

## **Biosynthesis of selenium nanoparticles by aspergillus flavus and candida albicans for antifungal applications**

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**B**iosynthesis of nanoparticles can replace the available chemical and physical methods by offering new procedures as green syntheses that have proved to be simple, biocompatible, safe, and cost-effective. Recently, antifungal resistance has been reported against different species of *Aspergillus* and *Candida* opportunistic fungi. Selenium nanoparticles (Se-NPs) were biosynthesized using standard strains of *Aspergillus flavus* and *Candida albicans*. The presence of nanoparticles was confirmed by UV-Vis, FT-IR, FESEM, EDX, XRD, and Zeta potential. Common fungal strains were cultured in Sabouraud dextrose agar medium to perform the sensitivity test based on the minimum inhibitory concentration (MIC) method in duplicate. The utilization of Se-NPs at concentrations of 1, 0.5, and 0.25 µg/ ml or in some strains even more minor than 0.125 µg/ ml resulted in zero growth of fungal agents. However, antifungal drugs inhibited their growth at concentrations of 2, 4, 8, 16, and 64 µg/ ml itraconazole (ITC). Also, MIC breakpoints for amphotericin B (AMB) and anidulafungin (AFG) were 2 µg/ ml for defining resistance in some isolates. Based on the obtained results, biological NPs produced by Aspergillus and *Candida* at different concentrations exhibited favorable inhibitory effects on the growth of fungal strains.

**Keywords:** Biosynthesis; Selenium nanoparticles; Antifungal resistance; MIC; *Aspergillus*; *Candida*