

Swertia chirayta mediated facile green synthesis of ultra-small copper oxide nanoparticles (UCuONPs) and their antibacterial activity

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We report the antibacterial activity of ultra-small copper oxide nanoparticles (UCuONPs). Ultra-small copper oxide nanoparticles have been synthesized by using aqueous and alcoholic extracts of *Swertia chirayta* as a reductant and stabilizer. Thus prepared UCuONPs were in the diameter range of 2-10 nm. The UCuONPs were characterized using Fourier transform infrared spectroscopy, X-ray diffraction, UV-visible spectroscopy, high resolution transmission electron microscopy, scanning electron microscopy and energy-dispersive X-ray spectroscopy. On the basis of these results ultra-small copper oxide nanoparticles were successfully prepared by interaction of copper ions and plant extracts. The as-prepared ultra-small copper oxide nanoparticles

were studied for their antibacterial activity against *Staphylococcus aureus*, *Escherichia coli* and *Salmonella enterica* with the possible use as antibiotic against Gram-positive and Gram-negative strains. Results indicated that UCuONPs were most effective against Gram-positive bacterial strains as compared to Gram-negative ones.

Speaker Biography

Dr. Faiz Mohammad is a full Professor in the Department of Applied Chemistry (Faculty of Engineering and Technology) of Aligarh Muslim University. He obtained his D.Phil. in the field of Electrically Conducting Polymers from the School of Chemistry and Molecular Sciences, University of Sussex (UK) in 1988.

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