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**TITLE:** Adhesion of non-*Candida albicans* *Candida* spp to urinary epithelial cells

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## ABSTRACT

Non-*Candida albicans* *Candida* (NCAC) spp, are nowadays responsible for more than 50% of *Candida* infections and it has been shown that the most prevalent NCAC spp are *C.tropicalis*, *C. parapsilosis* and *C. glabrata*. An important step on NCAC spp infection is their ability to adhere to the host tissues. Therefore, the aim of this study was to evaluate the ability of *C.tropicalis*, *C. parapsilosis* and *C. glabrata* to adhere to a urinary epithelial cell line (TCC-SUP). The ability of *C.tropicalis* ATCC 750, *C. parapsilosis* ATCC 2201, *C. glabrata* ATCC 2001 and *C. albicans* SC5413 to adhere to TCC-SUP cells was evaluated after 2 and 24h. For that, yeast cells ( $1 \times 10^7$  cell/ml) were incubated with a confluent layer of epithelial cells at 37 °C and 5 % of CO<sub>2</sub>. The number of yeast cells adhered to the epithelial cells was determined using an adaptation of the Crystal Violet (CV) staining method. Additionally, the epithelial cell activity was determined by 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium (MTS) viability assay. After 24h of incubation the number of yeasts adhered to epithelial cells was higher than after 2h, unexpectedly except for *C. glabrata*. Nevertheless, after 24 h, *C. glabrata* extent of adhesion was still higher than *C. tropicalis* and *C. parapsilosis*. This particular behavior of *C. glabrata* was also observed after 2 h of adhesion, showing a higher number of adhered cells in comparison with the other NCAC spp, which behaved very similarly. The trend observed by CV staining does not seem to be reflected on the metabolic activity of the epithelial cells. 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.