Microbial Diagnostic Applications of Mass Spectrometry

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ABSTRACT BOOK

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IMPLEMENTING A METHODOLOGY FOR IDENTIFICATION OF *Sporothrix* COMPLEX ISOLATES BY MALDI-TOF ICMS

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Sporotrichosis is a subcutaneous mycosis worldwide distributed. However, Latin America, South Africa, India and Japan are areas of high endemicity. Recently, the combination of phenotypic and genotypic features suggested that *Sporothrix schenckii* should not be considered as a single taxon causing sporotrichosis once the 3 new species *S. brasiliensis*, *S. globosa* and *S. mexicana* have recently been described for the Science. *Sporothrix mexicana* was related with environmental samples and apparently restricted to Mexico. However, our Research Group has recently described the first case of human sporotrichosis caused by *S. mexicana* in Portugal [1]. A key identification for the *Sporothrix* complex species has now been proposed. It includes macro- and micro-morphology and auxonogram analyses using raffinose and sucrose as carbon sources. Nevertheless, identification based on this methodology could be inconclusive due to phenotypic variability within these species. In addition, conclusive species identification is reached only after partial calmodulin gene (CAL) sequence analysis. In order to show the potentiality of Matrix-Assisted Laser Desorption/Ionisation Time-Of-Flight Intact Cell Mass Spectrometry (MALDI-TOF ICMS) technique on the identification of *Sporothrix* complex species the aim of this study was to optimise the MALDI-TOF ICMS methodology for the 4 available *Sporothrix* isolates related with human sporotrichosis. For that proposal the type strain *S. brasiliensis* IPEC16490 (CBS 120339) and the reference strains *S. globosa* IPEC27135, *S. schenckii* IPEC27722 and *S. mexicana* MUM11.02 were used. Data obtained from the MALDI-TOF ICMS analyses show that the best spectral profiles and statistic clustering were obtained when the microbial cell were analysed on the yeast phase.

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Reference:
[1] Dias, N., Oliveira, M.M.E., Portela, M., Santos, C., Zancopé-Oliveira, R.M., Lima, N. (2011) Human sporotrichosis caused by *Sporothrix mexicana* in a Portuguese patient. Emerging Infectious Diseases, **17**:1975-1976.