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## Susceptibility of bacterial biofilm against fruit and plant extracts

**Unishaben B Amin, Juhee Hasan and Shilpa Gupte**
Ashok & Rita Patel Institute of Integrated Study and Research in Biotechnology and Applied Sciences, India

Biofilms are formed by different microorganisms where they communicate and develop in rigid film like structure. Cells in biofilms are deemed 100 to 1,000 times additional resistant to disinfecting agents and antibiotics than planktonic cells. Biofilms might form on a wide type of surfaces, together with living tissues, industrial or potable water system piping, indwelling medical devices or natural aquatic systems. In the present study Aloe vera, cabbage, lemon grass, ginger, apple, olive, lemon, papaya and banana have been used to degrade the bacterial biofilms under laboratory conditions. *Pseudomonas aeruginosa, Salmonella Typhi, Staphylococcus aureus, Bacillus cereus* and *Escherichia coli* usually form strong biofilm and similar group of microbes show resistant to antibiotics. Therefore, these five microorganisms were screened for biofilm formation individually and in different combinations. Minimum Biofilm Inhibitory Concentrations (MBIC) of the plant and fruit extracts was determined and synergy between antibiotic and plant/fruit extract were checked. Particular attention is oriented nowadays towards the need for biofilm inhibiting compounds that are able to reduce or minimize infections; especially those caused by antibiotic-resistant bacterial strains. Synergy between antibiotics and natural extracts has exhibited anti biofilm activity against strong mixed biofilm. Minimum Biofilm Inhibition Concentration (MBIC) of plant extract with combination of antibiotic [ciprofloxacin+cabbage extract (inhibition-69.12%) and ciprofloxacin+lemon grass extract (inhibition- 89.77%)] can remove of strong mixed biofilm. As well as MBIC of fruit extract with combination of antibiotic [ciprofloxacin+banana peel extract (inhibition-96.95%), ciprofloxacin+apple extract (inhibition-93.16%) and ciprofloxacin+lemon peel extract (inhibition- 61%)] can obtain removal of strong mixed biofilm compare to individual itself. This kind of synergistic approach can be further exploited for future therapeutic purpose however; it needs multiple kinds of further investigations.

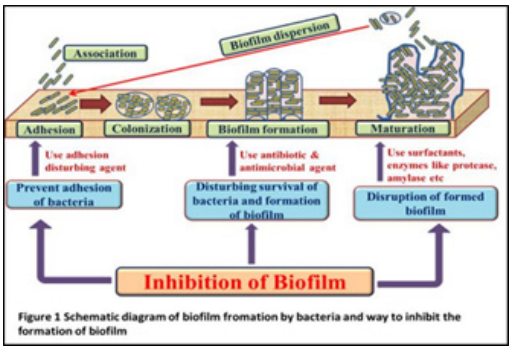

Figure 1 Schematic diagram of biofilm fromation by bacteria and way to inhibit the formation of biofilm

### Biography

Unishaben B Amin is interested to work on advanced techniques and methodology to study etiology of microbes, microbial products and enzymatic catalyzed reactions. Her other research interests are on study of microbial enzymes. She is working on different esterification reaction catalyzed by lipase immobilized on functionalized magnetic nanoparticles.

unishapatel901@yahoo.com

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