

Antibacterial effect of nanoparticle in Yeast Cells

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Nanoparticles are currently in use in electronics, cosmetics, and chemical manufacturing, among others industries. But they are difficult to isolate from the larger environment because of their extremely small size. Silver and has long been known as an antimicrobial agent. A toxic effect of silver on a wide range of micro-organisms is very well known; however, the bactericidal mechanism is only partially understood. TiO₂ particles can drive various chemical reactions due to their strong oxidizing and reducing ability. TiO₂ is well known photocatalyst and reported as a sunscreen agent. However, recently arguments have occurred about TiO₂ toxicity. According to some papers, TiO₂ nanoparticle works as a catalyst. It break down water into OH radical and H radical as the result a cell membranes damaged and finally cell dead. Our work show Silver and TiO₂ nanoparticles toxicity through cell viability and optical density. Nanoparticles powder dissolved using water method to make a ideal dispersion of nanoparticle solution. In addition we confirm the nanoparticle solutions through a variety of quantitative and qualitative analysis method. We compared two side approaches for toxicity study, one side was about concentration effects and other side was size and light effects. The antibacterial activities show the concentrations over 0.01 to 50ppm.