Abstract

Survival and Proliferation of an Opportunistic Pathogen in Mixed Species Biofilms

By: Mahtab Ghadakpour

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The purpose of this study was to examine the interaction between an opportunistic pathogen and mixed community biofilms, in terms of integration, proliferation and subsequent release. *Pseudomonas aeruginosa* PAO1 was used as the test strain in conjuction with community biofilms obtained from sink drains. Confocal laser scanning microscopy (CLSM) analysis showed that PAO1 could successfully incorporate into the community. The relative abundance of PAO1 in the biofilms was dependant on the order of inoculation. Biofilm cell yield was studied using conventional plate counting, CLSM and flow cytometry, which revealed that PAO1 became a dominant community member. Cells were released from the biofilms in the form of single cells, duplets and aggregates of various sizes. Detached aggregates were often observed to contain PAO1 and community members. It was also determined that association with communities provided PAO1 with increased protection against EDTA but not against streptomycin, when applied at planktonic minimal inhibitory concentration.