

NAME OF THE THEME: Medical, health and Pharmaceutical Sciences

Title:

Lucas Indica variety Nagalapuramiana – a new emergent plant for treatment of Diabetes and its complications.

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Introduction: Diabetes mellitus is an endocrinological disorder characterized by increased blood glucose levels associated various complications such as neuropathy, retinopathy, cardio vascular complications etc. Conventional agents are being used to control diabetes however associated with side effects and relatively expensive. In this context there is a vast necessity for alternative and cost effective treatments like medicinal plants. As there is need to completely validate the anti-hyperglycemia activity of medicinal plants. One among such plant is *Lucas Indica variety Nagalapuramiana* is a medicinal plant described in ancient texts with desired anti hyperglycemic activities, reducing diabetic associated complications owing with fewer side-effects and economical. Present study focused on *In vitro* and *In vivo* evaluation of *Lucas Indica* whole plant for anti-diabetic activity and protective role *Lucas Indica* for diabetic complications in STZ (streptozotocin) induced diabetes in Sprague Dawley (SD) rats.

Proposed Objectives:

- I. Extraction and phytochemical evaluation of *Lucas indica var. Nagalapuramiana*
- II. *In vitro* antidiabetic studies of *Lucas indica var. Nagalapuramiana* by biochemical parameters
- III. *In vivo* antidiabetic studies of *Lucas indica var. nagalapuramiana* in streptozotocin (STZ) induced diabetic animal models

Methodology:

Extraction of Lucas indica var. Nagalapuramian was standardized successfully by cold maceration method, Bio active compounds of above plant were evaluated by GCMS, NMR and LCMS, as a part of Phytochemical analysis.

Invitro Biochemical parameters including antioxidant profile has performed by DPPH radical scavenging method.

Invivo anti diabetic activity of above plants extracts has studied in streptozotocin induced diabetic animal model.

Induction of diabetes in Sprague dawley (SD) rats diabetes was induced by single administration of STZ at the dose of 55 mg/kg, intraperitoneal route and 48 h after the STZ injection blood glucose levels were measured by glucometer. After 5 doses of STZ administration, the blood glucose levels were recorded every 3rd day till 21st day after collecting the blood drop from tail vein.

Evaluation of protective effects of Lucas indica var. Nagalapuramian against of STZ induced type 1 diabetes animal model

Sprague dawley rats were used for STZ induced type 1 diabetes, evaluation of protective effect of Lucas indica var. Nagalapuramian. Treatment of Lucas indica var. Nagalapuramian were administered daily by intraperitoneal route and continued till 21 days. The therapeutic antioxidant potential of Lucas indica var. Nagalapuramian in streptozotocin induced diabetic animal model in Sprague dawley were assessed on body weight, pancreas weight, MDA (Malondialdehyde), nitric oxide and GSH (Glutathione) levels, antidiabetic parameters like blood glucose levels, % diabetic incidences and histopathological changes were observed.

Conclusions:

This study has utilizes novel biochemical, pharmacological techniques in the treatment of Diabetes mellitus. The results from this investigation will provide significant insight protective effect of the Lucas indica var. Nagalapuramiana for Diabetes and its complications.

Key words: Diabetes, Lucas indica var. Nagalapuramiana, antioxidant, Streptozotocin (STZ).