TITLE: Interference of *Pseudomonas aeruginosa* in *Candida* biofilm formation.

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ABSTRACT:

Yeasts of the genus *Candida* are commensal organisms that can colonize various surfaces of the body without causing damage, but are among the main opportunistic fungi due to virulence factors and the host's immune response, which can cause superficial or invasive infections in different mucous membranes. Biofilm formation is an important virulence factor for *Candida* species because it confers significant tolerance to antifungal therapy and protects cells from host immune response. It is known that polymicrobial biofilms are a clinically relevant health problem, serving as an infectious reservoir for various microorganisms, including bacteria and fungi. The objective of this work was to evaluate the influence of the bacterium *Pseudomonas aeruginosa* on the formation of biofilms by *Candida albicans*, *Candida glabrata* and *Candida krusei*. In assays, standard samples of *Candida albicans* (ATCC 90028), *Candida Krusei (*ATCC 6258), *Candida glabrata* (ATCC 2001) and *Pseudomonas aeruginosa* (ATCC 27853) were used. Single species and polymicrobial biofilms were evaluated. The experiments were performed in triplicate. In single-species tests, each sample were incubated isolated in 96-well microplates containing cell suspension and culture medium in 1: 1 ratio and for polymicrobial ones, médium, bacterial suspension and yeast suspension were added in the same ratio. After initial adhesion (90 minutes, 37 ° C), samples were incubated at 37 ° for 48 hours for biofilm formation. Biofilms were then diluted, seeded in culture medium and quantified by counting isolated colonies (CFU/mL). There was a decrease in the biofilm formed by all *Candida* samples when associated with the bacterium, indicating that *P. aeruginosa* may inhibit the formation of mature biofilms by different *Candida* species. The interaction between yeast and bacteria in the formation of biofilms can be associated with the reduction of fungal viability which causes an impact on colonization and subsequent infections and consequently in the health of patient.

Keywords: Biofilms; *Candida*; *Pseudomonas aeruginosa.*

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