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Coccinia grandis L. INDUCES ISLET CELL REGENERATION IN ALLOXAN INDUCED DIABETIC RATS: AN IMMUNOHISTOCHEMICAL STUDY

A.P. Attanayake[1*], K.A.P.W. Jayatilake[1], C. Pathirana[1] and L.K.B. Mudduwa[2]
[1]*Department of Biochemistry, Faculty of Medicine, University of Ruhuna, Galle*
[2]*Department of Pathology, Faculty of Medicine, University of Ruhuna, Galle*

Introduction

The discovery and exploitation of active principle(s) of natural antidiabetic agents is a key focus in scrutinizing therapeutic benefits of medicinal plant extracts and developing novel pharmaceuticals for the treatment of diabetes mellitus. *Coccinia grandis* (L.) Voigt (Sinh: Kowakka, Family: Cucurbitaceae) traditionally has been used as an anti-diabetic phytomedicine. The efficacy and dose response of the leaf extract of *Coccinia grandis* for antihyperglycaemic activity has been determined in alloxan induced diabetic rats previously by our group. The optimum effective dose of the leaf extract of *C. grandis* was found to be 0.75 g/kg in alloxan induced diabetic rats. In addition, the administration of *C. grandis* (0.75 g/kg) to healthy Wistar rats for 30 days did not produce any adverse toxicological effects on biochemical, haematological and histopathological parameters. However, detailed antihyperglycaemic mechanisms with the administration of aqueous leaf extract of *C. grandis* have not been reported in diabetic rats. Therefore, this study was aimed to investigate the effect of leaf extract of *C. grandis* on the pancreatic β-cells in alloxan induced diabetic rats.

Materials and Methods

Plant extract: The refluxed hot water leaf extract of *C. grandis* (0.75 g/kg) was used.

Animals: Healthy Wistar albino rats of 200 ± 25 g body weight were used to carry out experiments. All protocols used in the study were approved by the Ethics Committee of Faculty of Medicine, University of Ruhuna, Sri Lanka.

Development of diabetes mellitus in Wistar rats

Alloxan monohydrate at a dose of 150 mg/kg was administered intraperitonially to fasted rats. Rats with fasting blood glucose concentration of 12.0 mmol/L or above were considered as hyperglycaemic and used for experiments.

Experimental design

Group one and two served as the untreated healthy, untreated diabetic control groups and received distilled water. Group three was diabetic rats, received the optimum effective dose of the extract of *C. garndis* (0.75 g/kg) daily for 30 days.

* *Corresponding author: anoja715@yahoo.com*