

Green synthesis of novel antibacterial agent at nanolevel

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In the near future, the most significant clinical application in the field of nanotechnology will most likely be in pharmaceutical development. These applications are advantageous because of nanoparticles having unique properties as drugs or drug constituents or may be designed to formulate novel strategies for drug targeting, controlled release and drug recovery possessing low bioavailability. Herbal drugs form a vital part of therapeutics in all the traditional methods of medicine and thus, are the current topic of biopharmaceuticals in global market. India is considered to be a rich treasure of traditionally used medicinal plants, which includes about 75% of the medicinal requirements of the world. Among several metallic nanoparticles, silver nanoparticles (AgNPs) have gained considerable attention as an effective antimicrobial agent exhibiting low toxicity due to their unique biological properties such as anti-bacterial affinity and biocompatibility. However, the present study deals with Minimum Inhibitory Concentration (MIC) activity of herbal-based AgNPs in the range from 0.075 to 2.5 mg/ml against bacterial strains viz., *Klebsiella pneumoniae*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Enterococcus faecalis*, *Escherichia coli*. The two medicinal plants viz., *Murraya koenigii* and *Moringa oleifera* were used for carrying out the plant-mediated synthesis of AgNPs as they are already proven to be antioxidant and antidiabetic. The data from our experiment obtained reveals that AgNPs enhance the antimicrobial action of *M. koenigii* more than *M. oleifera*. This study further explores the innovative area of nanomaterials for the development of novel antibacterial agents against the antibacterial resistant strains.

Biography

Anamika Mubayi has joined D. Phil. under the supervision of Dr. Watal in the Department of Chemistry, University of Allahabad, Allahabad, India. She has done her M. S. from the University of Iowa, USA and M. Sc. from CSJM University, Kanpur, India. She has worked as a Senior Research Associate at IIT, Kanpur, India and Research Assistant at the University of Iowa, USA. She has several publications in National/International journals and has received Poster award in James F. Jakobsen Graduate Conference, University of Iowa, USA. She has been to Lausanne, Switzerland for attending a nanotechnology-based training programme.

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