

عنوان مقاله:

Assessment of Antioxidant and Antimicrobial Activities of Silver Nanoparticles Biosynthesized by *Haplophyllum obtusifolium*

محل انتشار:

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خلاصه مقاله:

Background: Plants comprise great antioxidant sources as a result of their redox and biochemical components, which are rich in secondary metabolites such as phenolic acids, flavonoids, and other constituents. *Haplophyllum obtusifolium* from polygonaceae is widely used for preventing and managing diabetes. This study investigated the antibacterial and antioxidant activities of silver nanoparticles (AgNPs) biosynthesized by *H. obtusifolium*. Methods: The aerial parts of *H. obtusifolium* were gathered from the north of Khorasan Razavi province, Iran and desiccated at the chamber temperature. The shoots were powdered by grinding, 5 g of the powder was mixed with 250 mL of deionized water, and the resultant blend was then filtered. Bactericidal properties and antioxidant activity of the nanoparticles were assessed using disk diffusion and DPPH (2, 2-diphenyl-1-picrylhydrazyl) tests, respectively. Results: The results of this study showed that the biosynthesized nanoparticles exhibited antibacterial activity against a gram-negative (*Klebsiella pneumoniae*) bacterium, but they had no effects on gram-positive *Staphylococcus epidermidis*. Antioxidant test results showed that these nanoparticles were capable of eliminating DPPH radicals in a concentration-dependent manner so that a more potent antioxidant activity was seen in higher concentrations of the nanoparticles. Conclusion: Our results suggested that *H. obtusifolium* can be used as a key source of antioxidants/ antimicrobial agents in food and pharmaceutical industries.

کلمات کلیدی:

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