

TITLE: EVALUATION OF CELL SURFACE HYDROPHOBICITY AND BIOFILM FORMATION BY *ESCHERICHIA COLI* ISOLATED IN A CLINICAL LABORATORY AT PRESIDENTE PRUDENTE – SP

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ABSTRACT: Urinary tract infection (UTI) is considered one of the most common bacterial infections, and *Escherichia coli* have being considered one of the main microorganisms related to it. Several virulence factors may be associated to *E. coli* colonization at the urinary tract such as adhesins and fimbriae. Biofilm formation is also a relevant behavior that could change the progress of urinary tract infection. Biofilms represent a difficult eradication structure and it has become a major public health problem since they are involved in various diseases and also due to increased resistance to antimicrobial agents. This study aims to evaluate cellular hydrophobicity and biofilm formation by *Escherichia coli* isolated in a clinical laboratory at Presidente Prudente-SP. To evaluate the biofilm formation it was used microplate adhesion technique followed by crystal violet staining. The cell hydrophobicity of the isolates was evaluated by microbial adhesion to solvents (MATS) by the addition of xylene. The results showed that all the isolates had capacity to form biofilms and 42 isolates presented statistically higher values compared to *E. coli* ATCC 259229 ( $p < 0.05$ ). The results found for cellular hydrophobicity ranged from 0.325 to 1.780 at OD<sub>600nm</sub>. The stratification of the OD values showed that most of the isolates presented high levels of hydrophobicity. Cellular hydrophobicity seemed not to influence the biofilm formation since there was negative correlation between results. This study highlights the complexity of bacterial surface properties and their relationship to the formation of biofilms. A great understanding of the processes of biofilm formation and the development of new strategies are needed for biofilm control and consequent improvement of the patient's health.

Keywords: urinary tract infection, *Escherichia coli*, adhesion, solvent, crystal violet.

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