ABSTRACT

Silver is known to kill 650 types of microorganisms. Nanosilver technology is widely applied to impart bactericidal effect on to the products such as soaps, plastics, clothes, etc. Development of nanosilver technology for various products is a research by itself, since single technology cannot be used for all products. The literature survey indicated that systematic study on the nanosilver incorporated products is not well addressed. The concentration of silver required for exhibiting required antibacterial activity is not documented.

Hence, the present investigation aims to synthesize nanosilver in liquid form and in powder form using a high surface area support. They are characterized using physico-chemical techniques to confirm the particle size, chemical purity etc., and documented well in Chapter-II.

Various consumer products were developed by incorporating the nanosilver. They are subjected to antibacterial studies. Influence of concentration of silver, mode of application, influence of time on antibacterial activity was studied in detail.

Chapter-III explains preparation of products by coating nanosilver in the form of liquid. The target applications under study were incorporating
antibacterial effect in Floor Carpet, HEPA filters in Clean Room and Antibacterial Room-Sprayer.

Chapter-IV deals with products prepared by incorporating nanosilver in the form of powder. The target applications under study were incorporating antibacterial effect in Nanosilver Ointment, Nanosilver-Plastic (container) and Nanosilver-PUF.

The preparation methods, mode of application of nanosilver and optimum concentration of nanosilver required to control the bacterial growth was optimized in all the above applications.