Effects of garlic oil and diallyl trisulfide on glycemic control in diabetic rats.

Liu CT, Hse H, Lii CK, Chen PS, Sheen LY.

Department of Nutrition, Chung Shan Medical University, No. 110, Sec. 1, Chien Kuo N. Road, Taichung 402, Taiwan, Republic of China. ctl@csmu.edu.tw

Abstract

We investigated the effects of garlic oil and diallyl trisulfide on glycemic control in rats with streptozotocin-induced diabetes. Diabetic rats received by gavage garlic oil (100 mg/kg body weight), diallyl trisulfide (40 mg/kg body weight), or corn oil every other day for 3 weeks. Control rats received corn oil only. Both garlic compounds significantly raised the basal insulin concentration. The insulin resistance index as assessed by homeostasis model assessment and the first-order rate constant for glucose disappearance were significantly improved by both garlic compounds (P<0.05). Oral glucose tolerance was also improved by both garlic compounds and was accompanied by a significantly increased rate of insulin secretion (P<0.05). Glycogen formation (but not that of lactate or carbon dioxide) from glucose by the soleus muscle in the presence of 10 or 100 microU/ml of insulin was significantly better after treatment with both garlic compounds. Both garlic oil and diallyl trisulfide improve glycemic control in diabetic rats through increased insulin secretion and increased insulin sensitivity.

PMID: 15936752 [PubMed - indexed for MEDLINE]