Biological Synthesis of Zinc Oxide Nanoparticles Using 
*Bacillus Cereus* and Its Antibacterial Activity

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**Abstract**

*Today the development of reliable, eco-friendly processes for the synthesis of nanomaterials is an important aspect of nanotechnology.* In this work we have developed Zinc Oxide (ZnO) nanoparticles using *Bacillus cereus* culture. ZnO is the metal oxide nanoparticles, ZnO nanoparticle is non-toxic. The Preliminary confirmation for the ZnO nanoparticles synthesis is the formation of White precipitate in the reaction mixture. The wurtzite crystalline structure of the ZnO nanoparticles is identified by X-ray diffractometer (XRD). The Scanning Electron microscope (SEM) showed the spherical shaped ZnO nanoparticles synthesized using *Bacillus cereus* culture. The antibacterial effect of ZnO nanoparticles synthesized using *Bacillus cereus* was examined against *Escherichia coli* (E.coli). Disc diffusion method is used to examine the antibacterial activity of ZnO nanoparticles. The minimum inhibitory concentration is 50 µl of ZnO nanoparticles against E.coli. The synthesized ZnO nanoparticles have the ability to kill the bacteria. Thus ZnO could be used in various clinical applications.

**Keywords:** Zinc oxide nanoparticles, *Bacillus cereus*, XRD, Antibacterial activity

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