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Metal oxide nanoparticles as alternate antibacterial agents against some common pathogens: A comparative study

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The present work aims at the green synthesis of metal oxides of zinc, iron and copper using the aqueous extract of *Terminalia bellerica* as a reductant as well as a stabilizer. The successful formation of the metal oxide nanoparticles was confirmed by UV-Vis spectroscopy. Thus prepared metal oxide nanoparticles were characterized employing Fourier transform infrared spectroscopy, X-ray diffraction spectroscopy, high-resolution transmission electron microscopy, scanning electron microscopy and energy-dispersive X-ray spectroscopy. We used these nanoparticles to demonstrate their antibacterial efficacy against some common standard bacterial pathogens including *Staphylococcus aureus* (ATCC-6538), *Bacillus subtilis* (MTCC-441), *Escherichia coli* (ATCC-8739) and *Klebsiella pneumoniae* (ATCC-43816) to find their plausible use as an alternate weapon to fight against multi-drug resistant superbugs.

Biography

Faiz Mohammad is a full Professor in the Department of Applied Chemistry (Zakir Husain College of Engineering and Technology) of Aligarh Muslim University. He obtained his DPhil in the field of Electrically Conducting Polymers from the School of Chemistry and Molecular Sciences, University of Sussex (UK) in 1988. His research interests include conducting polymer synthesis and device applications, chemical and biochemical sensors, polymer nanocomposites and polyblends besides having an interest in environmental issues.

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