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***Candida tropicalis* biofilm on latex and silicone catheters**

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Abstract

Candida tropicalis has been reported to be one of the *Candida* species which is most likely to cause bloodstream and urinary tract infections in hospitals being responsible for a high rate of patients' mortality. A substantial proportion of candidal infections is associated with biofilm formation, especially on the surface of implanted medical devices. Hence, the colonization of indwelling devices like urinary catheters by *C. tropicalis* poses a critical problem. The formation of a biofilm inside or outside of such medical implants causes a multiplicity of problems and consequently infection treatment is very difficult, especially in conjunction with an increased occurrence of multi-drug resistances by *Candida* spp.. Therefore, more knowledge has to be acquired in order to understand and prevent the formation of these biofilm infections, specifically concerning material components and factors related to microbial adhesion. **AIM:** So, the aim of this study was to investigate the biofilm formation of *C. tropicalis* to different urinary catheters, using a dynamic system and artificial urine. **MATERIALS AND METHODS:** This study was conducted with one isolate of *C. tropicalis* obtained from urine culture, from a patient admitted to intensive care unit at the University Hospital in Maringá, Paraná, Brazil and *C. tropicalis* ATCC 750 was also used, as a control. The biofilm formation was formed dynamically on urinary catheters (latex and silicone) with a flow of 60 mL/h. After 24 hours, the biofilm was quantified by crystal violet, colony formation units (CFU) and observed under scanning electron microscopy (SEM). **RESULTS:** Comparing both catheter materials, it can be highlighted that *C. tropicalis* formed significantly more biofilm ($p < 0.05$) on latex than on silicone which was confirmed through ultra structure analysis by SEM. It was also observed that the clinical isolate of *C. tropicalis* formed less biofilm (8.00×10^2 CFU/ml on silicone and 5.14×10^3 CFU/ml on latex) than the reference strain, ATCC 750, (1.77×10^4 CFU/ml on silicone and 2.67×10^4 CFU/ml on latex). **CONCLUSIONS:** Thus, it is possible to conclude that *C. tropicalis* were able to form biofilms in artificial urine on different urinary catheters. However there was a significant difference on biofilm formation on both urinary catheters and between both strains, which can be related with material properties determining the interactions between yeast cells and surface.