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Adhesion and Biofilm Formation of *Candida Albicans* to Polymeric Materials

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Objectives *Candida albicans* is a commensal yeast but also a facultative pathogen causing candidosis, for example on dental prostheses. However, a basic understanding of how *C. albicans* colonizes such materials has not been adequately gained. Therefore, this study aimed to investigate the adhesion and biofilm formation of *C. albicans* on various polymeric materials.

Methods For the *in vitro* analysis, **CLSM** (Confocal Laser Scanning Microscopy) and **SCFS** (Single Cell Force Spectroscopy) techniques were used to evaluate the material properties and behavior of *C. albicans* on the different polymeric materials Polyvinyl chloride (PVC), Polytetrafluoroethylene (PTFE) and Polyethylene (PE). Statistical analyses included Shapiro-Wilk tests and ANOVA ($\alpha=0.05$).

Results *Candida albicans*' adhesion ratio and biofilm formation vary significantly across different polymeric surfaces with varying roughness, as observed through CLSM analysis and volume calculations from the cells. The morphology of the yeast is influenced by the surface characteristics of the materials it interacts with. Moreover, the materials significantly influenced the adhesion forces exerted by *C. albicans* on diverse surfaces.

Conclusions In this study, different behaviors of *C. albicans* cells in terms of adhesion, biofilm formation, and adhesion forces on the tested polymer materials were revealed. Discovering the various impacts of polymeric materials on the behavior could help in developing innovative denture materials that aim to reduce *Candida albicans* adhesion and thus reduce the incidence of denture stomatitis.