

Microbial Diagnostic Applications of Mass Spectrometry



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ABSTRACT BOOK

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POLYPHASIC IDENTIFICATION OF *Aspergillus* ISOLATES BELONGING TO SECTION *Nigri* WITH CLINICAL RELEVANCE

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Aspergillosis is the name of a group of diseases in humans and animals caused by opportunist moulds of the genus *Aspergillus*. The vast majority of infections are caused by *A. fumigatus*, followed by other species such as *A. flavus*, *A. terreus* and *A. niger*. Among the pulmonary infection, aspergillosis is gaining prominent position not only in immunocompromised patients, but also in immunosuppressed. The absence of a reliable fungal identification system affects the control of systemic fungal infections. Matrix-Assisted Laser Desorption/Ionisation Time-Of-Flight Mass Spectrometry (MALDI-TOF MS) is a spectral technique that analysis the chemical molecular mass of the microbial cellular composition providing rapid and discriminatory fingerprints for identification. This technique starts to have application in clinical laboratories. This work aimed to get a reliable identification of *Aspergillus* isolates from section *Nigri* deposited at University of Recife Mycology (URM) culture collection. These materials were used as clinical reference strains to attend the great variability (morphology, biochemical, genomics and proteomics patterns) of the Brazilian fungal population. A polyphasic approach based on morphological, biochemical and spectral analysis by MALDI-TOF MS was applied for the characterisation and identification of 74 *Aspergillus* isolates from section *Nigri* deposited at URM. In addition, 12 *Aspergillus* type strains belonging to section *Nigri* deposited at Micoteca da Universidade do Minho (MUM) culture collection were used as reference for MALDI-TOF MS studies. The data obtained from the polyphasic approach indicates that MALDI-TOF MS results corroborate with those data obtained using classical taxonomy, biochemical and molecular biology analyses. Finally, MALDI-TOF MS technique is rapid, reliable and inexpensive in terms of labour and consumables when compared with other biological techniques. At present, it adds an additional step for polyphasic identification which is essential for the clinical diagnostic.

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