

**TITLE:** Quantification of intensity of biofilm formation of *Proteus mirabilis* strains isolated of urine of patients attended at Basic Health Units in the municipality of Londrina

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**ABSTRACT:**

Biofilm is an extremely important structure for bacteria because it preserves them under unfavorable environmental conditions, facilitates the distribution of nutrients between them, protects against the host's immune response and reduces the penetration of antibiotics and antibodies. The clinical importance of *Proteus mirabilis* biofilm occurs in urinary tract infections (UTI), especially on the surface of catheters, where crystals of struvite and apatite may occur (through the enzyme urease). Crystallized biofilm may cause catheter obstruction, blocking it and causing the reflux of contaminated urine to the bladder and kidneys. In addition to the urease enzyme, surface organelles such as fimbriae play an important role in the biofilm formation process. The objective of the present study was to evaluate the biofilm formation capacity of 184 *P. mirabilis* strains isolated from patients with UTI attended at the Basic Health Units of Londrina – PR, obtained between December 2016 and July 2017. The biofilm assay were performed based on methodology of Kwiecinska-Piróg et al. (2014) 96-well polystyrene using violet crystal. This methodology allows to evaluate and quantify the intensity of biofilm formation (no formation, weak, moderate, strong or very strong). Of the 184 samples tested, 133 (72.28%) presented very strong intensity, 49 (26.63%) presented strong intensity and 2 (1.09%) showed moderate intensity of biofilm formation. As observed, all the isolates tested were able to form biofilm, and the vast majority of them showed very strong intensity, which makes these microorganisms important from a public health point of view, since the species *P. mirabilis* is an important pathogen of infection in catheterized patients. In addition, biofilm represents an important resistance to the antibiotics used in the treatment of these patients.

**Keywords:** *Proteus mirabilis*, Urinary tract infection (UTI), biofilm.

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