

TITLE: COMPARISON BETWEEN METHODOLOGIES FOR IDENTIFICATION OF YEAST FUNGI USING MALDI-TOF MASS SPECTROMETRY

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ABSTRACT:

Identification of the yeast species has clinical and epidemiological value. Different methods can be used, such as chromogenic media; Microculture in corn flour agar; Conventional biochemical methods (zymogram and auxonogram) and automated (panels or commercially available cards). Proteomic studies employing the MALDI-TOF technique are a great advance for the diagnosis, due to the speed of execution and the accuracy of the results. The present work compared the performance of different methodologies, proposing a standardization to optimize the routine identification of yeasts isolated from clinical samples. They were submitted to identification using a chromogenic medium, microculture in fuba agar, identification in the VITEK 2 Compact system and identification by MALDI TOF, 79 yeast samples (4 ATCC samples and 75 clinical isolates). Of the 79 samples studied, 01 of them did not have the species identified by any of the methodologies. Colonial morphology and microscopy were compatible with *Candida* genus. MALDI TOF showed better performance, with 78 strains identified (98.7%), compared to Vitek 2 Compact (92.4%) and microculture on fuba agar (70.9%). The chromogenic medium correctly identified 100% of the *C. albicans* and *C. tropicalis* samples. The identification of the species of two samples was discrepant between VITEK 2 Compact and MALDI TOF, being the species identified by the MALDI TOF confirmed by the microculture on fuba agar. Three samples were not identified by VITEK 2 Compact, two of them being identified by MALDI TOF. Mass spectrometry (MALDI-TOF) presented the best performance and has proven to be a revolutionary methodology in clinical microbiology laboratories. In relation to the identification of *C. albicans* and *C. tropicalis*, the chromogenic medium presented excellent performance, being able to be used to optimize the process, taking into account that it is able to accurately identify the species most prevalent in human infections.

Keywords: MALDI TOF, VITEK 2 COMPACT, YEAST, PERFORMANCE

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