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Microwave Assisted Synthesis of Zinc Oxide Nanoparticle and its Antimicrobial Activity

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Abstract: Zinc oxide nanoparticles were synthesized via chemical reduction method using Zinc sulfate heptahydrate ($\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$) as a precursor and urea was used as reducing agent, Sodium hydroxide was used as a stabilizing agent and deionized water were used as medium. ZnO nanoparticles were characterized by using UV-Vis, FESEM, and EDAX. Zinc nanoparticles were confirmed by UV-Vis studies which shows sharp peak at 355nm. The SEM images showed that ZnO nanoparticles were rod in shape. The EDAX pattern shows the 74.76% of Zinc present in synthesized sample. The advantage of nanotechnology has led the development of materials with new properties for used as an antimicrobial agent. Thus, ZnO nanoparticle shows very good antimicrobial properties against *Staphylococcus aureus* and *Candida albicans*.

Keywords: Zinc nanoparticles, Chemical reduction, UV-Vis, SEM, EDAX, Antimicrobial, and Urea.

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