

# Green Synthesis and Characterization of Silver Nanoparticles by using *Carthamus tinctorius* and its Antifungal Properties

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## ABSTRACT

Development of biologically inspired experimental processes for the synthesis of nanoparticles is evolving into an important branch of nanotechnology. To meet the increasing demands for commercial nanoparticles new eco-friendly “green” methods of synthesis are being discovered. In this study, synthesis of stable silver nanoparticles (AgNP’s) was done using *Carthamus tinctorius* leaf extract. UV-Vis spectrometer is used to monitor the reduction of Ag ions and formation of AgNP’s in medium. Scanning electron microscope has been used to investigate the morphology of prepared AgNP’s. A silver nanoparticle is characterized by FT-IR; to identify the functional groups of carbonyl, hydroxyl, amine and protein molecules which form a layer covering AgNP’s and stabilizes the AgNP’s in medium. Green synthesis of nanoparticles was found 153nm and it was determined by Zeta potential analyzer. Antifungal activity shown by synthesis of silver nanoparticles against pathogen such as *Aspergillus flavus*, *Aspergillus niger* and *Trichoderma viride* by agar well diffusion method. Fungal efficiency of synthesized silver nanoparticles was also analyzed by viable counts. The Haemolysis percentage was found to be 3.8 for green synthesized silver nanoparticles using *Carthamus tinctorius* extract which is relatively less toxic. Thus the AgNP’s biosynthesis using *Carthamus tinctorius* would prove to be a novel tool in the study of nanotechnology.

**Key words:** *Carthamus tinctorius*, FT-IR, Silver nanoparticles, UV-Vis spectrometer, Zeta potential antifungal activity.