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# New Method for the Preparation and Biological Activity of CuO Nanoparticles from a Mixed PVA and 2-Aminobenzothiazole Complex

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**Abstract :** Copper(II) complex of polyvinyl alcohol (PVA) and 2-aminobenzothiazole (ABZ) was synthesized, characterized and used as a precursor for copper oxide nanoparticles (CuO NPs) by calcinations method. CuO NPs characterized by *UV-vis* spectroscopy, X-ray powder diffraction analysis (XRD) and scanning electron microscopy (SEM). The resultant particles are nearly rods and particle size is in the range of 21-43 nm. The obtained complex have been assigned based on elemental analysis, Fourier transform infrared spectroscopy (FTIR), electronic spectral and thermal analysis. The kinetic parameters have been calculated making use of the Coats-Redfern equation. The antibacterial activity of CuO nanoparticles was tested against gram positive bacteria represented by *Bacillus cereus, Staphylococcus aureus* and gram negative bacteria represented by *Escherichia coli, Pseudomonas aeruginosa, Serratia marcescens*.

**Keywords :** *PVA, CuO-NPs, XRD, Thermal Studies and Biological Activity*.

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