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GREEN SYNTHESIS OF *Monsoon longifolium* LEAF EXTRACT-BASED SILVER NANOPARTICLES AND ANTIFUNGAL POTENTIAL AGAINST SELECTED FUNGAL PATHOGENS OF *Solanum melongena*

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Botanicals are extensively researched as alternatives to synthetic fungicides in plant disease management. The acetone extract of *Monodon longifolium* has exhibited significant antimicrobial activity *in vitro.* The lower stability, shorter storage life, and less efficient application of these phytochemicals compared to synthetic pesticides can pose challenges for farmers. Green synthesis of nano fungicides is considered as a substitute to address these limitations. The objective of this research was to synthesise *M. longifolium* based-silver nanoparticles (Ml-AgNPs) and characterize their antifungal potential against selected fungal pathogens of *Solanum melongena.* A solution of 1 mM silver nitrate ($AgNO_3$) was reduced by reacting with crude *M. longfolium* acetone extract dissolved in Dimethyl sulfoxide (150 ppm) at pH 8 by exposing to sunlight for 6 hrs synthesized Ml-AgNPs were collected through centrifugation and washed with distilled water. The morphology and chemical composition of Ml-AgNPs were analysed using UV-visible spectroscopy, Scanning Electron Microscopy and Fourier-Transform Infrared Spectroscopy (FTIR). Their antifungal properties were assessed against *Lasiodiplodia theobromae, Pseudopestalotiopsis theae* and *Diaporthe eugeniae, in vitro* (not replicated due to limited production of Ml-AgNPs) with *M. longifolium* crude extract at 2000 ppm which was used as the positive control. Ml-AgNPs synthesis was confirmed by a peak at 425 nm on the UV visible spectrum. In comparison to the *M. longifolium* leaf extract, the FTIR spectrum of the synthesized Ml-AgNPs displayed peaks at 3353.4 cm^{-1}, 1384.4 cm^{-1}, and 1142.4 cm^{-1}, indicating the presence of hydroxyl groups, alkanes, aromatic compounds, and carbonyl groups. Also, they were spherical in shape and nearly 80 nm in size. Growth inhibitions by synthesized Ml-AgNPs (150 ppm) against *L. theobromae*, *D. eugeniae,* and *P. theae* were 58.8%, 78.6%, and 83.5%, respectively. The highest and the lowest growth inhibitions by the crude extract were 81.8 ± 1.5% and 63.7 ± 0.6% against *P. theae* and *D. eugeniae,* respectively. These findings highlight the potential of Ml-AgNPs for managing fungal pathogens in *S. melongena*. Further research is required to increase production and assess their efficacy and sustainability in field conditions.

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