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Green synthesis of silver nanoparticles by *Aegle marmelos* against CCl₄ induced toxicity and hepatoprotectivity in rat model

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In current scenario the biosynthesis of metallic nanoparticles has been attracted. In the present study, *Aegle marmelos* L. leaf extract was selected as a reducing agent to produce Silver Nanoparticles (AgNPs) by a green method with the endeavor of care for hepatotoxicity in rats. The produced nanoparticles were characterized by UV-Vis analysis, zeta sizer and zeta potential, Scanning Electron Microscope (SEM), Fourier-transform infrared spectroscopy FTIR and X-ray diffraction analyses. Healthy Wistar rats (180±10 g) were administrated with dose of CCl₄ (0.15 ml/kg, I.P.) for 21 days. Intoxicated animals were treated with green synthesized AgNPs at different dose at 150 µg/kg for five days. Liver as well as blood samples were collected for biochemical and molecular assays. Administration of green synthesized AgNPs transformed a variety of biochemical parameters, including serum transaminases (AST and ALT), hepatic Lipid Peroxidation (LPO), reduced Glutathione (GSH), Superoxide Dismutase (SOD), catalyse (CAT), serum albumin, serum Lactate Dehydrogenase (LDH), bilirubin, Serum Alkaline Phosphatase (SALP), urea and uric acid which were refurbish towards normal by doses of *Aegle marmelos* mediated AgNPs, which was also supported by histopathological and molecular studies (COMET assay). Thus the study revealed *Aegle marmelos* extort of leaf as a potential reducing agent in addition to the usage of *Aegle marmelos* mediated AgNPs in the field of drug design.

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