

Abstract

In recent years, nanoscience and nanotechnology changed the way of prevention, diagnosis and treatment of several diseases. Among the several metallic nanoparticles, silver nanoparticles have many biomedical applications. Diabetes mellitus is a metabolic disorder which can be treated by nanoparticles. Recently, green synthesis of nanoparticles has been introduced. The current study has been designed to synthesize the silver nanoparticles by using cucumis sativus pulp extract to check out the anti-diabetic activity in experimentally induce diabetic mice. Synthesis of AgNPs confirmed by different kind of characterizations such as UV-visible spectroscopy, Fourier transform infrared spectroscopy (FTIR), Photoluminescence spectroscopy (PL), X-ray Diffraction, (XRD), Scanning electron microscope (SEM) and (EDX) Energy dispersive X-ray. Albino mice were used to study the antidiabetic activity. In this study 4 groups (one is controlled and 3 experimental) were subjected under trial. First group was -ve control which was non-diabetic the Alloxan monohydrate (170mg/kg) was used to induce the diabetes. The diabetic mice were administered the optimized medium dose (10mg/kg) of green synthesized AgNps via intravenous route. Blood glucose level was checked at 7, 14 and 21 days and then the blood sample were collected from mice and mice were sacrificed to obtain liver and kidney tissues. The LFTs and RFTs showed a significant decrease in serum urea and creatinine level in treated groups. Different biochemical test results indicate that the cucumber has different phytochemical substances which has an antidiabetic potential and silver nanoparticles also have great antidiabetic activity. Histological pattern reveals that treated group has normal hepatocytes and endothelial tissues. It can be concluded that silver nanoparticles with cucumber pulp extract have an excellent diabetic properties.

Key words: Silver nanoparticles, Diabetes, characterizations, Cucumis sativus.