

## ***Candida tropicalis* biofilms: formation and virulence factors**

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### **Number: 28**

**Significance and objectives:** A substantial proportion of *Candida tropicalis* infections is associated with biofilm formation, especially on catheters. Thus, the aim of this study was to investigate *C. tropicalis* biofilm formation on silicone and its effect on epithelial cells and enzyme production (hemolysins and proteinases).

**Methods and results:** This study was performed with *C. tropicalis* (clinical isolate and reference strain ATCC 750). Biofilms formed on silicone coupons immersed in artificial urine, were quantified by crystal violet (CV) staining and by enumeration of colony forming units (CFU) and the matrix content in proteins and polysaccharides was also determined. Biofilm cells and matrix were assessed in terms of hemolysins and proteinases production and their effect on TCC-SUP urinary epithelial cells was evaluated as well. Biofilms of *C. tropicalis* ATCC 750 presented a higher number of cells than the clinical isolate although less biofilm biomass and less polysaccharides. Moreover *C. tropicalis* biofilm was able to express total hemolytic activity and higher proteinase but these factors were not detectable within the matrix. Additionally, *C. tropicalis* biofilm adhered in higher extent to epithelial cells than their planktonic counterparts. Moreover, epithelial cells showed low metabolic activity when in contact with biofilms.

**Conclusions:** Therefore, it is possible to conclude that enzyme production was detected in *C. tropicalis* biofilm cells, but not in its matrix and that biofilm cells can cause more damage to epithelial cells than their planktonic counterparts. This highlights the importance of biofilm formation, associated to the use of urinary catheters, on *C. tropicalis* virulence.