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Eco-friendly green synthesis and characterization of stable ZnO Nanoparticle using small Gooseberry fruits extracts

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Abstract : Nano-sized ZnO were synthesized by a simplistic and green method of treating Zinc ions with aqueous *gooseberry* extract, used as a reducing along with a capping agent has been presently investigated. ZnO nanoparticles are characterized by UV-vis absorption spectroscopy analysis, Fourier transform infrared spectroscopy (FT-IR) analysis, X-ray diffraction (XRD) technique, scanning electron microscopy (SEM), and Energy Dispersive X-ray (EDX) spectrometer analysis. The results of UV-Vis absorption spectrum confirmed ZnO absorption band at 390 nm. FT-IR analysis was used to confirm the presence of alcohols, ethers, carboxylic acids, alkenes; aromatic groups are involved in these nanoparticles. XRD study exposed the face-centered cubic structure and size of the nanoparticles found at size 15. SEM result was shows spherical like structure. EDAX analysis indicated spectrum of Zn and oxide elements are presented in the nanoparticles. The nanoparticles are low cost and renewable materials similar to *gooseberry* extracts offer abundant benefits biomedical applications.

Keywords : Nanoparticles, Gooseberry, Green synthesis, XRD, FTIR.

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