S M Nazmul Haque, J Diabetes Metab 2016, 7:5(Suppl)
http://dx.doi.org/10.4172/2155-6156.C1.042

9th Diabetologists Conference

June 06-08, 2016 Dallas, Texas, USA

Antihyperglycemic activity of *Catharanthus roseus* leaf powder in streptozotocin-induced diabetic rats

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Catharanthus roseus is a traditional medicinal plant used to control diabetes in various regions of the world. The aim of the study is to evaluate the possible antidiabetic effect of *C. roseus* leaf extract in diabetic rats. Rats were fed the extract for 4 weeks twice daily (0.5g/kg) and serum glucose, insulin, lipids, hepatic glycogen content were assayed. Plasma glucose was determined by GOD-PAP technique using glucose assay kit (Randox, UK). Blood total cholesterol levels were assayed using cholesterol quantization kit (Sigma Aldrich, USA). Blood Triglycerides were measured using colorimetric TG assay kit (Cayman Chemicals, USA). Plasma HDL levels were assayed using HDL assay kit (CrystalChem, USA). Plasma HDL levels were determined using HDL assay kit (CrystalChem, USA). Extract group showed ($p<0.05$) reduction in body weight, whereas, control animals showed an increase in body weight of 50.9%. In the extract group, plasma glucose level gradually decreased during experimental period ($p<0.05$). A significant decrease in plasma total cholesterol ($p<0.05$), triglycerides ($p<0.05$), LDL-cholesterol ($p<0.05$), and significant increase in HDL-cholesterol ($p<0.05$) in treated group was seen. This resulted in reduction of the atherogenic index. Thus our findings show that oral administration of *C. roseus* leaf powder produces antihyperglycemic effect, lowers both total cholesterol and triglyceride levels, and at the same time increases HDL-cholesterol in STZ-induced diabetic rats. The antihyperglycemic action of extract of *C. roseus* is associated with increased plasma insulin concentration and insulin sensitivity. This investigation shows the potential of *C. roseus*, for use as a natural oral agent, with both antihyperglycemic and hypolipidemic effects.

Biography

S M Nazmul Haque has currently completed his bachelor of Pharmaceutical Sciences from North South University in year 2015. He has worked in quite a few anti-diabetic research work of different plant extracts, under deliberate supervision of Dr. JMA Hannan, which are in process of publication. He was also one of the participant of 20th annual conference on Chemical Research Applied to World Needs (CHEMRAWN XX CONFERENCE).

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