ABSTRACT

This study aims at identifying biofilm forming microorganisms in wounds and urinary tract infections and checking the inhibitory effect of different medicinal plant extracts on them. Total 30 clinical samples were collected. Out of 30 samples, 15 samples were taken from patients suffering from urinary tract infections while, remaining 15 samples were taken from different types of wounds. On the basis of morphological variation, 13 urine and 12 wound strains were selected and were tested for their resistance against different antibiotics. 10 highly antibiotic resistant strains were selected for biochemical characterization. 3 strains were further characterized physiologically and genetically. According to the results, the strains turned out to be *Providencia stuartii, Shigella sonnei* and *Escherichia coli.* These strains were tested for biofilm formation using Test tube assay, Congo red assay and Liquid-interface coverslip assay. Strains showed significant biofilm formation by Test tube assay and Liquid-interface coverslip assay while, only *S. sonnei* gave positive result for biofilm formation in Congo red assay. Antibacterial activity of aqueous and methanolic extracts of three medicinal plants e.g. *Camellia sinensis* (Green tea), *Syzygium aromaticum* (Clove) and *Allium sativum* (Garlic) was determined both individually and in combination against *P. stuartii, S. sonnei* and *E. coli* by agar well diffusion method. Aqueous extracts of green tea and garlic proved to be more effective in their antibacterial activity on studied strains as compared to methanolic ones, aqueous and methanolic extracts of clove were almost equally effective while, methanolic extract of garlic was least effective in its activity. Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) values of these extracts were also determined. Moreover, these plant extracts were also tested for their antibiofilm activity against clinical isolates and proved to have significant inhibitory effect on biofilm formation thus, providing an alternative to treat various infections caused by these antibiotic resistant isolates.