

A QUICK IDENTIFICATION OF *ASPERGILLUS NIGER* STRAINS USING MALDI-TOF MS

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Food safety has become an important food quality attribute within the last decade; moreover, consumers have a better perception about the food contamination with mycotoxins. These secondary metabolites produced by filamentous fungi can cause acute toxic, mutagenic, teratogenic and carcinogenic effects on animals and humans. Mycotoxins can appear in the food chain either by being eaten directly by humans, or by being used as livestock feed. They are greatly resistant to decomposition or being broken down in digestion, so they remain in the food chain in meat and dairy products and even temperature treatments, such as cooking and freezing, do not destroy mycotoxins.

Aspergillus niger aggregate strains are commonly found on soil and are pathogenic to several crops. This group is formed by a series of morphologically indistinguishable species. *Aspergillus niger* is one of the species in the aggregate and, apart from its economic value (it is used for industrial purposes), it is also an important mycotoxin producer, such as ochratoxin A (OTA) and more recently fumonisin B2 (FB2). Both mycotoxins were evaluated by the International Agency for Research on Cancer (IARC) as “Group 2B carcinogens”, i.e., probably carcinogenic to humans. The continued exposure to these mycotoxins can cause chronic toxicity which is characterized by low-dose exposure over a long time period, resulting in cancers and other generally irreversible effects. Hence, a proper diagnosis is important, which will allow correct treatment. Fast identification of fungi is, therefore, a must needed necessity. Matrix-assisted laser desorption ionization-time (MALDI-TOF MS) allows rapid and reliable identification of microorganisms, being sensitive and accurate for the discrimination between species and strains of *Aspergillus*.

This work consisted in the identification of *Aspergillus niger* strains through MALDI-TOF, with known mycotoxigenic profile. For that about 250 strains belonging to *Aspergillus niger* aggregate were analysed and compared with type strains deposited in Micoteca da Universidade do Minho (MUM). Results showed that all strains were *Aspergillus niger*.

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