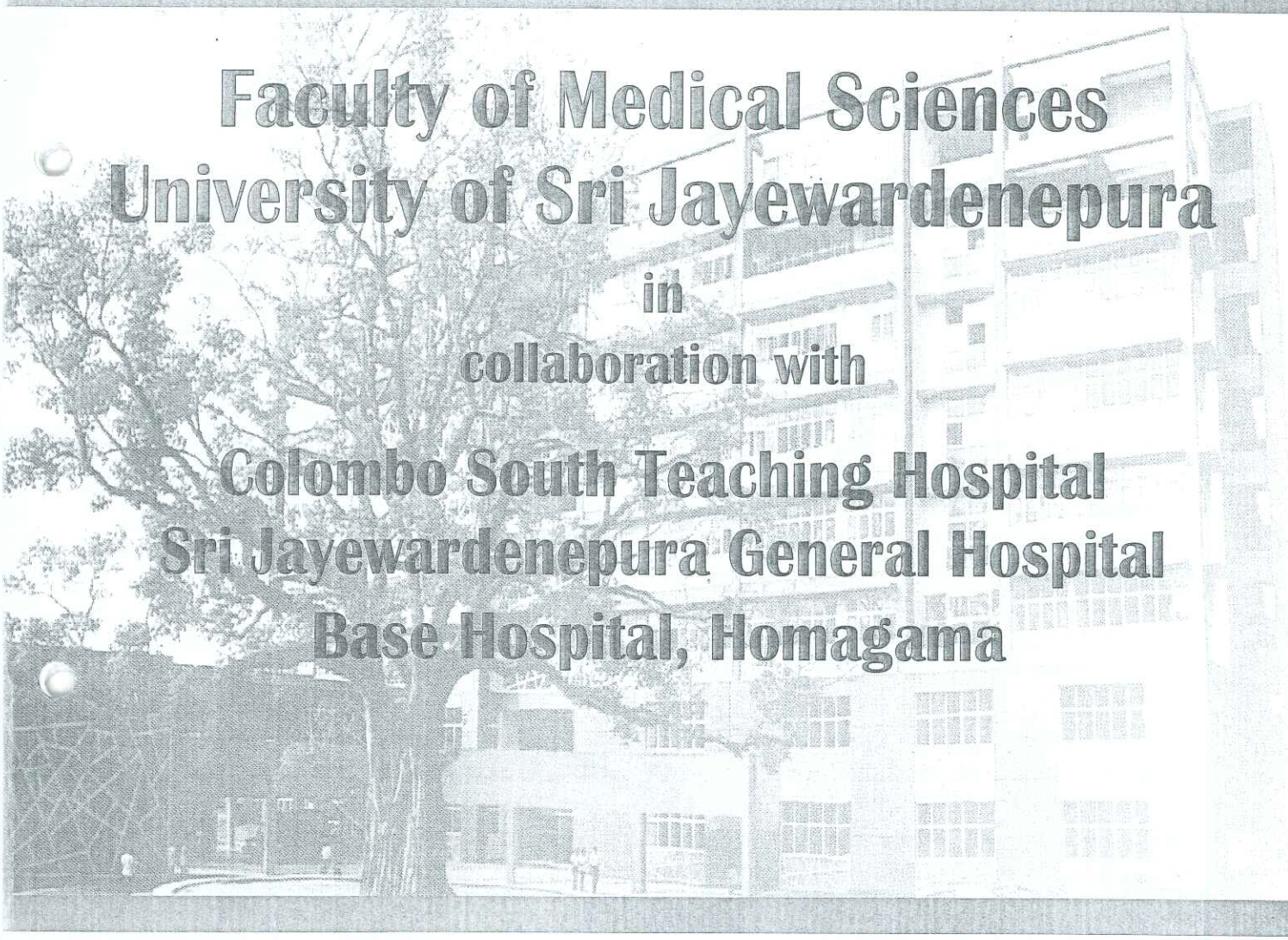
International Conference on Health Sciences 2018



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observed between group-B and functionalized nanoparticles, whereas group-A showed a significant reduction in absorption compared with group-B.

Conclusions: rLigA-functionalized silver nanoparticles can be used to detect anti-leptospiral antibodies in human sera using UV-Vis spectroscopy.

OP 22

Green synthesized sliver nanoparticles as a potential anti-biofilm agent

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Background: Treatment of chronic biofilm-related infections associated with medical devices and wounds is a challenge due to their antibiotic resistance and difficulty in penetration. Silver nanoparticles (AgNPs) can penetrate biofilms due to their small size and interruption of the quorum sensing mechanism. Biosynthesis of AgNPs is beneficial as renewable resources can be used avoiding expensive techniques.

Objectives: The aim was to biosynthesize AgNPs using bacteria and to determine their anti-biofilm activity against selected clinically important biofilms *in vitro*.

Methods: *Pseudomonas aeruginosa* ATCC 27853, *Escherichia coli* ATCC 25922, *Acinetobacter baumannii* (clinical strain), *Staphylococcus aureus* ATCC 25923 were cultured in nutrient broth. After 72h of incubation, $AgNO_3$ was added into the culture supernatant. AgNP formation was confirmed by UV-Visible spectroscopy. Anti-biofilm activity of different concentrations of the synthesized AgNPs was assessed using Crystal Violet assay after 24h and 48h exposure against 48h old *P. aeruginosa* ATCC 27853, *S. aureus* ATCC 25923 and *Candida albicans* ATCC 10231 biofilms formed under static conditions *in vitro*. The architecture of biofilms and morphological changes before and after AgNP exposure were studied using Scanning Electron Microscopy (SEM).

Results: All the selected bacteria produced AgNPs under optimized conditions where characteristic UV-Visible spectral peaks were observed indicating the presence of AgNPs. AgNPs synthesized by all bacteria except *S. aureus* mediated AgNPs displayed 50% biofilm inhibition at AgNP concentrations between 1.98-0.225 mg/mL. *S. aureus* mediated AgNPs showed 50% biofilm inhibition only against *S. aureus* biofilm. SEM images indicated that biosynthesized AgNPs reduced viable biofilm cells and the extracellular matrix causing morphological changes in biofilms noticeably. *Candida* cells showed rough outer cell walls and markedly reduced pseudohyphae.

Conclusions: Green AgNPs produced by each bacterium show anti-biofilm activity against the selected biofilms indicating that the bacteria-mediated AgNPs have a potential as anti-biofilm agents.

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OP 23

Clinical teachers' perceptions on an integrated medical curriculum and its role in promoting a holistic approach in patient care

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Background: An interesting part of medicine is when a patient presents with complex of symptoms which requires differential diagnosis prior to reaching a final diagnosis. Patients tend to be more