

A POLYPHASIC APPROACH TO IDENTIFY CLINICAL ISOLATES OF *ASPERGILLUS* SECTION *NIGRI*

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Aspergillosis is the name of a group of diseases of humans and animals caused by opportunist fungi of the genus *Aspergillus*. Of the many species of *Aspergillus*, only few affect humans, the most common being *A. fumigatus* followed by *A. niger*. The absence of a reliable fungal identification system is detrimental to the control of systemic fungal infections where specific treatments may be required. Matrix-Assisted Laser Desorption/Ionisation Time-Of-Flight Mass Spectrometry (MALDI-TOF MS) determines the chemical molecular mass of the microbial cellular composition providing rapid and discriminatory fingerprints for identification and the technique is beginning to be applied in clinical laboratories. This work intended to obtain a reliable identification of *Aspergillus* isolates from section *Nigri* deposited at the University of Recife Mycology (URM) culture collection. These materials were used as clinical reference strains to assess the high morphological, biochemical, genomic and proteomic variability of the Brazilian *Aspergillus* population. A polyphasic approach based on morphological, biochemical and MALDI-TOF MS analyses 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 strains for MALDI-TOF MS analysis. The polyphasic approach indicated that MALDI-TOF MS results corroborate those obtained using classical taxonomy, biochemistry and molecular biology analyses. MALDI-TOF MS is rapid, reliable and inexpensive in terms of labour and consumables when compared with other biological techniques. Finally, the analyses of MALDI-TOF ICMS can be a more rapid and safer alternative for clinical diagnoses.

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