

**Title: VIABILITY, BIOFILM FORMATION AND INTERACTION WITH HOST CELLS BETWEEN FUNGI AND BACTERIA PREVALENT IN CYSTIC FIBROSIS DISEASE**

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**Abstract:**

Cystic fibrosis is a genetic disease with high morbidity and mortality due to bacterial and/or fungal infections in the respiratory tract. Currently it is known that microorganisms cohabiting the same anatomical site can interfere with each other, particularly in processes such as adhesion to the host cell as well as on microbial growth and viability. Many studies showed that extracellular quorum-sensing signals (extracellular chemical signals that cue cell-density-dependent gene expression) to coordinate different mechanisms, as biofilm formation. Bacterial species such as *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Burkholderia cepacia*, and fungi *Pseudallescheria/Scedosporium* complex (*Pseudallescheria boydii*, *Scedosporium apiospermum* and *Scedosporium prolificans*) may dwell in the respiratory tract of a large number of patients with cystic fibrosis. Thus, it is interesting to study a possible interference with biofilm formation and interaction with host cells of fungal species by bacterial strains previously cited. The mechanisms of communication between microorganisms can provide us with information and possible important tools for better understanding of the course of different infections. Culture supernatants were obtained after incubation of *S. aureus*, *P. aeruginosa* and *B. cepacia* at 37°C in nutrient broth medium. Conidia of the fungus *P. boydii*, *S. apiospermum* and *S. prolificans* and free culture supernatants of cells are mixed in different proportions. Our preliminary results demonstrate that the molecules in the supernatants of bacterial growth are capable of affecting fungal viability, fungal biofilm formation and adhesion and internalization of these fungi by host cells. The possibility of discovering molecules secreted by certain microorganisms that can affect the growth of fungi, also presents itself as an important research tool, since the small and offer large number of side effects on antifungal drugs currently available and used in clinic.

**Key words:** cystic fibrosis, biofilm, interaction, host cells, fungi

**Promotion Agency:** FAPERJ, CNPq