

Abstract

Polyphenols have shown antioxidant activity and an ability to prevent the toxic effects of oxidative stress in diabetes. The objective of this study was to evaluate the hypoglycemic and antioxidant effect of the methanolic extract of *Xanthoria parietina* on rats diabetes induced by streptozotocin (40 mg/g). The results obtained show that streptozotocin induces diabetes in the animal characterized by hyperglycemia, elevation of oxidative stress markers and a decrease of enzymatic and non-enzymatic antioxidant defense system. However, the methanolic extract results in a marked improvement in the antioxidant state in the liver. Indeed our results show a decrease in the malonyldialdehyde concentration of 25.91% and an increase in the reduced glutathione rate of 23.62%, an increase in the superoxide dismutase activity of 23.53% and catalase activity of 49.10%. The effect of the polyphenolic extract on the blood glucose level is tested on rats rendered hyperglycemic. The feeding with the extract showed a significant hypoglycaemic effect during 120 minutes of treatment. In conclusion, the present study suggests that *Xanthoria parietina* has a beneficial effect on the control of blood glucose, lipid profile and oxidative status, activating antioxidant enzymes and decreasing lipid peroxidation in the liver. Such treatments may help reduce the development of complications associated with diabetes.