

ABSTRACT

The current research describes the synthesis of silver nano particles by chemical synthesis using 30mM of silver nitrate and 30mM of citric acid as complexing agent, in 60ml distilled water in separate well-cleaned dry beakers. The pH 1.6- 5.17 was adjusted by using appropriate amounts of NH_4OH solution. The color changes from silvery white to brown. These silver nanoparticles are adsorbed in hemicellulose and starch based bioplastics. Formation of silver nanoparticles and its use in bioplastic are characterized by SEM, UV-Visible and FT-IR spectroscopy. Antibacterial activity of the solution was then tested against the gram-positive *Bacillus cereus* and the gram-negative *E. coli* bacteria. Moisture content, solubility, tensile strength and biodegradability of biofilms are analyzed. Samples of biofilms had been biodegraded utilizing the soil burial method. After 15 days of analysis, deterioration in bioplastics was visible. Hemicellulose and starch based bioplastic can be used in food packaging material and increase the shelf life of fruits.