



Green Synthesis of Silver Nanoparticles using Tephrosia purpurea Root Extract, Morinda tinctoria Leaf Extracts and Evaluation of their Antibacterial Activities

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ABSTRACT

The importance of Tephrosia purpurea root and Morinda tinctoria leaf as revealed by various literature resources, we planned to carry out green synthesis of Silver nanoparticles using the above two extracts. Silver nanoparticles were prepared by adopting standard procedure. The formations of Silver nanoparticles from the extracts were identified first by observing the colour changes. The extract colour changes during the formation of Silver nanoparticles from brown to intense yellow for Tephrosia purpurea root extract and black to brown for Morinda tinctoria leaf extract. Silver nanoparticle formations were characterized by UV, FT-IR, XRD and SEM. UV absorbance at 440nm and at 460nm for the Silver nanoparticles derived from the above two extracts. FT-IR stretching frequencies of these nanoparticles observed at 439-516 and at 604 respectively. XRD and SEM analysis of silver nanoparticles indicated that they exist in spherical, face centered cubic (fcc) crystalline structure with size range 21nm and 26nm for the above two extracts. In vitro bioactivity determination of the tephrosia purpurea root, morinda tinctoria leaf extracts and their Silver nanoparticles by zone of inhibition studies showed that Silver nanoparticles are highly active against Staphylococcus aureus(16,13)mm and Pseudomonas aeruginosa(11,12)mm of than their corresponding extracts.

Keywords: Tephrosia purpurea, Morinda tinctoria, Silver nanoparticles, XRD, SEM.
