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ADHESION AND BIOFILM FORMATION ABILITY BY CLINICAL URINARY ISOLATES OF NON-*CANDIDA ALBICANS* *CANDIDA* SPECIES ON SILICONE

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Urinary tract infections due to *Candida* spp have markedly increased in the last two decades. *Candida* spp are now responsible for approximately 10% of urinary tract infections in hospitalized patients. In contrast to vaginal candidiasis, approximately 50% of urinary isolates of *Candida* are of Non-*Candida albicans* *Candida* (NCAC) spp, the most common of which are *C.glabrata*, *C. tropicalis* and *C. parapsilosis* spp. This has been attributed to the increased use of indwelling medical devices, such as silicone urinary catheters. Adherence of NCAC spp to surfaces is vital for biofilm formation. Consequently, formation of NCAC spp biofilms has important clinical repercussions, specifically because of their inherent tolerance to antifungal therapy and the ability of cells within biofilms to withstand host immune defences. Thus, the aim of this study was to study the adhesion and biofilm formation ability by different urinary isolates of NCAC spp on silicone.

A total of 6 strains were isolated from urinary tract, including *C. parapsilosis* (n=2), *C. glabrata* (n=2) and *C. tropicalis* (n=2). Reference strains of each species (*C. glabrata* ATCC 2001, *C. tropicalis* ATCC 750 and *C. parapsilosis* ATCC 22019) were also assayed. Adhesion and biofilm formation assays were performed incubating silicone with a cell suspension of 1.0×10^7 cells/mL at 37° C. Adhesion assays were evaluated after 2 hours incubation and biofilm formation after 4, 8, 12, 24, 48 and 72 hours using the crystal violet staining method. The hydrophobicity of silicone and cell lawns was determined by contact angle measurements through the sessile drop technique.

The results showed that all strains of NCAC spp examined herein presented hydrophilic cell surfaces but this property is not ruling cell adhesion to silicone. Moreover, all urinary isolates were able to adhere and form biofilm on silicone, although there were differences among species and strains. Generally, *C. glabrata* strains are less capable to form biofilm comparatively to *C. parapsilosis* and *C. tropicalis* strains.

The main conclusion of the present work is that NCAC spp are biofilm producers on silicone, and that the adhesion and biofilm formation ability appear to be species and strain dependent.