TITLE: MEASUREMENT OF THE INTENSITY OF BIOFILM FORMATION IN UROPATHOGENIC *Proteus mirabilis* ISOLATED FROM PATIENTS WITH COMMUNITY-ACQUIRED URINARY TRACT INFECTION (CA-UTI) IN LONDRINA - PR

AUTHORS: MONTINI, V. H. [1]; SANCHES, M. S. [1]; SILVA, L. C. [1]; OLIVA, B. H. D. [1]; GUIDONE, G. H. M. [1]; NASCIMENTO, A. B. [1]; SANTOS, N. G. N. [1]; LALA, S. R.; VESPERO, E. C. [1]; ROCHA, S. P. D.[1]

INSTITUTION: 1. STATE UNIVERSITY OF LONDRINA – UEL, LONDRINA – PR – BRAZIL

ABSTRACT: *Proteus mirabilis* is an enterobacteria found in the human microbiota and an opportunistic pathogen causing infections such as the urinary tract and crystalline biofilm formation in catheter-associated urinary tract infections. The focus of this study was to determine the intensity of biofilm formation produced by 200 strains of *P. mirabilis* isolated from urine cultures of patients with community-acquired urinary tract infection (ITU-AC) in Londrina – PR. The biofilm formation assay was performed in 96-well polystyrene plates using crystal violet as dye and TSB broth as negative control. The reading of the wells was made in a spectrophotometer with a wavelength of 570 nm, and the results were classified as absent, weak, moderate, strong and very strong, according to the absorbance value of the negative control and the samples. Of the 200 analyzed, 118 (59%) had very strong biofilm, 71 (33.5%) had strong biofilm and 11 (5.5%) had moderate biofilm. Biofilms are communities of bacteria coated with a polymeric extracellular substance that helps evade the immune system, increasing the persistence of the microorganism in the host. In addition to being developed in all materials used in the manufacture of catheters (such as latex, polyvinyl chloride and polypropylene), biofilms can reduce the effectiveness of certain treatments such as the use of antibiotics, as they have high tolerance to antimicrobials. Its association with crystals (such as apatite and struvite) resulting from the alkalinization of the pH by the action of urease produced by *P. mirabilis*, for example, can result in the formation of crystalline biofilms that, when embedded in the surface of the catheter, can cause its blockage. It is concluded that all *P. mirabilis* isolated from UTI-AC in this work were able to produce biofilm, with the majority being able to produce very strong biofilm, which represents a risk for patients infected with uropathogenic *P. mirabilis* as it is one of the factors which can lead to the formation of kidney stones and by decreasing the effectiveness of the action of antibacterials.

Keywords: bacterial biofilm; CAUTI; *Proteus mirabilis*

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