

# GREEN SYNTHESIS AND CHARACTERIZATION OF SILVER NANOPARTICLES USING LEAVES OF *TECOMA STANS* (L.) KUNTH

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## ABSTRACT

Plant mediated synthesis of silver nanoparticles have greater applications in the field of Biomedical, Food Packaging and Wound Healing. The present study deals with the synthesis of silver nanoparticles using the leaf broth of *Tecoma stans* (Family: *Bignoniaceae*). The observation of colour change in reaction medium from pale yellow to dark brown in the reaction medium which indicates the formation of silver nanoparticles and the synthesized nanoparticles were characterized. UV- Visible spectroscopy showed the  $\lambda_{\max}$  at 430 nm. Emission and Excitation peaks obtained in the spectra of photoluminescence study were found at 424 and 430 nm which correlate with UV- Vis absorption spectral patterns. The identification of biomolecules in the leaf broth and reaction medium was analyzed using Fourier Transform Infrared spectroscopy (FT- IR). Energy Dispersive X-Ray (EDX) analysis and Scanning Electron Microscopy (SEM) confirmed the presence of silver nanoparticles. X-ray Diffraction (XRD) and Transmission Electron Microscopy (TEM) analyses shows average particle size of 15nm. This type of plant mediated synthesis appears to be cost effective, eco-friendly and easy alternative green synthesis to conventional, physical and chemical methods to the synthesis of silver nanoparticles

**KEYWORDS:** Green Synthesis, *Tecoma stans*, Silver Nanoparticles, Photoluminescence