

[Arch Oral Biol](#). 2010 May;55(5):391-6. Epub 2010 Mar 20.

Influence of saliva substitute films on the initial adhesion of *Candida albicans* to dental substrata prior to and after artificial ageing.

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Abstract

OBJECTIVE: The aim of this in vitro study was to investigate whether saliva substitute films influence the adhesion of *Candida albicans* to different dental substrata prior to and after artificial ageing. **DESIGN:** Specimens of a denture base resin (DB) and a veneering composite (VC) were polished and subjected to an artificial ageing protocol (thermal cycling, 2 x 3000 cycles 5/55 degrees C). Bovine enamel (BE) and glass were used as reference materials. After determination of surface free energy, specimens were rinsed with commercial saliva substitutes (Aldiamed, Saliva natura, Saliva Orthana, Salinum), a positive control (protein mixture), or a negative control (Phosphate Buffered Saline, PBS) for 2h at 37 degrees C in a flow chamber. Specimens were then exposed to a *C. albicans* ATCC 10231 suspension for 4h at 37 degrees C. Adherent, viable *Candida* cells were quantified using a luminometric ATP-based assay. Statistical analysis was performed using 1- and 2-way ANOVA, and post-hocs were analysed using the Tukey-Kramer test ($\alpha < .05$). **RESULTS:** Our data indicated that VC (31.1 mJ/m²) and DB (33.9 mJ/m²) yielded the lowest surface free energy prior to artificial ageing, and BE (43.6 mJ/m²) yielded the highest surface free energy. For *C. albicans* adhesion, both the materials as well as the saliva substitutes influenced relative luminescence intensities, indicating significant differences in *C. albicans* adhesion between the various materials and after treatment with the saliva substitutes. **CONCLUSIONS:** Saliva substitutes may have a decisive influence on *C. albicans* adhesion, but their impact appears to be dependent on the properties of the underlying substratum material. Copyright 2010 Elsevier Ltd. All rights reserved.