
Green Synthesis of Silver Nanoparticles using *Dioscorea wallichii* Hook.f. (Dioscoreaceae) leaves extract and its Antimicrobial Activity

Anantharaj Tamilselvan¹, Karuthapandian Swaminathan², and Palanichamy Mehalingam^{*†1}

¹Virudhunagar Hindu Nadars' Senthikumara Nadar College (Autonomous) (VHNSN College (Autonomous)) – Research Department of Botany, Virudhunagar, Tamil Nadu, Inde

²Virudhunagar Hindu Nadars' Senthikumara Nadar College (Autonomous) (VHNSN College (Autonomous)) – Research Department of Chemistry, Virudhunagar, Tamil Nadu, Inde

Résumé

The aim of the study was to evaluate the synthesis of silver nanoparticles and antimicrobial activity of *Dioscorea wallichii* Hook.f. (Dioscoreaceae) important medicinal plant, Silver nanoparticles are the metal choice as they are hold and kill microbe's effectively. In this green synthesis, the leaf extract of *D. wallichii* Hook.f. was found a good reducing agent and stabilizing agent to carry out the reaction which readily reduces Ag⁺ to Ag⁰ respectively. The color change from pale yellow to dark brown was due to the surface Plasmon resonance. The synthesized silver nanoparticles were tested for antimicrobial activity using agar well diffusion method that shows increased activity against various pathogens. The synthesized silver nanoparticles inhibited the growth of microorganisms which shows a maximum zone of inhibition for *Bacillus subtilis*, *Streptococcus faecalis* at 18mm and minimum for *Pseudomonas aeruginosa* at 12mm. These results were compared with the positive control streptomycin. Nanoparticles are synthesized in different methods, among them, green synthesis method is more interesting due to using natural materials such as simple, cost efficient, ecofriendly and safe technique addition to having antimicrobial effect.

Mots-Clés: Green synthesis, Silver nanoparticles, bioreduction, *Dioscorea wallichii* Hook.f. leaf, Antimicrobial activity

*Intervenant

†Auteur correspondant: mehalingamp@yahoo.co.in