

## Abstract

This work represents the synthesis of silver nanoparticles via a green way in which nanoparticles of silver were synthesized from an extract of *Azadirachta indica* fruit. The extract act as both capping and reducing agents previously, chemical and physical methods were used, which were found to be toxic, eco unfriendly and expensive, and were replaced by biological methods like plants. Due to the activity and stability of nanoparticles synthesized from plants, green way of life is obtaining more consideration by scientists. In the research field, nanoparticles of silver have a prominent place in research field. Here aqueous extract of *Azadirachta indica* fruit was prepared to synthesize Ag metal nanoparticles. The reaction was preceded by sunlight, and the colour of the reaction mixture changed from colorless to dark brown, which indicates the production of Ag nanoparticles. A UV-Vis analysis was performed, and an absorption peak of 429 nm was found after 30 minutes of reaction. For further characterization, the sample was centrifuged at 4000 rpm for 30 minutes and dried in air for about 24 hours. The obtained nanoparticles of silver showed efficient antibacterial activity against gram negative (*Escherichia coli*) and gram positive (*staphylococcus*) bacterial species. Antioxidant activity of Ag nanoparticles was also studied by DPPH assay, and it was observed that nanoparticles synthesized from *Azadirachta indica* fruit show 55% antioxidant activity by the DPPH method.