

*Original article***P04**

Antidiabetic Effect of Grape Seed Extract (*Vitis vinifera*) in High Fructose-Fed Rats

Wannaporn Suwannaphet¹, Sirichai Adisakwattana², Sirintorn Yibchok-anun³

¹ *Interdepartment of Pharmacology, Graduate School, ²The Medical Food Research and Development Center, Department of Transfusion Medicine, Faculty of Allied Health Sciences, ³Department of Pharmacology, Faculty of Veterinary Sciences, Chulalongkorn University, Thailand*

E-mail: Suwannaphet_wanna@hotmail.com

Abstract

Type 2 diabetes is a chronic disease characterized by insulin resistance and/or an inadequate compensatory insulin secretory response. Grape seed extract (GSE) has been reported to possess antidiabetic activity. However, there was no the literature reported to the effect of grape seed extract on plasma glucose in high fructose-fed rats. The present study was performed to investigate the antihyperglycemic effects of grape seed extract in high fructose-fed rats. Phenolic compounds and flavonoids content in grape seed extract was determined by using Folin-Ciocalteu's reagent and AlCl₃ assay. Six experimental groups were compared: a control group receiving the control diet, a high-fructose-fed group where 60% of the diet carbohydrate was fructose, a high-fructose-fed group supplemented with 0.5, 1 and 2% GSE, respectively. The sixth group received the high fructose diet and rosiglitazone (4 mg/kg). After 8 weeks of experiment, fasting plasma glucose concentrations were measured and oral glucose tolerance test were performed in each group. Total phenolic compounds and flavonoids content were 2.16±0.01 and 7.39±0.45 mg/g extract respectively. The diabetic rats supplemented with 1% GSE significantly decreased fasting plasma glucose level ($p<0.05$) after 8 weeks of administration. Moreover, the diabetic rats supplemented with GSE at 1 and 2% improved glucose intolerance when compared to the diabetic control group ($p<0.05$). In conclusion, the present results indicated that grape seed extract reduced hyperglycemia in high fructose-induced diabetic rats. Thus, grape seed extract may be useful in the prevention for type 2 diabetes.

Keywords: Grape seed, diabetic rats, high-fructose diet