



Synthesis, characterization and evaluation of antibacterial activity of PEG-CuO nanoparticles

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Abstract: Copper oxide nanoparticles (PEG-CuONPs) were synthesized by an aqueous precipitation method using Copper acetate as a precursor, polyethylene glycol (PEG) which acts as a capping agent and KOH as a stabilizing agent. This is a simple and cost effective method which gives a large scale production of CuONPs. A detailed characterization of the synthesized nanoparticles was performed by using UV-Visible spectroscopy (UV-Vis), Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD) studies, and Scanning electron microscopy-Energy dispersive spectroscopy (SEM-EDS). The average crystallite size of CuONPs was determined by Debye-Scherrer formula it was found to be 48 nm. The investigation of antibacterial activity of PEG-CuONPs was tested against *Bacillus Substillis*, *Klebsiella pneumonia*, *Pseudomonas putida* which was proved to be effective results.

Keywords: PEG-CuONPs, polyethyleneglycol, aqueous precipitation method, antibacterial activity.