

## **Anticandidal and Antibacterial Silver and Silver(Core)-Gold(Shell) Bimetallic Nanoparticles by Fusarium graminearum**

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**Abstract :** Nanotechnology has experienced significant developments in engineered nanomaterials in the core-shell arrangement. Nanomaterials having nanolayers of silver and gold are of primary interest due to their wide applications in catalytical and biomedical fields. Further, mycosynthesis of nanoparticles has been proved as a sustainable synthetic approach of nanobiotechnology. In this context, we have synthesized silver and silver (core)-gold (shell) bimetallic nanoparticles using a fungal extract of *Fusarium graminearum* by sequential reduction. The core-shell deposition of nanoparticles was confirmed by the red shift in the surface plasmon resonance from 434 nm to 530 nm with the aid of the UV-Visible spectrophotometer. The mean particle size of Ag and Ag-Au nanoparticles was confirmed by nanoparticle tracking analysis as 37 nm and 50 nm respectively. Quite polydispersed and spherical nanoparticles are evident by TEM analysis. These mycosynthesized bimetallic nanoparticles were tested against some pathogenic bacteria and *Candida* sp. The antimicrobial analysis confirmed enhanced anticandidal and antibacterial potential of bimetallic nanoparticles over their monometallic counterparts.

**Keywords :** bimetallic nanoparticles, core-shell arrangement, mycosynthesis, sequential reduction

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