

Nano Particles Importance

Sakinala Sowmya*

Department of Pharmaceutical Chemistry, University College for Women, Koti, Hyderabad, India

EDITORIAL

The most abundant organisms in our biosphere are bacteria as *Escherichia coli*. Slight climate changes can potentially be disastrous to the life processes of bacteria; this can result in the prolific advantage for the production of nanoparticles. On the other hand synthesis of metal nanoparticles by eukaryotic cells such as fungi *Aspergillus niger* is reported. *A. niger* have the advantage of producing very high yields of secreted proteins, which may increase nanoparticle synthesis rate. Mycelia provide a much higher surface area than bacteria and this area could be used to support the interaction of metal ions and fungal reducing agent thus enhancing the reduction of metal nanoparticles. The bio reduction of NPs was monitored by ultraviolet-visible spectroscopy, and the nanoparticles obtained were characterized by electron microscopy. In bacterial culture ZnO and Pb(NO₃)₂ NPs

have sharp absorbance with the highest peak at 300 nm and 250 nm respectively. On the other hand, in fungal culture ZnO and Pb(NO₃)₂ NPs have highest absorbance peak at 230 nm and 240 nm respectively. The synthesized NPs (fungal biomass) were almost spherical in shape and some of them were aggregated ranging in size from 30 nm to 70 nm and 10 nm to 50 nm stabilized in the solution. Furthermore, the antimicrobial potential of zinc and lead nanoparticles was systematically evaluated. The synthesized nanoparticles could efficiently inhibit various pathogenic organisms, *P. aeruginosa* and *S. aureus*. The bactericidal effect of zinc and lead nanoparticles were compared based on diameter of inhibition zone in agar diffusion assay, disc method tests and minimum inhibitory concentration (MIC).

Correspondence to: Sowmya Sakinala, Department of Pharmaceutical Chemistry, University College for Women, Koti, Hyderabad, India. E-mail: sakinala.sowmya55@gmail.com

Received: January 20, 2021; **Accepted:** January 26, 2021; **Published:** January 31, 2021

Citation: Sakinala S (2021) Nano Particles Importance. Mod Chem Appl. 9:e282. doi:10.35248/2329-6798.20.9.e282.

Copyright: © 2021 Sakinala S. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.