

Chitosan Mediated Microwave Assisted Synthesis of CuO nanoparticles

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In recent years, research has been increased in producing nanostructured copper oxide (CuO) because it is a cheap and versatile material with a wide range of applications. It is mostly used as antimicrobial agent, in photothermal and photoconductive applications, chemical and biological sensing, catalysis, application in lithium ion batteries and solar cell. Herein we report a facile synthesis of copper oxide nanoparticles in chitosan media using Cu(NO₃)₂·5H₂O precursor and ammonia. Chitosan was chosen as a medium to synthesize CuO, since it being a polymer, facilitates the formation of small size CuO nanoparticles through its stabilizing action. Microwave irradiation as a heating method is faster, simpler and efficient in energy for metal oxide nanoparticles synthesis. Hence, in the current work microwave irradiation was chosen as the input energy. The synthesized CuO nanoparticles were characterized by using SEM, TEM, and XRD. Further, their antibacterial properties were evaluated.