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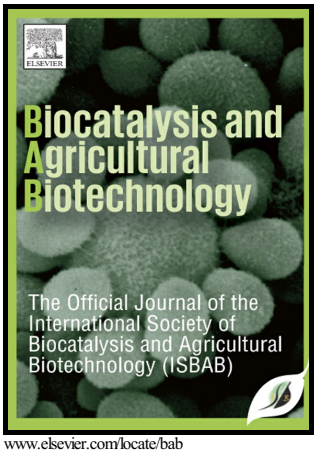

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Antimicrobial properties of biogenic silver nanoparticles synthesized from phylloplane fungus, *Aspergillus tamarii*

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ABSTRACT

Most plants, especially the leaves are considered as the hostile environment for microbial growth. The phylloplane plays an important role in the plant-microbe interactions in leaf surface for the diverse communities' of microflora. These fungi will be a good source for analyzing metal-microbes interaction and synthesizing nanoparticles. Silver nanoparticles (AgNPs) were synthesized from Ag+ ions by treating with different extracts of the phylloplane fungus, *Aspergillus tamarii* with $AgNO_3$.The appearance of yellowish brown color in the conical flasks suggested the formation of AgNPs at dark and light conditions. The AgNPs were characterized by UV-Vis spectroscopy, which has proved to be very useful for the analysis of nanoparticles. A strong surface plasmon resonance were centered at approximately 425nm indicated the presence of silver nanoparticles analyzed by Uv-Vis spectroscopy and the particle sizes were confirmed by atomic force microscopy (AFM) as 40nm. Extracted fungal metabolites and synthesized silver nanoparticles showed good antimicrobial activity against the microbial pathogens but the fungal biomass and the AgNPs synthesized from this showed least effect in comparison to others. *Candida albicans* was found most susceptible to the AgNPs of *Aspergillus tamarii* in all fungal extracts in comparison to other bacterial strains. Among bacterial strains, *Staphylococcus aureus* was more affected than *V. parahaemolyticus* and *E. coli* was found resistant to the fungal extract AgNPs. The nanoparticles which exposed to sunlight was found more efficient than in dark synthesis in order to act as good antimicrobial agents against the test pathogens.

Key words: *Aspergillus tamarii,* AgNPs, AFM; Ceftazidime, *Candida albicans*, *Staphylococcus aureus.*