

Rapid Green Synthesis and Characterization of Silver Nanoparticles Using Eclipta prostrata Leaf Extract

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Abstract : Silver nanoparticles were successfully synthesized from silver nitrate through a rapid green synthesis method using Eclipta prostrata leaf extract as a reducing cum stabilizing agent. The experimental procedure was readily conducted at room temperature and pressure, and could be easily scaled up. The silver nanoparticles thus obtained were characterized using UV-Visible Spectroscopy (UV-VIS) which yielded an absorption peak at 416 nm. The biomolecules responsible for capping of the bio-reduced silver nanoparticles synthesized using plant extract were successfully identified through FTIR analysis. It was evinced through Scanning Electron Microscope (SEM), and X-ray diffraction (XRD) analysis that the silver nanoparticles were crystalline in nature and spherical in shape. The average size of the particles obtained using Scherrer's formula was 27.4 nm. The adopted technique for silver nanoparticle synthesis is suitable for large-scale production.

Keywords : silver nanoparticles, green synthesis, characterization, Eclipta prostrata

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