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Bio-synthesis and characterization of silver nanoparticles as potential antimicrobial and antiviral agents

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Nanotechnology is a novel interdisciplinary science serving as a nexus between the basic sciences was spelling its charm in many fields of science and life sciences are no exception. As the Multi-drug resistance in pathogens has made antibiotics inefficient, nanoparticles are the next look out. Biological synthesis of nanoparticles with silver occupying the top slot, our laboratory concentrates on ecofreindly synthesis of metallic silver nanoparticles from various plant and microbial sources. The bioreduced silver nanoparticles were synthesized from plants viz (Ocimum, Mushrooms etc), Fungi (Aspergillus,Penicillums sps etc) and Actinobacteria (Actinomycetes sps), The bioreduced nanopartles size and shapes were characterized by sophisticated instruments like UV-Vis Spectrophotometer, Fourier Transform Infra Red Spectroscopy (FTIR), Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). The possible mechanism for extracellular synthesis of silver nanoparticles was investigated. The synthesized silver nanoparticles exhibited very good antimicrobial and antiviral activity against bacterial pathogens (E.coli Staphylococcus, Pseudomonas, Bacillus sps,etc) and plant fungal pathogens (Sclerotium rolfsii, Rhizoctionia bataticola etc), The silver nanoparticles tested for invitro antiviral activity on bacteriophages. The Agnps exhibited a considerable antiviral activity is an indication of antiviral efficacy of silver nanoparticles.

Biography:

Dr.Narasimha Golla, Working as Associate Professor in Virology department from Sri Venkateswara University; Tirupati, Andhra Pradesh,India. He had his doctorate in microbiology from Sri Krishnadevaraya University, Anantapur India in 2003. His research area during his studies included microbial production of enzymes, secondary metabolites, characterization and purification. After he joined in Virology Department Sri Venkateswara University, India in 2007.the growing applicability and problem solving ability on nanotechnology trucks to his interests and he combined his past experience with growing nanotechnology in finding solutions to the old problems in a novel way. He started guiding students in various disciplines like , Antiviral compounds, secondary metabolites and nanotechnology for potential antimicrobial agents for nanomedicine and novel biosensor preparations in Electrochemistry. Dr.Narasimha published more than100 research papers in applied microbiology aspects and more than 50 papers to nanotechnology journals in national and international repute. He is pioneering in microbial enzymes and their applications in nanoparticle synthesis. Dr.Narasimha looks forward to develop his eminence in the fields.

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