ANTI-MICROBIAL ACTIVITY

The antibacterial activity of *A. indica* -Ag-Np's was evaluated against both Gram positive and Gram negative (bacillus cereus, klebsiella pneumonia, candida albicans, pseudomonas aeruginosa, candida glabrata) pathogenic microorganisms by disc diffusion method. The antimicrobial activity of the coated silver nanoparticles on cotton fabrics was measured as zone of inhibition in mm (diameter size) as given in fig.7.

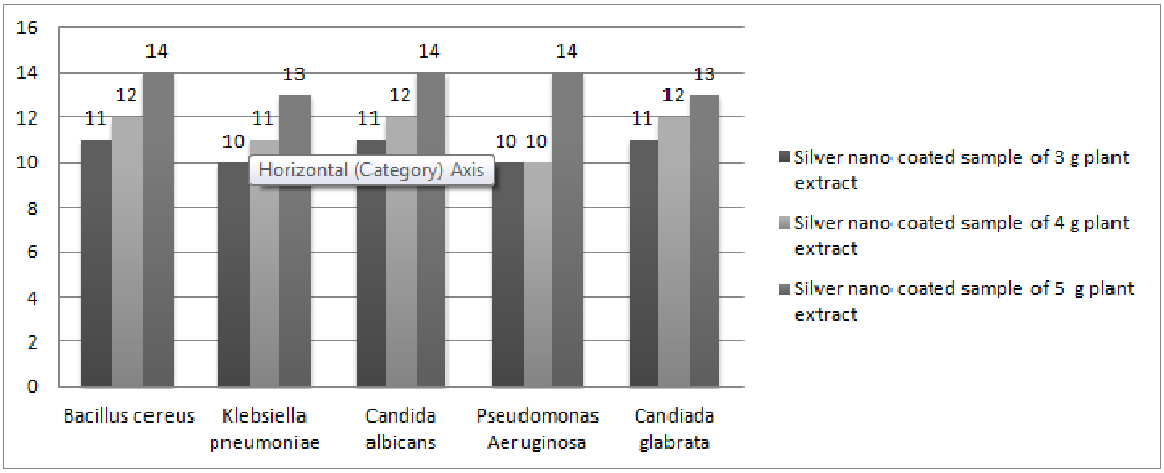

Fig.6. Zone of inhibition (mm) Silver nano coated cotton sample against various Bacterial species

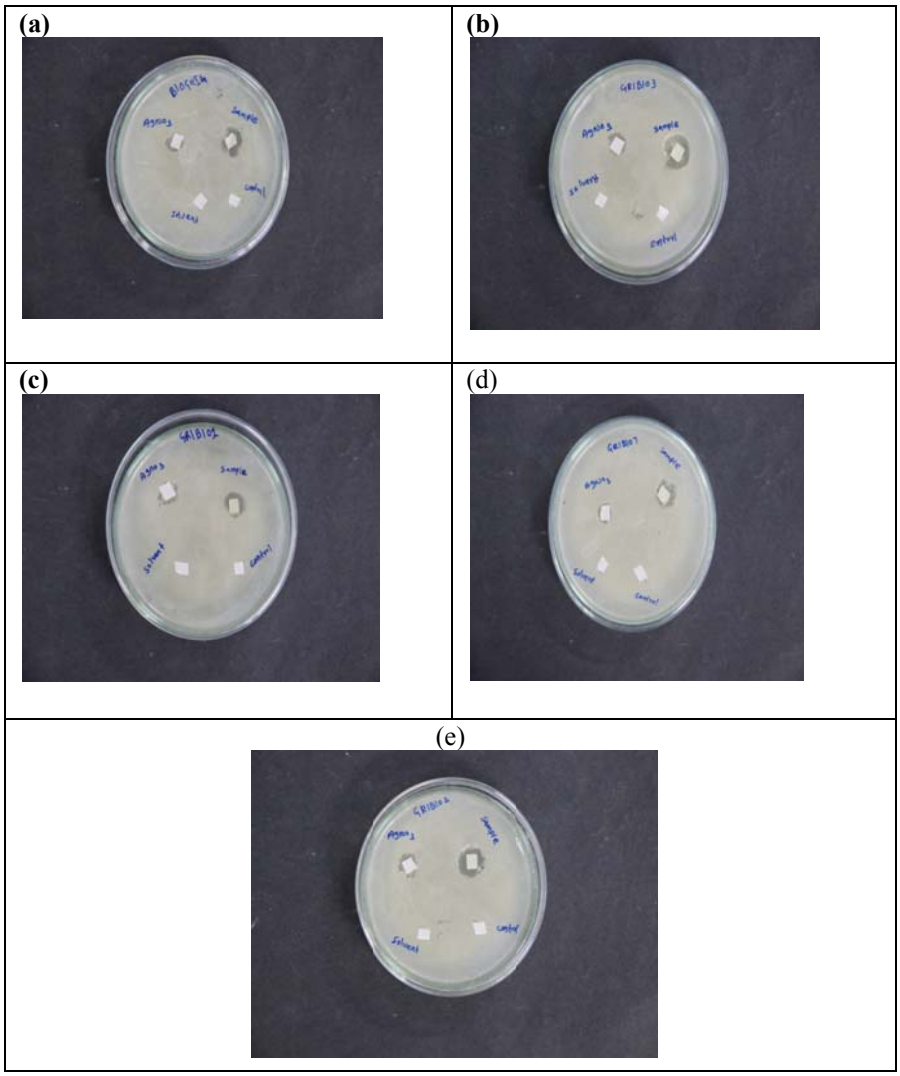

Fig.7. Antimicrobial tested Sliver nano-coated cotton fabric samples using 5 g plant extract against various biological species (a) Pseudomonas aeruginosa (b) Candida albicans (c) Bacillus cereus(d) Cadida glabrata(e) Klebsiella pneumonia

Sliver nanoparticles displayed almost similar range of antimicrobial activity against studied pathogens ,which was understood through diameter of inhibition zone. That is zone of inhabitance value in the range of 12-14 mm. Several studies were concluded the biocidal properties of sliver nanoparticles against microorganisms. It is believed that the sliver nanoparticles attach the negatively charged cell surface ,then change its physical and chemical properties of the cell membranes and the cell wall and disturb the permeability ,osmoregulation, electron transport and respiration(Marambio-Jones, C., & Hoek,2010). Second the sliver nanoparticle produces further damage by permeating into the cell,interact with the DNA (AshaRani, P. V et al,2009). Third the sliver nanoparticle releases the sliver irons producing higher biocidal effect on the microorganisms. In the selected cases higher bactericidal activity achieved through 5g A.Indica extract as compare with the other two cases. This higher activity is due to the higher amount of Ag nanoparticles on the surface of the cotton fabric. Still further improvement has not been achieved by increasing more than 5g A.Indica extract, which was attributed that optimum loading of Ag nanoparticles were achieved through 5g A.Indica extract itself.

CONCLUSION

From the present research it is proved that biosynthesized sliver nanoparticles using A.Indica leaf extract was possible and which can be coated over cotton fabric through

insitu chemical reaction. SEM image,UV spectra proved that the formation of sliver nanoparticles . The biological approach is a cost effective method as compare with the chemical synthesis. Further it is proved that the sliver nanoparticles coated cotton fabric exhibit effective antimicrobial effect against microorganism. Finally the 5g A.Indica leaf extract produces highest antimicrobial effect and release properties as compared with 3g and 4g leaf extracts. Due to the highest control release properties of this coating utilized for wound healing dressing.

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