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THE USE OF THE MATRIX-ASSISTED LASER DESORPTION/IONIZATION TIME-OF-FLIGHT MASS SPECTROMETRY (MALDI-TOF MS) TECHNIQUE FOR THE STUDY OF PROTEOMICS IN FUNGAL BIOFILMS

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In the last few decades, several epidemiological studies have confirmed the increase in the frequency of invasive fungal infections (IFIs) worldwide, which are currently considered as important public health problem. Clinical and experimental evidence has shown that IFIs can be caused by organized communities in the form of biofilms. These structures are characterized by intense metabolic cooperation and great resistance to physical and chemical agents and are defined as dynamic communities of microorganisms strongly adhered to a biotic/abiotic substrate and protected by a matrix rich in exopolymers, especially proteins. The extracellular matrix of the biofilm plays a crucial role in the protection of fungal cells against

the immune response of the host besides being considered one of the main mechanisms of resistance to antifungals. Understanding the mechanisms involved in the synthesis of the biofilm matrix is the key point for the development of antifungal strategies. There are several techniques for identifying the components of the biofilm matrix, one of them is the matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS), which allows analyzing the biofilm matrix constituents. Thus, this communication aims to emphasize the use of the MALDI-TOF MS technique as a tool for the study of proteomics in fungal biofilms.

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