

INVESTIGATION OF DIFFERENTIALLY EXPRESSED PROTEINS OF CANDIDA TROPICALIS BIOFILM

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Candida tropicalis is an opportunistic human pathogen with an ability to cause superficial as well as systemic infections in immunocompromised patients. C. tropicalis biofilms can cause persistent infections which are difficult to treat due to acquired resistance. Citral has been used as antifungal agents against Candida species and biofilms. In the present study, we used one-dimensional polyacrylamide gel electrophoresis (1D-PAGE) and matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF/TOF-MS) to identify the changes in the protein expression of C. tropicalis in response to the sub-lethal concentration of citral. A total of six differential proteins involved in oxidative stress (Tsa1p, Psa2p), amino acid biosynthesis (Met6p, Gln1p), heme biosynthesis (Hem13p) and glucose metabolism (Eno1p) pathways were detected. Our results revealed citral-induced proteins of C. tropicalis biofilm. This study will further help in the interpretation of mode of action of citral and development of novel antifungal agents against these potential protein targets. The biofilm lifestyle, stress response and antifungal tolerance are directly related to the endurance of the fungus in a hostile milieu. From this study, it is concluded that the biofilm not only causes antifungal resistance but also helps in the survival of C. tropicalis in distributed habitats. Detailed experiments are required to explore more proteins which are expressed during the exposure of citral to devise the probable targets.

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