Abstract:

The emerging biosynthesis of silver nano-particles by the green synthesis approaches is fetching the intention of researcher owing to feasibility, cost effective, facile process, and environmentally amicable nature. In this study, the silver nano-particles were biologically synthesized by employing the leaflet broth of '*Acacia Modesta*' with the different concentration of 1mM $AgNO_3$ at the room temperature. The constituents of the broth of *Acacia Modesta* are responsible for the reduction of Ag^+ into Ag-NPs. The color transformation was discerned within an hour. The prominent absorption peaks of the three samples on UV visible Spectrophotometer were detected at 390nm, 410nm and 440mm. The efficient formation of the Ag-NPs was observed in sample 3 which possesses 5ml of 1mM $AgNO_3$ and 10ml of plant extract. The peaks of FT-IR at 600 cm^{-1}, 1625 cm^{-1} and 3275 cm^{-1}elucidate the various function group that were responsible for the reduction. The broth of the plant performs the character of capping agent as well as reducing agent. Furthermore, silver nano-particles exhibit the expeditiously response while confronting the *Escherichia Coli*, *bacillus cereus* and *Actinetobacter Baumanni*. The zone of inhibition was 39mm for *Escherichia Coli,* for *bacillus cereus* was 35mm while 36mm for *Actinetobacter Baumanni*. Most efficient response was corroborated by *Escherichia Coli.* It is discerned that biologically active Silver nano-particles possess the splendid antioxidant capabilities; that were evaluated by the DPPH Assay and ABTS assay. Therefore, silver nano-particles find their numerous applications in biomedical and other fields owing to antioxidant, antimicrobial, anti-cancer and antifungal capabilities.