

Decrement of adipocyte size and prevention of hyperleptinemia by garlic in high fat diet-induced obese rats

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Abstract

Obesity is often related disturbances of lipid metabolism that lead to an increase in serum triglyceride and cholesterol concentrations, which are involved in the development of cardiovascular disease. On the basis of these results, the present study was undertaken to discover the effect of garlic powder in rats fed a diet enriched in beef tallow, providing a large amount of saturated fatty acids and cholesterol. The purpose of this study was to investigate whether the addition of high and low dose of garlic powder diet prevent the potential adverse effects on adiposity and dyslipidemia of this diet. We investigated the effects of garlic on the lipid and leptin metabolism in rats fed high fat diet. To determine whether the garlic have the hypolipidemic effects, 4 wk old Sprague Dawley male rats fed high fat diet for 6 wks to induce obesity, and subsequently fed garlic supplemented high fat diets (w/w) for further 4 wk. For the comparison, normal control group fed AIN-76A diet. Supplementation with garlic resulted in a significant reduction of body weight gain, brown and white fat (visceral and peritoneal fat) mass. Adipocyte cell size was significantly reduced by garlic containing diet. Serum triglyceride and leptin level was significantly reduced by garlic supplementation and free fatty acid was reduced also. The present re-

sults show that garlic supplementation to the diet is beneficial for the suppression of diet-induced obesity and hyperlipidemia.

Reference

1. S. A. KANG, K. H. HONG, K. H. JANG, S. H. KIM, K. H. LEE, B. I. CHANG, C. H. KIM, & R. W. CHOUE. (2004) Anti-Obesity and Hypolipidemic Effects of Dietary Levan in High Fat Diet- Induced Obese Rats. *J Microbiol Biotechnol* 14,796-804.