

Title: EVALUATION OF CELL SURFACE HYDROPHOBICITY AND BIOFILM FORMATION OF CANDIDA SPECIES IN DIFFERENT CULTURE MEDIA

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Cell surface adhesion is considered an essential step in the spread, infection and persistence of *Candida* yeasts in the host. The ability to adhere to different substrates depends on several factors, including the hydrophobicity. Once attached, these yeasts are capable of growth associated with biofilms which are communities defined structured as a network of adherent cells encapsulated within an extracellular matrix, moreover are more resistant to antifungal drugs and that may develop on the surfaces of various medical materials. In this context, this work aims to analyze the cell surface hydrophobicity and biofilm formation of *Candida* species in different culture media: Sabouraud Dextrose Broth (SDB), Artificial Saliva (AS), RPMI 1640 and N-acetylglucosamine-yeast nitrogen base proline (NPY). Were studied six *Candida* strains, three of them were *C. albicans* (Ca) and the others were *C. parapsilosis* (Cp). These yeasts two were ATCC strain (Ca10231 and Cp22019) and the others, clinical isolates (Ca34, Cp120, Cp38 and Ca05). Hydrophobicity was calculated as the percentage reduction in turbidity of the aqueous phase, due to the retention of the hydrophobic cells in hydrocarbon by the hydrocarbon-water biphasic MATH method (Microbial Adhesion to Hydrocarbon). Biofilm formation index was calculated as the optical density obtained by the growth of the yeasts in the culture media in microtiter plate wells of polystyrene and subsequently stained with 1% crystal violet. The results showed that hydrophobicity varied depends on the yeasts studied, two of which (Ca34 and Ca10231) shown significant variation among means. However, it was noted still a more hydrophobic character of the cells grown in RPMI 1640 and more hydrophilic in cells grown in Sabouraud dextrose broth. The specific biofilm formation was more intense in RPMI 1640 than in other media, which had been expected for its ability to induce the yeast-to-hyphal transition, which is considered one of the crucial factors involved in yeast adherence. The results of this study showed that RPMI 1640 was the foremost culture medium to promote *in vitro* biofilm formation, probably due to the fact that the grown cells were more hydrophobic, which may increase the adhesion thereof to the polystyrene plate, and to provide nutrients necessary for the complete cell growth of biofilm itself.

Keywords: Biofilm formation, hydrophobicity, *Candida*.

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