

ASPERGILLUS SECTION NIGRI ON BULBS OF ONIONS AND FUMONISIN B2 PRODUCTION

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Various fungal diseases can spoil onions in the field and post-harvest and may persist during transportation, storage and marketing. In Brazil, annual losses can reach 50%. One of the diseases is "black mold", related to black *Aspergillus*, which is commonly found in foods. Some species of *Aspergillus* section *Nigri* are capable of producing mycotoxins, such as fumonisin B2. The fumonisin may cause pulmonary edema and hydrothorax in pigs, leucoencefalomalacia in horses and esophageal cancer in humans. In onions, the presence of black *Aspergillus* has been reported as being responsible for the disease "black rot", but there are no reports on the identification of these species. The aim of this work was to isolate and identify *Aspergillus* section *Nigri* species producing fumonisin B2 on bulbs of onions. Forty samples from the Brazilian states of São Paulo, Santa Catarina and Paraná, as well as from Argentina, Chile, Spain and the Netherlands were analyzed. For the isolation of fungi, plating of 50 pieces of onion were carried out on agar Dichloran Glycerol 18% (DG18) after disinfection with sodium hypochlorite. The species was isolated on Czapek Yeast Extract for morphological identification. The toxigenic potential of the species was tested on agar Czapek yeast extract 20% sucrose (CY20S) then removing the plugs and extracting the toxin with methanol. The detection of fumonisin B2 for both the evaluation of toxigenic potential of the species and also its presence in onion samples was performed after derivatization of the sample with o-phthalaldehyde (OPA) and performed by liquid chromatography of high efficiency with fluorescence detection. Fumonisin B2 in onion was extracted with methanol: acetonitrile: water and subjected to the cleaning step in an immunoaffinity column. The average infection by *Aspergillus* section *Nigri* was 64%, varying from 0% to 100%, with a total of 1306 isolates. Two hundred and sixty isolates tested for fumonisin B2 production with 52% (136) of the strains being producers. The onions were not contaminated with fumonisin B2. The onions showed high fungal contamination by *Aspergillus* section *Nigri* and the isolates were able to produce fumonisin B2, although the presence of this contaminant in onion samples was not detected. The morphological evaluation and molecular testing of the strains are ongoing in order to confirm the *Aspergillus* section *Nigri* identity.

Keywords: *Aspergillus* section *Nigri*, Bulbs, Fumonisin B2

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