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Diabetes Induced Oxidative Stress: A Comparative Study on Protective Role of Momordica charantia and Metformin

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ABSTRACT

Diabetes mellitus is associated with oxidative stress which plays an important role in development of chronic complications of diabetes. Due to various side effects associated with the drugs used for the management of diabetes, the development of new plant based drugs is the renewed interest of the present time. The new prospective anti-diabetic formulations should possess anti-oxidative potential to resist the oxidative insult of tissues during diabetes and their potential should also be comparable with standard drugs. Momordica charantia is extensively used in India, China and other parts of the world as vegetable. The present study was aimed to investigate the effect of Momordica charantia (MC) on antioxidant enzymes and lipid peroxidation in liver and kidney of alloxan induced diabetic rats. In a 30 days treatment, rats were divided into four groups (I-IV) of five animals in each, experiments were repeated thrice. Administration of MC (13.33 g pulp/kg body weight/day) extract in diabetic rats has remarkably improved the elevated levels of fasting blood glucose. A significant decrease in lipid peroxidation ($p<0.001$) and increase in the activities of key antioxidant enzymes such as superoxide dismutase (SOD), catalase (CAT), glutathione-s-transferase (GST) and reduced glutathione (GSH) contents in liver and kidney tissues of diabetic rats were observed upon MC treatment. The anti- hyperglycemic and antioxidant properties of MC were comparable with Metformin, a standard hypoglycemic drug.

KEYWORDS

Alloxan . diabetic rat . antioxidant status . lipid peroxidation . Momordica charantia and metformin

REFERENCES