

TITLE: IDENTIFICATION OF FILAMENTOUS FUNGI IN CLINICAL SAMPLES ISOLATES USING MASS SPECTROMETRY METHODOLOGY (MALDI-TOF) IN A TERTIARY HOSPITAL OF THE CITY OF SALVADOR - BAHIA.

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ABSTRACT:

Fungal infections caused by filamentous fungi have become increasingly common in both outpatient and inpatients and are sometimes characterized as opportunistic. The identification of these fungi performed in the Microbiology laboratory is based on the observation of the macroscopic and microscopic characteristics of the colony in the culture, which requires a trained and specialized professional. In this way, new technologies have been tested in order to reduce the time for accurate identification of species, which is not always possible by morphological evaluation. The aim of this study was to identify filamentous fungi by mass spectrometry (MALDI-TOF) methodology and compare it with the identification based on macro and microscopic characteristics. A total of 118 isolates from different clinical samples from June 2018 to May 2019 were evaluated at a tertiary hospital in the city of Salvador, Bahia. Manual identification was performed through observation of colony characteristics, aspects of hyphae and reproduction structures (macroconidia and microconidia). Identification by MALDI-TOF (VITEK® MS, *bioMérieux*) was performed directly from the agar, without any previous colony treatment. ATCC® strains were used to validate the methodologies. The results of both methodologies were compared for concordance evaluation. From the total analyzed, total concordance was found between the two methodologies in 43.2% of the isolates (51/118), 34.7% were dermatophytes (41/118) and 8.5% from other genera (10/118). In 35.6% of isolates (42/118), VITEK-MS identified gender and species, while manual method identified only gender. It was not possible to identify 17.8% of the isolates (21/118) by manual methodology, being identified only by VITEK-MS and 3.4% of the fungi (4/118) presented discordant results between the two methodologies. Given the importance of an assertive antifungal therapy due to the variation of susceptibility between species, the proposed methodology allows a better therapeutic orientation. In comparison to the manual identification, the direct identification by VITEK-MS proved to be a simple and low-cost methodology, besides having an advantage in relation time/result. Therefore, it is considered a promising tool for identification of filamentous fungi and detection of species not identified by manual methodology.

Keywords: Filamentous fungi, MALDI-TOF, Identification, Mycoses.