KSN 2019
Seoul, Korea · May 23 - 26

Abstract Type : Poster
Abstract Submission No. : PO-1266

Evaluation of antidiabetic activity of biologically synthesized silver nanoparticles using Ficus carica in alloxan-induced diabetic rats

Deepika Jain
Department of Pharmacy, SRG Hospital and Medical College, India

Objectives:

Medicinal plants and green synthesis of silver nanoparticles (AgNPs) have proven to be good sources of agents effective in the treatment of diabetes mellitus. The present study focused on the green synthesis of AgNPs from the aqueous leaf extract of Ficus carica in order to evaluate the in vitro and in vivo antidiabetic properties of this extract and the synthesized AgNPs.

Methods: The AgNPs were biologically synthesized under ambient conditions from an aqueous leaf extract of ficus carica using the hot percolation method and were characterized using spectroscopic methods, X-ray diffraction, and scanning electron microscopy. The in vitro antidiabetic activity of the aqueous leaf extract and AgNPs was confirmed by non-enzymatic glycosylation of hemoglobin, glucose uptake by yeast cells following exposure of cells to 5 or 10 mmol/L glucose solution, and inhibition of α-amylase. Further, in vivo antidiabetic activity was assessed in alloxan-induced rats. Rats were treated with aqueous leaf extract (250 mg/kg) or AgNPs (15 mg/kg) for 15 days. Following treatment, rats were killed for biochemical and histopathological analysis of kidney and liver samples.

Results:

A significant reduction in blood sugar levels was noted in rats treated with leaf extract or AgNPs. Results of in vitro and in vivo analyses in rats treated with leaf extract or AgNPs show that both the extract and the biologically synthesized AgNPs have antidiabetic activity.

Conclusions:

The aqueous leaf extract of *ficus carica* and AgNPs exhibited efficient antidiabetic activity in the rat model of diabetes and therefore could have potential for development for medical applications in the future.