Abhijith P et al., J Tissue Sci Eng 2018, Volume 9
DOI: 10.4172/2157-7552-C3-051

Green synthesis of silver nanoparticles from *Salacia chinensis* and analysis of its antioxidant and antimicrobial potential

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Synthesizing biogenic nanoparticles have been explored by many researchers using plant, fungal and bacterial extracts, but as the synthesis follows diverse methods and each plant, bacterial and fungal extracts have different proteins, each type of particle has different properties and their antimicrobial actions and potencies differ. Through this work we explore the production of silver nanoparticles under light conditions using *Salacia chinensis* plant extract and analyses the antimicrobial and antioxidant properties. It was possible to successfully synthesize silver nanoparticles from AgNO3 in a light mediated condition using *Salacia chinensis* plant extract. Synthesized particles had a size of 56 to 151 nm, face centered cubic-crystalline structure, with polymorphic shape; rod, spherical, round and polygonal. The antioxidant potential of the synthesized nanoparticles was compared against crude extract using DPPH assay, it was found that G-AgNPs has potent scavenging activity than crude. Antibacterial potential of the particles tested against *E. coli, Vibrio* sp. *Salmonella* sp. *Candida albicans* and *Candida tropicalis* by micro-titer plate method, showed that the G-AgNPs had moderate growth inhibition on *E. coli* but *Vibrio* sp. and *Salmonella* sp. showed more resistance but potent antifungal activity against *C. albicans* and *C. tropicalis*, which are found to be resistant to clinical antifungal agents like fluconazole. These findings could lead to a better understanding of the antifungal properties of AgNPs synthesized through green synthesis mode using *Salacia chinensis*, also this could pave way to developing better drugs for resistant pathogenic yeasts and bacterial strains.

Biography

Abhijith P is trained as a Computer Engineer and Biotechnologist with primary research focus in nano-biotechnology, bio-electromagnetism and artificial neural networks. He has worked in the field of interactions of electromagnetic and sound waves with prokaryotic and eukaryotic cells.

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