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Bactericidal Properties of Biogenic Silver Nanoparticles Synthesized from Dematiaceous Airborne Fungi †

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Abstract: Analysis of the extracellular biosynthesis of AgNPs was made from dematiaceous airborne microfungi and were processed for their antibiotic potential against pathogenic clinical bacterial strains procured from Imtech, Chandigarh, India. Characterization done by UV-VIS spectroscopy, FESEM, FTIR, and XRD confirmed the silver nanomaterials synthesized from the fungi. The antibacterial potency of the AgNPs was found to be very good against five bacterial pathogens viz., *Bacillus cereus, Escherichia coli, Proteus vulgaris Staphylococcus aureus,* and *Vibrio cholerae*. The synergistic effect of silver nanoparticles synthesized from *Alternaria solani* with Tetracycline was found to be the maximum effective combined drug to control the pathogenic bacteria in comparison to the silver nanoparticles alone. MTT assay proved the AgNPs have no toxicity towards the Vero cell line at low concentration, and the nature of susceptibility of cells exposed to various AgNPs depends on the type and source of mammalian cells *in vitro*.

Keywords: Bactericidal properties; Biogenic silver nanoparticles; Dematiaceous airborne fungi; MTT assay; *In Vitro.*

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Conflicts of Interest

The authors declare no conflict of interest.