

## Ag-CuO nanoparticles: biosynthesis by *Staphylococcus aureus* and *Pseudomonas stutzeri* bacteria and antibacterial properties

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### Abstract

The Ag-CuO nanoparticles were synthesized by using biological method. The biosynthesis was performed by using bacteria route. Aim of this study is synthesis and characterization of Ag-CuO nanoparticles and investigation of antibacterial properties. Structure, morphology and the optical properties of the synthesized particles were studied. The x-ray diffraction (XRD) patterns of the Ag-CuO nanoparticles confirmed the produced materials. Electron microscopies studies showed the size of nanoparticles with homogeneous and uniform surface. Energy dispersive spectroscopy (EDS) confirmed the presence of Ag, Cu and O in the produce materials. Also, all samples were characterized by UV-Vis spectroscopies and the results were confirmed by XRD. Additionally, antibacterial property of nanoparticles in compound system was much better than single system.

**Keywords:** Biosynthesis, Ag-CuO NPs, Antibacterial activity.