

عنوان مقاله:

Green Synthesis of Silver Nanoparticles Based on Scutellaria sp. Stem Extract and Its Antitumor Activity (Anticancer activity of green synthesized AgNO₃-NPs using Scutellaria extract)

محل انتشار:

یازدهمین کنگره ملی سراسری فناوریهای نوین در حوزه توسعه پایدار ایران (سال: 1400)

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خلاصه مقاله:

Biosynthesis of nanoparticles using various plant materials is classified as a green technology because this production method does not employ toxic chemicals. The main purpose of this research was to identify the potential for Scutellaria sp. stems to synthesize silver nanoparticles (AgNO₃-NPs) by a simple green method and to evaluate its efficacy. Scutellaria sp. stems were used to synthesize silver nanoparticles by the bio-reduction of silver nitrate (AgNO₃). The UV-Vis, Field emission scanning electron microscope (FESEM), X-ray diffraction analysis (XRD), and Fourier transform infrared spectroscopy (FT-IR) techniques were used to characterize these particles. The surface plasmon resonances were measured using UV-Vis spectroscopy. The crystallization, structural, and morphological configurations were investigated by FE-SEM and XRD, respectively. Functional groups were identified using FT-IR. Nanoparticles were evaluated for their antitumor potential against MDA-MB-231 cell line to determine the enhanced toxicity responses in cancerous cells. The silver nanoparticles were formed in ۱.۵ hours by sonication at room temperature. In this case, a dark brown color was developed. The successful formation of silver nanoparticles was confirmed by UV-Vis, FESEM, FT-IR and XRD analysis. The characteristic peaks of the UV-Vis spectrum and XRD confirmed the synthesis of AgNO₃-NPs. The biosynthesized AgNO₃-NPs showed potential anticancer activity against MDA-MB-231 cell line. The results clearly suggest effective anticancer activity of green biosynthesized AgNO₃-NPs .that can be developed for nano-pharmacological relevance in biomedical applications

کلمات کلیدی:

Silver nanoparticles; Scutellaria sp.; Green synthesis; Anti-tumor activity

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