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Formulation, Development & Characterization of Silver Nanoparticle of Indian Traditional Herbs Withania Somnifera (Ashwagandha)

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ABSTRACT

Nanotechnology has evolved into a platform for modifying and developing significant metal characteristics in the form of nanopaticles, with potential uses in a variety of disciplines for the benefit of humanity. Endophytic fungus Fusarium sp. was isolated from healthy leaves of Withania sominnifera (Ashwagandha) for extracellular production of silver nanoparticles in the current work (AgNps). Visual inspection, UV-Vis spectroscopy, and scanning electron microscopy were used to analyse the synthesized AgNps (SEM). The effectiveness of the AgNps produced against bacterial pathogens such as E.coli, S.typhi, and S.aureus was also examined.Visual observation of a shift in colour from pale white to brown indicated the creation of AgNps, and UV-Vis spectra at 440 and 422 nm were used to establish the Surface Plasmon Resonance. SEM demonstrated the production of tiny spherical nanoparticles with a diameter of 12-20 nm. AgNps' antibacterial efficacy against E.coli, S.typhi, and S.aureus was promising, with the highest zone of inhibition of E.coli, S.typhi, and S.aureus.

Keywords: *Withania sominnifera*, Ashwagandha, Silver Nanoparticle.

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