0314 Utility of Calgary Biofilm Device (CBD) for Candida Biofilm Studies

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Candida species can adhere and develop biofilms on prosthetic and implanted devices leading to candidal infections. Objectives: As an *in-vitro* device to study multiple *Candida* biofilms, in parallel, is not available we utilized the CBD (Biofilms Technology Ltd., Calgary, Canada) to investigate biofilms of *C. albicans, C. dubliniensis, C. glabrata, C. krusei and C. tropicalis*. Methods: For the standardization study the CBD pegs were incubated with candidal suspension for 180 min, washed in PBS and, incubated at 37°C, in YNB/500mM glucose for 24 h. To study the growth kinetics, relative biofilm mass, and the effect of glucose, fructose, lactose, maltose and sucrose on candidal biofilms, 10 pegs each, of the device were used in parallel. XTT reduction assay (Sigma, MO, USA) was performed to quantify the biofilm mass. Results: Thick biofilms were visualised on the CBD for all *Candida* species after 24h. *C. albicans* biofilm mass on all the pegs was similar ($p=0.8760$), indicating the fit of this device for the purpose. Biofilm kinetics: an initial rapid increase in mean biofilm mass up to 6 h and then gradual growth up to 36 h. The mean biofilm mass of each species differed over 24 h ($p<0.0001$) and the highest and lowest mass noted in *C.krusei* and *C. tropicalis*, respectively. Significant variation in biofilm mass was observed in different sugar media ($p<0.0001$) in the following order: sucrose > maltose > glucose > fructose > lactose. Conclusion: The CBD is effective for the simultaneous study of various *Candida* biofilms and their growth determinants. (Supported by the Research Grants Council and the Committee of Research and Conference grants, University of Hong Kong, Hong Kong SAR, and the Outstanding Researcher Award of LPS).

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