

ABSTRACT

For the synthesis of gold (Au) and silver (Ag) nanoparticles the development of quick and environmental friendly methods is of versatile significance in the field of nanotechnology. In this study, extracellular production of Au and Ag nanoparticles was processed from the seed of the plants, *Cuminum cyminum* (Cumin), *Cinnamomum verum* (Cinnamon) and *Elettaria cardamomum* (Cardamom) by photochemical method. Lab extract of all these plants were prepared along with stock solution of 1mM silver and gold solutions. Difference in color confirms the ultimate best plant extract for silver and gold nanoparticles. The best results were obtained from cumin extract. Qualitative comparisons of the synthesized nanoparticles between the plants were measured. Among these *Cuminum cyminum* plants synthesized ~ 20 nm sized and spherical-shaped Ag particles, In case of Au nanoparticle the size obtained from BT-90 was between 45.2 to 53.5 nm with polydispersity index 0.059. In case of Ag NPs obtained from the cumin the size range from 22.4 to 35.3 nm with polydispersity index 0.063. The amount of nanoparticles synthesized and its qualitative characterization was done by UV-vis spectroscopy. Further analysis carried out by BT-90 nano-size analyser and fourier transform infrared spectroscopy (FTIR), showed evidence for the occurrence of amino groups, that amplified the stability of synthesized nanoparticles.