

Green Synthesis and Characterization of ZnO Nanoparticles Using *Calotropis Gigantea* Latex and Evaluation of Their Antibacterial Activity

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Abstract: The concept of green chemistry has provided a new platform for the environmentally propitious synthesis, non-hazardous to the environment and human health. Now a-days synthesis of nanomaterials with plant extracts have been a source of brainwave in designing commercial products for promising applications like biosensors, photo catalysis, antimicrobial and antioxidant technologies, etc. In the present study, zinc oxide (ZnO) nanoparticles (NPs) synthesized by using the latex extract of *Calotropis gigantea* plant in aqueous medium via green synthesis. The resultant products were thoroughly analyzed using different analytical techniques such as UV-Vis Fourier Transform Infrared spectrophotometer and XRD technique. The XRD patterns reveal that the synthesized NPs crystallized with (101) growth direction. The synthesized NPs are evaluated using its antimicrobial action against *Staphylococcus aureus* and *Klebsiella pneumonia*. It is shown that the *C. gigantea* latex extract capped of ZnO based NPs exhibit better antibacterial activity against selected strains. The as prepared ZnO nanoparticles were used as a photocatalyst to degrade Rhodamine B dye with a catalyst load of 0.2 g and efficiency of 94.14 % degradation of within 220 min.

Keywords: *Calotropis gigantea*, Nanoparticles, XRD, Zinc Oxide, Green Synthesis

