Development of a protocol for the rapid identification of *Aspergillus nidulans* strains by MALDI-TOF mass spectrometry.

Damasceno Q.G.¹, Andrade A.C.², Magalhães B.S.¹

¹Programa de Pós-graduação em Ciências Genômicas e Biotecnologia, Universidade Católica de Brasília, DF, Brasil, ²Embrapa Recursos Genéticos e Biotecnologia, Brasília, DF, Brasil

*Aspergillus nidulans* is a filamentous fungus of great importance in the study of the molecular mechanisms responsible for antifungal drug resistance. The ATP-binding cassette (ABC) transporters are known to confer pleiotropic drug resistance in *A. nidulans*. In this sense, mutant strains of the ABC transporter system were generated with different antifungal drug susceptibilities. The present study aims to develop a MALDI-TOF/MS-based methodology to distinguish *A. Nidulans* deletion mutants. Using this methodology, it is possible to create protein profiles of microorganisms that enable the differentiation of these strains. The isogenic parental culture and 6 mutants of *A. nidulans* were grown in minimal medium. The protein extraction was optimized with formic acid (FA) 70% and 100% and trifluoracetic acid (TFA) 80% in the presence and/or absence of zirconium beads (0.1 mm). Mass spectra were acquired in the range 2000 to 20000 m/z with a Microflex instrument. The analysis of the spectra was performed with the program Biotyper. The methods of extraction with FA 100% and TFA 80% with the zirconium beads were shown to be more effective for the extraction of proteins, as demonstrated by the increase in the number and intensity of ions detected in the mass spectra. Furthermore, this is the first work to demonstrate the ability of MALDI-TOF mass spectrometry in the differentiation of mutagenized fungal strains.

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