OD1) Biosynthesis and characterization grown *Candida albicans* mediated gold nanoparticles with enhanced potentiality towards antimicrobial and antifungal activity under controlled microgravity environment

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Previous study has reported that in response to a change in the direction of gravity, metabolic and morphogenic changes of *Candida albicans* has been observed as a consequence. In general, dimorphic fungi secrete satisfactory amount of extracellular and intracellular redox protein to reduce metal ions and eventually to nanocrystals to their insoluble form. Gold particles have an advantage because of their biocompatibility nature, stability and their oxidation resistance as well different microbial synthesis strategies also used so far for obtaining better yield and stability. In this study, Gold nanoparticles were synthesized through new eco-friendly way using culture filtrate of *Candida albicans* cultured under normal gravity and simulated microgravity. The Gold nanoparticles showed strong plasmon resonance between 540-550 nm. The differences between synthesized nanoparticles under two conditions were characterized using UV-Vis spectroscopy, FTIR, XRD, and TEM. Furthermore, characteristic peaks in the FT-IR spectrum confirms that different extracellular proteins secreted by fungi into the culture filtrate while during growing under normal gravity and microgravity were responsible for the synthesis and stabilizing of gold nanoparticles. Biological application studies like antifungal activity, antibacterial activity and cytotoxicity effect were carried out. Cytotoxicity tests were carried out using H9c2 cell line. Interestingly, gold nanoparticles synthesized with culture filtrate of microgravity grown fungi showed higher capability of antibacterial, antifungal activity as well as more cytotoxic effect. The most important of this study to find different way synthesis of gold nanoparticles and enhanced their stability, yield and different biological property.