

# Amelioration of Hyperglycaemia in Alloxan-induced Diabetic Rats by An Ornamental Plant

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**Abstract**—*Diabetes mellitus is a metabolic disease characterized by chronic hyperglycaemia and alteration of carbohydrate, protein and lipid metabolism associated, with abnormal secretion and/or activity of insulin. In the present work, Alcea rosea seeds (methanolic and aqueous extracts) were evaluated for their antidiabetic activity against chemically (alloxan) induced diabetic rat models. The study was carried out on 14 days protocol and fasting blood glucose level was measured on weekly intervals i.e. 0<sup>th</sup>, 7<sup>th</sup> and 14<sup>th</sup> day of study. At the end of the 14<sup>th</sup> day, the rats (both extract treated and untreated ones) were scarified and their organs (liver and pancreas) were taken for estimation of lipid peroxidation and antioxidant status. Administration of aqueous and methanol extracts at 300 mg/kg b.w. significantly ( $p < 0.01$ ) modulated the antioxidant status of liver in diabetic rats by increasing levels of glutathion ( $22.5 \pm 1.0$ ,  $24.4 \pm 1.02$  lg GSSG utilized/min/mg of protein), glutathione peroxidase ( $20.7 \pm 1.2$ ,  $23.6 \pm 2.04$  lg GSH utilized/min/mg of protein), superoxide dismutase ( $36.1 \pm 1.7$ ,  $39.05 \pm 1.5$  units/mg of protein) and catalase ( $1744.5 \pm 132.5$ ,  $1956.6 \pm 125.2$  nmol H<sub>2</sub>O<sub>2</sub> decomposed/min/mg of protein), respectively. Similar results were observed for pancreas. Pertinently, the in vitro antioxidant activity studies carried out with these extracts showed methanolic extract to possess significant antioxidant potential which most probably was suggested to be due to its high phenolic content. In conclusion, the results obtained during this study, reveal the multifaceted potential of this plant in amelioration of type I diabetes, and provide a mechanistic clue to elucidate the basis of the observed bioactivity.*

**Keywords:** *Diabetes, Alcea rosea, antioxidants, alloxan.*