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In vivo Therapeutic Potential of Biologically Synthesized Silver Nanoparticles

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Abstract : Nowadays, nanoparticles are being used in pharmacological studies for their exclusive properties such as small size, more surface area, biocompatibility and enhanced solubility. In view of this, the present study aimed to evaluate the antihyperglycemic potential of biologically synthesized silver nanoparticles (BSSNPs) and Gymnema sylvestre (GS) extract. The SEM and SEM analysis divulges that the BSSNPs were spherical in shape. EDAX spectrum exhibits peaks for the presence of silver, carbon, and oxygen atoms in the range of 1.0-3.1 keV. FT-IR reveals the binding properties of active bio-constituents responsible for capping and stabilizing BSSNPs. The results showed increased blood glucose, huge loss in body weight and downturn in plasma insulin. The GS extract (200 mg/kg, 400 mg/kg), BSSNPs (100 mg/kg, 200 mg/kg) and metformin 50 mg/kg were administered to the diabetic rats. BSSNPs at a dose level of 200 mg/kg (b.wt.p.o.) showed significant inhibition of (p<0.001) blood glucose levels as compared with GS extract treated group. The results obtained from study indicate that the BSSNP shows potent anti-diabetic activity.

Keywords : biological silver nanoparticles, G. sylvetre, gymnemic acid, streptozotocin, Wistar rats, antihyperglycemic activity, anti-hyperlipidemic activity
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