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Oil-Based Salivary Substitutes Increase *Candida Albicans* Biofilm GrowthA. Bohlandt⁴, V. Moyaux⁴, S. Bopp-kuchler¹, S. Jung^{3,2}, F. Meyer^{1,2}

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Objectives Our main goal was to test the effect of different salivary substitutes, with various compositions, on *Candida albicans* biofilm growth.

Methods A simple method of *Candida albicans* biofilm growth test in 96 well plate has been modified to mimic the presence of salivary pellicle interface during the initial adhesion and further growth. Saliva from healthy donors was used either pristine or after filtration through a 0,22 µm filter to discard high molecular weight mucins. *Candida albicans* biofilm growth was evaluated after rinsing with different salivary substitutes, by spectrophotometry (OD600nm). Aside modification of salivary pellicle was recorded by QCM-D.

Results Among the 7 different salivary substitutes tested, two favored an increase in the *Candida albicans* biofilm growth while others did not modify *Candida's* biofilm growth. These two salivary substitutes share a similar oil-based chemical composition. No difference was observed when high molecular weight mucins were filtered out. QCM-D analysis of the salivary pellicle showed an increase of the mass deposited after a rinsing step when testing oil-based salivary substitutes compared to water-based salivary substitutes. In addition, viscoelastic characteristics were also modified with a trend towards higher softness. In the absence of salivary pellicle, all salivary substitutes resulted in a decrease of *Candida albicans* biofilm growth. The degree of reduction correlating positively with the viscosity of the substitute.

Conclusions After *Candida albicans* adhesion on salivary pellicle, the use of oil-based salivary substitutes can increase biofilm growth, mostly because they persist on the surface. Practitioner should take this into account when prescribing a salivary substitute to patients with a history of candidosis.