

Preparation of Cupric Oxides Nanoparticles for Antibacterial Applications

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Abstract : This study reports to prepare cuprous oxide (Cu₂O) particles with different dimension and shape for evaluating the antibacterial applications. In the preparation of Cu₂O, the surfactant, cetyltrimethylammonium bromide (CTAB), was used as templates to modulate the size of the prepared Cu₂O particles. Furthermore, ammonia water was used for adjusting the pH environment that four different shapes of particles including cubic, spherical, octahedral, and star-like Cu₂O were synthesized. The physical characteristics of Cu₂O particles were evaluated by scanning electron microscope (SEM), transmission electron microscopy (TEM), X-ray diffraction (XRD), UV/VIS spectrophotometer, and zeta potential meter/particle size analyzer (ZetaPALS). The resistance to bacteria was investigated against Escherichia coli (E. coli) and Staphylococcus aureus (S. aureus) by applying the synthesized Cu₂O particles that the qualitative analyses were facilitated by measuring the inhibition zone on Agar plate.

Keywords : copper oxide, cupric oxide, nanoparticles, antibacterial

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