

عنوان مقاله:

Evaluation of Anticancer Potential of Silver Chloride Nanoparticles Biosynthesized by *Penicillium chrysogenum*

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خلاصه مقاله:

Backgrounds: Green synthesis of nanoparticles (NPs) is a simple, fast, and eco-friendly method which could be performed by various microorganisms or plant extracts. Silver NPs are well-known as antimicrobial and anti-fungal materials. They play an essential role in the control of tumors via their cytotoxic effects. Therefore, they have attracted significant attention for developing an effective treatment solution for cancer cells. This study aimed to investigate the potential of *Penicillium chrysogenum* for the synthesis of silver NPs and to evaluate their toxicity on liver cancer cell line (HepG₂). **Materials & Methods:** After synthesis of NPs using *P. chrysogenum*, characterization of the synthesized NPs was performed by UV-Vis spectroscopy, X-ray diffraction (XRD), and transmission electron microscopy (TEM). Fourier transform infrared spectroscopy (FTIR) was carried out to detect biomolecules that may be responsible for the synthesis and stabilization of NPs. The cytotoxic activity of the synthesized AgClNPs on HepG₂ cell line was evaluated using MTT assay. **Findings:** UV-Vis spectroscopy and XRD analysis confirmed the synthesis of AgClNPs using *P. chrysogenum*. TEM analysis revealed the spherical shape of AgClNPs with an average crystalline size of ۱۵ to ۴۵ nm. FTIR spectroscopy indicated the possible functional groups that could be responsible for the reduction of metal ions and the capping process. These nanoparticles showed a dose-dependent anticancer activity against HepG₂ cells. **Conclusion:** The results suggest that biosynthesized silver chloride nanoparticles could offer potential applications in cancer therapy.

کلمات کلیدی:

Silver chloride nanoparticles, Green synthesis, *Penicillium chrysogenum*, Liver cancer, Cytotoxic activity

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