

عنوان مقاله:

A Nano-bio-eco Interaction to Synthesis of Gold Nanoparticles Using Tribulus Terrestris Extract and its Antibacterial Activity

محل انتشار:

نشریه پیشرفته شیمی، دوره 4، شماره 3 (سال: 1400)

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خلاصه مقاله:

A green synthesis of gold nanoparticles (GNPs) was accomplished by aqueous medium of the Tribulus terrestris (T. terrestris) extract, without the addition of any external chemical reducing agent. Several factors such as pH of the solution, temperature, and concentration of the added extract greatly influence the synthesized nanoparticles. The reduced GNPs were characterized by energy dispersive X-ray (EDX), ultra-violet-visible absorption spectroscopy (UV-Vis), fourier transform-infrared spectroscopy (FT-IR), and scanning electron microscopy (SEM). Formation of GNPs was approved from the change in color of colorless to violet and strong surface plasmon resonance (SPR) was observed at ۵۵۵ nm using UV-Vis spectroscopy. The size distribution of the GNPs was also revealed by SEM analysis. The size range of the GNPs was from ۶ to ۲۵ nm. Similarly, particles with a distinctive peak of gold were examined with EDX. Moreover, the potential of the nanoparticles for biomedical applications have also been confirmed by their antimicrobial activity against Gram positive and negative bacteria. Actually, this study provides new possibilities of using T. terrestris extract as a capping and reducing agent for the synthesis of GNPs, which may be applicable for the future diagnostic and therapeutic fields.

کلمات کلیدی:

Green synthesis, Au Nanoparticles, Tribulus terrestris extract, Antibacterial Activity

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