ABSTRACT

In the undertaken research, biologically active silver(I) complexes of carboxylic ligands such as benzoic acid, salicylic acid, maleic acid and anthranilic acid were synthesized by precipitation reaction. In the first step, metal salt was reacted with a stoichiometric amount of the carboxylic acid. Metal salt was added dropwise to the solution of sodium salt of respective acids, precipitates were formed. Then the reaction mixture was stirred for 1-2 hours for complete reaction of the reactants present in the solution. Reaction mixture was then filtered off and ppt. washed & dried. All the synthesized compounds were evaluated and characterized by different spectral techniques such as UV-visible, FT- IR analysis along with their solubility and melting points. The antibacterial activity of the prepared complexes were studied against three microbial stains *Bacillus Subtilis* (gram positive), *Pseudomonas aeruginosa* and *E.coli* (gram negative) by well diffusion method. All the formed silver complexes showed positive results against all bacterial stains. The most active and efficient activity was observed by maleic acid silver complex against all bacterial stains, but maximum activity observed against *pseudomonas aeruginosa*. In the given research, silver nanoparticles are formed in which benzoic acid act as both capping and reducing agent and their dye-degradation activity were studied. The formed nanoparticles were also characterized by UV-visible and IR-spectrophotometer.