Copper iodide nanoparticles and their antimicrobial activities

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The number of infectious diseases increases while resistance towards various types of antibiotics accelerated. Finding new and more effective antibacterial agents is a serious need. The combination of two antimicrobial agents copper and iodine in nanoparticle size is a promising approach. Inorganic and metallic nanoparticles as antimicrobial agents are represented in the study. Nanoparticles are even effective in very small amounts because a large number of particles can be produced with high surface area to volume ratio. Copper nanoparticles alone are widely used and have various medical, antifungal and antibacterial applications due to their electrical, optical and catalytic properties. They are toxic for many microorganisms such as *Escherichia coli*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Copper has the advantage of low toxicity for animal cells when compared to other metals. Different polymers have been used as matrices to support copper nanoparticles and generate composite materials with antimicrobial properties. Among these polymeric matrices are: Agar, bovine serum albumin, chitosan, nylon, polyaniline and cellulose. Polymers as matrices for new nanocomposites with antimicrobial activity does not only provide a stability for nanoparticles but can also enhance the antibacterial performance of nanocomposites. The effect of increasing the surface area is associated with the fine dispersion of copper nanoparticles in the polymer. Copper nanoparticles incorporated in cellulose or cotton fibers have also been used for wound dressing. Copper nanoparticles with cellulose demonstrated effective antibacterial properties against *S. aureus and E. coli.*

Biography

Zehra Edis has pursued her PhD degree from the University of Cologne Germany. She is currently the Faculty Member and Assistant Professor in Ajman University, UAE. She has published more than 10 papers and is a Lecturer in General and Organic Chemistry.