عنوان مقاله:

Mycosynthesis of Silver Nanoparticles by Candida albicans Yeast and its Biological Applications

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خلاصه مقاله:

This study conducted a mycosynthesis of silver nanoparticles (AgNPs) by Candida albicans supernatant. The mycosynthesized AgNPs were identified by color visualization, ultraviolet-visible (UV) spectroscopy device, X-ray diffraction (XRD), energy dispersive analysis of X-ray (EDX), field emission scanning electron microscope (FESEM), and zeta potential analysis. The UV-Vis spectroscopy examination has shown the highest absorbance (λmax) at the wavelength of ۴۲۹ nanometers, which was the indicator of the creation of AgNPs. Furthermore, XRD showed the crystalline structure of AgNPs, and EDX revealed the weight percentage of silver atoms in the sample (۸۲.۴%). According to the FESEM, the morphology of AgNPs was spherical, and its size was ۴۰.۱۹ nanometers. Zeta potential analysis indicated that AgNPs were middling stable in the solution, and the zeta potential of AgNPs mycosynthesized by C. albicans was-۲۳.۰۲ mV. The cytotoxic effect of AgNPs against a human colon cancer cell line using MTT assay has shown the presence of toxic action against the cells, and no cytotoxic effect appears on the normal cells. The antioxidant activity of AgNPs using DPPH assay demonstrated ۱۷.۰%, ۲۹.۳%, ۴۸.۳%, ۶۷.۶%, and ۸۳.۶% at concentrations of ۶.۲۵, ۱۲.۵, ۲۵, ۵۰, and ۱۰۰ µg/ml, respectively. The impact of AgNPs on the chromosomal pattern has also been studied. The importance of this study lies in the possibility of the synthesis of AgNPs using this yeast since .most nanoparticle preparation methods utilize molds

کلمات کلیدی:

AgNPs, Antioxidant, Candida albicans, Cytotoxicity, EDX, FESEM, Nanoparticles, UV Spectroscopy, XRD, zeta potential