

Abstract

Thesis title: Synthesis and Characterization of Metal Oxide Nanoparticles from plant Extracts and their Applications

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Nanoparticles have been used in a wide range of applications because of their unique physicochemical properties and its small size. Keeping in mind about the environment pollution concern, the green method is adopted for the synthesis of metal oxide nanoparticles in which plant extracts act as used as a reducing agent. The greenly synthesize MO NPs like CuO, ZnO, CdWO₄ and (WO)_x are used in both the environmental and biomedical applications . So far discussed about the environmental applications , water pollution is the main primary concern , caused by dyes , heavy metal ions ,bacterias . Removal of dyes is done by adsorption and photo catalytic methods. Batch adsorption experiments has been conducted and adsorption data are fitted into thermodynamic and kinetic models for knowing the adsorption capacity of MO NPs. In photo catalytic method, sunlight used as a light sources degrade dye molecules completely.

Here in biomedical applications the nanoparticles have been used as an antioxidant and antibacterial agent . For knowing nanoparticles potential as an antioxidant , dpph , NO assays have been used . Bacteria's in water are known to cause various pathogenic diseases . So in order to kill these bacterias Metal oxide nanoparticles have been used. Their potential as an antibacterial agent is known by adopting agar well diffusion methods.