In vivo comparative study of antidiabetic effect of a *Trigonella foenum-graecum* Seed and Leaf Extract on Alloxan induced Diabetic Wistar Rats

UGC Ref.No. MRP(S)-0500/13-14/KAMA002/UGC-SWRO dated 28-Mar-14

EXECUTIVE SUMMERY OF THE MINOR RESEARCH PROJECT

Submitted by

Mr. SREEJESH P C
Principal Investigator
Department of Postgraduate studies and Research in Biotechnology,
St Aloysius College (Autonomous), Mangalore.

To

The Joint secretary and Head
South Western Regional Office (SWRO)
University Grants Commission

EXECUTIVE SUMMERY:

The study was undertaken to investigate the short-term effect of methanol extract of *Trigonella foenum-graecum* seed (FSE) and leaf extracts (FLE) preparation on the blood glucose level, body weight, lipid profile and histochemistry in normal as well as alloxan induced diabetic Wistar rats. A single intraperitoneal administration of alloxan monohydrate (150 mg/kg body weight) was used to induce diabetes in Wistar rats. Rats were divided into four experimental groups (n=4) receiving different treatments. Methanolic FSE & FLE are suspended in 10% DMSO (0. 5 g/ml) and were orally administered to each animal in all groups for the duration of four weeks. In alloxan induced diabetic rats, the daily oral treatment with of both FSE & FLE has been brought down the blood sugar level significantly. FSE (0.5 g kg1 body wt) reduced the blood glucose level proximate to normal in diabetic rats by 4 weeks. Overall 58.12 % reduction was observed in FSE treated rats whereas, only 55.65% reduction was observed in FLE treated ones as compared to diabetic control. Lipid profile of diabetic rats showed profound reduction in TG, VLDL and LDL levels and increase in HDL compared to the diabetic control group. Furthermore, an effect comparison between FSE and FLE on lipid profile reveals that FLE has higher hypopilidemic and hypocholesterolemic than FSE. Histology of pancreas sowed FSE exhibited almost normalization of damaged pancreatic architecture and regeneration of the β cells in diabetic Wistar rats. It can be concluded that the methanolic FSE and FLE have an antidiabetic effect through the restoration of the functions of pancreatic tissues. Though, FSE has higher has higher hypoglycemic activity than FLE, the FLE possess higher hypopilidemic and hypocholesterolemic effects.

Keywords: antidiabetic, hypoglycemic, hypopilidemic and hypocholesterolemic, Alloxan, TG, VLDL, LDL, HDL

Mr. SREEJESH P C
Principal Investigator

Rev Fr Swebert D'Silva S J
Principal

Date: 18/08/2016