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0850 Synergistic Effect of Lysozyme and Amphotericin B on Candida Biofilms

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Biofilm mediated candidal infections associated with acrylic dentures are common, but the effect of antimicrobial peptides in saliva such as lysozyme and/ polyene antifungals (e.g. amphotericin B) on such biofilms are not known. Objectives: To develop standardized *C. albicans* biofilms on denture acrylic and compare the effect of lysozyme alone and lysozyme plus amphotericin B combinations on the planktonic and biofilm phase of *Candida*, i) using varying lysozyme concentrations and ii) 100µg/ml lysozyme and varying concentrations of amphotericin B ($\times n$ MIC values) on two day old *Candida* biofilms, respectively. Methods: The rotating disc model was used to develop *Candida* biofilms under standardized atmospheric and growth conditions (Mycopathologia 2005; 159: 353-360). Growth inhibition of planktonic and 48hr. *Candida* biofilms was monitored by viable colony counts (CFUs) and XTT assays (J Clin Microbiol 2003; 41: 2961-2967). Results: 1) In standardization study experiments no significant differences in biofilm cell viability ($p < 0.05$) was observed in biofilms that developed on 18 identical denture acrylic discs, 2) 100µg/ml lysozyme and, various combinations of lysozyme and amphotericin B suppressed planktonic cell growth during a 6 hr exposure period and, 3) growth inhibition (upto 5%) of 48hr biofilm cells was noted using a combination of 100 µg/ml lysozyme and a very high concentration of AmB ($\times 24$ MIC) during a 3 hr incubation period and 4) a lysozyme concentration of $> 50\mu\text{g/ml}$ suppressed biofilm development on denture acrylic. Conclusions: Innate salivary defences such as lysozyme and antifungal agents may act in tandem to suppress planktonic *Candida* growth but the biofilm phase of the yeast appear to be resistant to such innate or extrinsic antifungals. (Supported by the Research Grants Council and the Committee of Research and Conference grants [Grant No/ 10204061] University of Hong Kong, Hong Kong)

[Seq #72 - Candida](#)

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