ABSTRACT

1. The germinated bengal gram was fractionated into total lipids, fatty acids, unsaponifiable portion, globulin, prolamine, glutelin, insoluble carbohydrates, hot water extractable portion and soluble complex polysaccharides.

2. 40% whole germinated bengal gram powder at the expense of sucrose in hypercholesterolemic diet when given to rats for 3 weeks caused a significant reduction in serum lipids and triglyceride levels of liver and aorta. 70% bengal gram powder caused no significant reduction in any tissue lipid level except serum triglycerides.

3. Three fractions of bengal gram viz., fatty acids, globulin and insoluble carbohydrates effectively counteracted the hyperlipidemic response of triton X-1339 in rats. Cholesterol and triglyceride levels were decreased significantly in animals treated with all these fractions. Significant decrease in phospholipid level was observed in animals treated with fatty acids and insoluble carbohydrate.

4. Bengal gram fractions viz., total lipids, fatty acids, globulin and insoluble carbohydrates caused significant
reduction in serum lipids of rats receiving ethanol and corn oil by intubation. There was no significant reduction in lipid parameters of liver.

5. Insoluble carbohydrate fraction of bengal gram caused significant reduction in serum triglyceride level of normocholesterolemic rats. Total lipids, fatty acids, globulin and insoluble carbohydrates caused significant decrease in serum phospholipid level. Liver triglyceride and phospholipids were decreased in rats treated with total lipids, fatty acids and insoluble carbohydrates.

6. Total lipids and insoluble carbohydrates significantly checked the rise of serum lipids in rats fed cholesterolemic diet. Triglyceride and phospholipid levels of liver were significantly lowered by all active fractions except phospholipid level in globulin treated animals.

7. In two week treatment of rats fed fat-rich cholesterol diet all active fractions of bengal gram caused a significant decrease in serum and liver lipids. Aorta cholesterol and phospholipids were decreased significantly by all active fractions except phospholipid level in globulin treated animals.
8. All active fractions simultaneously administered with atherogenic diet caused a significant decrease in serum and liver lipids except serum and liver triglyceride levels in globulin treated animals and liver phospholipid levels in animals treated with fatty acids and globulin. Aorta cholesterol were significantly lowered by insoluble carbohydrates only. Total lipids and insoluble carbohydrates caused a significant reduction in aorta triglycerides and phospholipids. Fatty acids caused significant reduction only in aorta triglycerides.

9. Simultaneous treatment of bengal gram fractions for 10 days significantly lowered all serum lipids in rats receiving fructose in drinking water. Total lipids and insoluble carbohydrates caused significant reduction in liver triglycerides. There was significant decrease in aorta cholesterol and triglyceride levels in animals treated with all active fractions.

10. Oral administration of total lipids and fatty acids caused significant reduction in almost all tissue lipids in rats receiving vitamin \( \beta_2 \) and cholesterol in olive oil. The decrease in aorta phospholipid level was insignificant in rats treated with total lipids. Unsaponifiable portion caused no significant decrease in any tissue lipids.
11. Preliminary characterisation of active fractions was done by thin layer chromatography, gas liquid chromatography, infra red spectrum, microkjeldahl method of Nitrogen estimation, Harrow's method of determination of saponification number.