

SILVER NANOPARTICLES AS AN ANTIMICROBIAL AGENT OF *TRICOPHYTON RUBRUM*

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Resistance to antimicrobial agents, such as amphotericin B, fluconazole, itraconazole, and voriconazole, by pathogenic bacteria and fungi has been increasing at an alarming rate and has become a serious problem. Microorganisms, such as bacteria, moulds, yeasts, and viruses are often pathogenic to humans. There is a pressing need to search for new antimicrobial agents. Amongst inorganic antimicrobial agents, silver has been employed most widely since ancient times to fight infections. The antimicrobial activities of silver, silver ions, and silver compounds are well known

Fungi can be employed for biosynthesis of nanoparticles hence avoiding the use of hazardous chemicals for synthesis. However, the effects of mycological synthesized silver nanoparticles against fungal dermatophytes are not well understood.

In this work were used inorganic and biogenic routes for the synthesis of silver nanoparticles. In the biogenic route, extracts from *Aspergillus oryzae* and *Penicillium chrysogenum* were used. In the inorganic route glucose was used as the reducing agent and polyvinylpyrrolidone as the stabilizer. The nanoparticles were characterized by various techniques. Biogenic nanoparticles from *A. oryzae* and *P. chrysogenum* showed an average size from 19-51 nm to 51-85 nm, respectively. Nanoparticles synthesized by inorganic route had a mean size of 74 nm as determined by Dynamic Light Scattering.

The antimicrobial potential activity was tested against strains of *Tricophyton rubrum* and the silver nanoparticles from *P. chrysogenum* had antimicrobial effects against *T. rubrum* strains.

The synthesis parameters in future studies should be studied to take full advantage of the potential for filamentous fungi to synthesise silver nanoparticles.

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