

## The effect of Persian shallot (*Allium hirtifolium* Boiss.) extract on glucokinase (GCK) activity and genes expression in diabetic rats.

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**Background and Aims:** The liver is an insulin-sensitive tissue and plays a major role in maintaining glucose homeostasis by regulating the interaction between the glucose utilization and production. Hepatic GCK is a key enzyme in glucose homeostasis and, as such, is a potential target for treatment strategies of diabetes. Dietary antioxidant compounds may offer some protection against the early stage of diabetes mellitus and the development of complications. We investigated the effect of Persian shallot (*Allium hirtifolium* Boiss) hydroalcoholic extract on blood glucose level, plasma insulin level, GCK activity and its gene expression.

**Methods:** Thirty two male rats were divided into 4 groups of 8, diabetic groups received 100 and 200 mg/kg Persian shallot extract, diabetic control and normal control received 0.9% saline for 30 days. At the end of the experimental period fasting blood samples and liver samples were collected.

**Results:** Findings of the present study indicated that the Persian shallot significantly reduces the Fasting Blood Sugar (FBS) level in parallel with slightly enhancement of insulin in diabetic rats' serum. Investigations of gene expression by RT-PCR showed that Persian shallot has led to gently increased GCK in diabetic rats. GCK activity increased significantly in Persian shallot treated group in dose dependent manner.

**Conclusions:** These results indicate that Persian shallot exhibits a significant potential as a hypoglycemic agent perhaps via its ability to enhance insulin secretion, GCK gene expression and its activity.

**Keywords:** Persian shallot; Glucokinase; Gene expression; Diabetes