Silver nanoparticles impede the biofilm formation by *Pseudomonas aeruginosa* and *Staphylococcus epidermidis*

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Abstract

Biofilms are ensued due to bacteria that attach to surfaces and aggregate in a hydrated polymeric matrix. Formation of these sessile communities and their inherent resistance to anti-microbial agents are the source of many relentless and chronic bacterial infections. Such biofilms are responsible play a major role in development of ocular related infectious diseases in human namely microbial keratitis. Different approaches have been used for preventing biofilm related infections in health care settings. Many of these methods have their own demerits that include chemical based complications; emergent antibiotic resistant strains, etc. silver nanoparticles are renowned for their influential anti-microbial activity. Hence the present study over the biologically synthesized silver nanoparticles, exhibited a potential anti-biofilm activity that was tested *in vitro* on biofilms formed by *Pseudomonas aeruginosa* and *Staphylococcus epidermidis* during 24-h treatment. Treating these organisms with silver nanoparticles resulted in more than 95% inhibition in biofilm formation. The inhibition was known to be invariable of the species tested. As a result this study demonstrates the futuristic application of silver nanoparticles in treating microbial keratitis based on its potential anti-biofilm activity.