Effect of Molokhia Extract on Experimentally Induced Diabetes Mellitus
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Abstract

The aim of the present study was to examine the effect of Molokhia soup (prepared from the leaves of Corchorus olitorius L.) on fasting blood glucose level (FBG), lipid profile and hepatic oxidative status of streptozotocin (STZ)-induced diabetic rats. The study was carried on 28 male albino rats weighing 100-150 g classified into four groups: control group (group 1) and other three groups (from 2 to 4). Experimentally induced diabetes was developed in rats of groups 3 and 4 by single intraperitoneal injection of STZ (at a dose of 65mg/Kg body weight). One week after injection of STZ, diabetes was well established in these groups and blood samples were collected from all groups for determination of serum FBG levels. Then Molokhia soup (4.80 g/Kg BW) was given by gastric tube for 14 days to groups 2 and 4. At the end of the experimental
period, blood samples were collected from all groups for the determination of serum FBG, total cholesterol (TC), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C) and triglycerides (TG). Liver lipid peroxides (thiobarbituric acid reactive substances [TBARS]), liver non-enzymic antioxidants: reduced glutathione (GSH) levels, as well as antioxidant enzymes catalase (CAT) and superoxide dismutase (SOD) were also determined.

A significant increase in the serum levels of FBG, TC, TG and in liver lipid peroxidative products was observed in diabetic rats (group 3) compared to group 1. This was associated with a significant decrease in liver enzymatic antioxidants (CAT and SOD) and non-enzymic antioxidants (GSH). Normal rats treated with Molokhia soup (group 2) showed significant decrease in FBG levels compared to group 1, whereas no significant changes were observed in any of the other studied parameters. Treatment of the diabetic rats with Molokhia soup (group 4) significantly decreased the serum levels of FBG, TG and liver lipid peroxidative products. At the same time Molokhia soup significantly increased CAT, SOD and GSH levels. Thus Molokhia soup reversed the effects of diabetes on FBG, serum TG, lipid peroxidation in addition to enzymic and non-enzymic antioxidants with variable degrees. Molokhia soup showed an encouraging antihyperglycemic, antihypertriglyceridemic as well as antioxidant properties and can be considered as a valuable candidate in the reversal of the complications of diabetes.

**Keywords:** Molokhia, rats, fasting blood glucose level, plasma lipid profile, liver oxidative status
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