

Arta (*Calligonum Comosum*, L'her.) Shoot Extract: Bio-mediator in Silver Nanoparticles Formation and Antimycotic Potential

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Abstract : Environmentally friendly green synthesis of nanomaterial has a very significant part in nanotechnology. In the present research, the synthesis of silver nanoparticles (AgNPs) was established by treating silver ions with the aqueous extract of *Calligonum comosum* green shoots at room temperature. AgNPs formation was firstly detected by the colour change of mixed extract (plant extract and AgNO₃). Further characterization was done by ultraviolet (UV)-Vis spectrophotometer, transmission electron microscopy (TEM), scanning electron microscopy (SEM), zeta potential and fourier transform infrared spectroscopy (FTIR). The peak values for UV-VIS- spectroscopy were in the range of 440 nm, TEM micrograph showed a spherical shape for the particles and zeta potential showed the formation of negative charged nanoparticles with an average size of about 105.8 nm. 1635.41 and 3249.83 cm⁻¹ are the peaks detected from the FTIR analysis. In this study, biosynthesized silver nanoparticles mediated by *C. comosum* were tested for their antimycotic activity using a well diffusion method against fungal species; *Aspergillus flavus*, *Penicillium* sp, *Fusarium oxysporum*. Our findings indicated that biosynthesized AgNPs showed an efficient antimycotic activity against tested species. The antimycotic action of AgNPs varied according to different fungal species. Results confirmed the ability of *C. comosum* green shoot extract to act as an reducing and stabilizing agent during the synthesis of AgNPs.

Keywords : AGNPS, zeta potential, TEM, SEM

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