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Biosynthesis Of Zno-Cuo Nanoparticles of *Viola Betonicifolia* L. Flower Extract And Investigate Their Therapeutic Potential

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Abstract

Current study investigated the green synthesis of bimetallic CuO and ZnO nanoparticles mediated by *Viola betonicifolia* L. plant extract as a reducing and stabilizing agent. The synthesized nanoparticles were analyzed by Ultra Violet Spectroscopy, X- rays spectrum as well as by Scanning Electron Microscope and the results revealed the formation of well dispersed small sized nanoparticles of the target metal ions. Biological activities of CuO-ZnO nanoparticles were recognized via several tests. The synthesized nanoparticles showed significant zone of inhibition of 19mm,15mm,13mm and 12 mm by using *Escherichia coli, S.aureus, K.pneumoniae, B.subtilius, Candida and Aspergillus species* respectively. The obtained results revealed potent bactericidal and fungicidal activities. Additionally, these nanoparticles also demonstrated enhanced catalytic performance in degrading textile dye, attributed to increase surface area and electron transfers capabilities. Thus, these CuO-ZnO NPs were found effective multifunctional agent as antimicrobial, antifungal and environmental remediation particularly in removal of dye.

Keywords: *CuO-ZnO, Nanoparticles, Bactericidal, plant, Violabetonicifolia L. ,Antibacterial, Antifungal, Dye-degradation, Therapeutic potential, Green synthesis*