

عنوان مقاله:

Evaluation of the green synthesis, characterization and antibacterial activity of silver nanoparticles from corm extract of *Crocus sativus* var. *Haussknechtii*

محل انتشار:

مجله باغبانی و تحقیقات پس از برداشت، دوره 4، شماره 13 (سال: 1400)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

Purpose: To prevent chemical toxicity, biosynthesis of silver nanoparticles has been proposed as a cost-effective and environmentally friendly reducing agent option by corm extract of *Crocus sativus* var. *Haussknechtii* and as well as, evaluate their effects against *Staphylococcus aureus* and *Escherichia coli*. **Research method:** Silver nanoparticles were produced in the presence of secondary metabolites of this plant. The nanoparticles were then identified using the technique ultraviolet-visible spectroscopy (UV-Vis), fourier transform infrared (FTIR), field emission scanning electron microscope (FESEM). The antibacterial properties were used against two microorganisms, *S. aureus* (Gram-positive) and *E. coli* (Gram-negative), using the agar well propagation method. **Findings:** The observation of the peak at ۴۵۰ nm in the UV-Vis spectra for corm synthesized silver nanoparticles reveals the reduction of silver metal ions into silver nanoparticles. The optimum pH and AgNO_3 concentrations were ۹ and ۴ mM, respectively. FESEM images detected the spherical Ag-NPs shape with diverse sizes ranged within ۷۰.۷۰–۱۹۲.۰۲ nm. Additionally, based on the antibacterial test that has been done for nanoparticles, the mean diameter of the inhibition zone after exposure to *S. aureus* and *E. coli* was ۲۲.۶۷ ± ۰.۵۸ and ۲۰.۰۰ ± ۰.۰۰ mm, respectively. **Limitations:** There was no significant limitation to report. **Originality/Value:** The corm extract of *C. haussknechtii* is a promising agent for the biosynthesis of almost spherical silver nanoparticles. The synthesized nanoparticles show good Inhibition activity in different concentrations. The AgNPs synthesized by corm extract in high concentrations are found to be high antibacterial activity against two bacterial organisms. This indicates that the increase in nanoparticle diameter is directly related to antimicrobial properties.

کلمات کلیدی:

Agar well method, Antibacterial activities, *Crocus haussknechtii* extract, Inhibiting activity, Silver nanoparticles

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