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Comparative serum cholesterol and glucose responses of rats fed on wheat flour and chickpea composite flour

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Background - Composite flours (CF) have proven practical uses in the cereal industry in many parts of the world. Cereal based products made from CF have found easy acceptability. Chickpea (CP) is capable of lowering blood cholesterol (BC) and blood glucose (BG) levels and is consequently effective against coronary heart disease (CHD) and diabetes mellitus (DM).

Objectives - To determine the efficacy of wheat flour blended with CP on BC and BG levels.

Design - WF was fortified with CP flour at 10% replacement level to produce the CF. Proximate analysis of CF along with WF was carried out. Young male Sprague-Dawley rats (n=14) were divided into two groups having 7 rats in each. One group was fed CF and the other WF (control). Feed intake was determined daily while body weight was measured weekly. At the end of 40 days, rats were decapitated and their serum was procured for future analysis.

Outcomes - Comparing the palatability of WF and CF, there was no significant difference between feed and water intake but body weight showed a significant difference ($P < 0.05$). Protein, ash, moisture, fat and fiber was significantly higher in CF as compared to WF ($P < 0.05$). Serum total cholesterol, glucose, Low density lipoprotein cholesterol (LDL-C) was found to be significantly lower in the group fed CF as compared to WF ($P < 0.05$) while no significant difference was found in high density lipoprotein cholesterol (HDL-C) and triglycerides between the two groups.

Conclusion - Consumption of chickpea CF can be of assistance in lowering of BC, BG and LDL-C thus leading to lesser risk of developing CHD and DM.

Effect of combined propolis-ethanol-extract and Shaoyao-Gancao-tang on blood sugar levels in rabbits with alloxan induced experimental diabetes

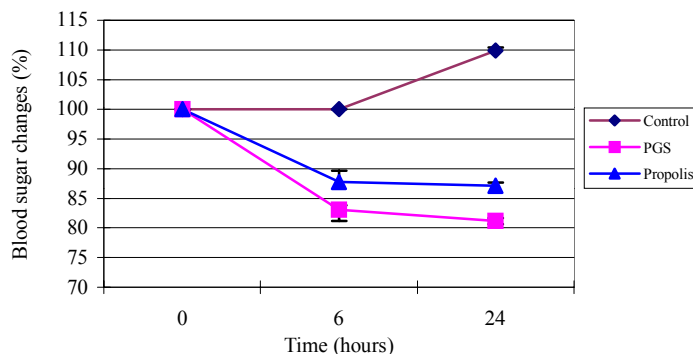
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Background - Propolis, a bee-hive product, has been used as a Chinese folk medicine for thousand years, with reported beneficial effects on various clinical conditions.¹ Shaoyao-Gancao-tang, a prescription Chinese Medicine, is a mixture of the water extract of liquorice (*Radix Glycyrrhizae*) and peony (*Paeonialaciflora*) roots.

Objective - To investigate the effect of combined propolis-ethanol-extract and Shaoyao-Gancao-tang (PSG) on blood sugar levels of rabbits following alloxan induced experimental diabetes.

Design - PSG was prepared as a 1:1 mixture of propolis-ethanol-extract and water extract of liquorice and peony roots. Fasting (8 h) blood sugar $>180\text{mg/mL}$ was considered as experimental diabetes after rabbits were treated with 100mg/kg of 5% alloxan for 72 h. Blood sugar levels of the diabetic rabbits were measured after they were given a 0.3g/kg oral dose of PSG (n=8) or propolis (n=8) at 6 and 24 h, respectively. A control group of diabetic rabbits (n=8) had no PSG or propolis administered and were tested at the same time points.

Outcomes - Compared with control group, diabetic rabbits treated with PSG or propolis showed a significant reduction in blood sugar levels at 24 h ($P < 0.05$), and PSG was more potent than propolis alone (Figure).



Conclusions - The results indicated that propolis-ethanol-extract has a beneficial effect on reduction of blood sugar levels in alloxan induced diabetic rabbits, and may have a synergistic effect with Shaoyao-Gancao-tang.

1. Banskota AH, Tezuka Y, Kadota S. Recent progress in pharmacological research of propolis. *Phytother Res* 2001; 15:561-61.