

## Prevention of *Escherichia coli* biofilms formation on urinary catheter by some selected plant extracts

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The challenge posed to the health sector by the use of catheter is as synonymous to its importance. Catheters encourage biofilm formation leading to bacteriuria, cystitis, urethritis, pyelonephritis and death in severe cases. This study was aimed at the prevention of *E. coli* biofilm formation using methanolic extracts of 3 different plants, *Psidium guajava*, *Mangifera indica* and *Ocimum gratissimum*. Plant extractions were carried using the solvent methanol via cold extraction. Varying concentrations of the extracts were prepared (5.0, 10.0 and 20.0 mg/mL) and used to coat 63 catheters using mild heat from water bath. Biofilm formation was analyzed using aerobic plate count and Optical density (OD600) count. From the results obtained *Psidium guajava*, *Mangifera indica* and *Ocimum gratissimum* were not able to prevent the growth *E. coli* species but delayed the onset of biofilm formation for about a week. *Ocimum gratissimum* had the highest inhibitory effect at 5.0 mg/mL, 10.0 mg/L and 20.0 mg/mL with colony forming unit ranging from ( $2.2 \times 10^5$  -  $7.0 \times 10^4$  and  $5.7 \times 10^5$  -  $3.7 \times 10^5$ ) for day 5 and 7 analysis respectively. *Psidium guajava* had the lowest inhibitory effect at these concentrations, with colony forming unit ranging from ( $4.3 \times 10^5$  -  $1.9 \times 10^3$  and  $7.7 \times 10^5$  -  $3.8 \times 10^5$ ) for day 5 and 7 analysis respectively. Although the three extracts varied in their antimicrobial capacity, the differences however, were statistically not significant. *Psidium guajava*, *Mangifera indica* and *Ocimum gratissimum* still remains a good choice against several pathogenic organisms and in ethnomedicine but can only be used for short term catheterization.

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