arabic + fine flour of locust bean gum(all added at the level of 5%). Weekly body weight gain, food intake and food efficiency ratio were calculated. At the end of experimental period, animals were sacrificed. Relative weight of some organs was calculated. Blood samples were collected to determine total lipids (TL), total cholesterol (TC), HDL-C, LDL-C, hemoglobin (Hb), hematocrit (HCT), glucose, triglycerides (TG) and two of the micronutrients (Iron and Zn) in serum and liver. HDL-c and LDL-c were calculated as percent of total cholesterol. Results showed that dietary gums such as whole seed of locust bean gum group resulted in significant reduction in serum glucose, TL, TC, TG, LDL-c, VLDL-c, and phospholipids. Whole seed of locust bean gum showed the best significant results in all parameters while gum Arabic affect some of them. Fine flour and outer coat of LBG did not influence significantly most of the studied parameters. Results of the combination of (Arabic gum + fine flour of locust bean gum) was better than that of (Arabic gum + whole seed of locust bean gum).

Key words:

Gum, glucose, blood lipids, minerals, objectives and subjective evaluation, bread formula.