Mycobiota in the processing areas of two different meat products

Mould growth is not accepted on most types of North European meat products and is considered as both an economic and aesthetic problem for the producers. In order to determine the mycobiota in processing areas of fermented sausage and liver pâté, filamentous fungi were isolated from air, equipment and raw materials in the processing areas of two fermented sausage processing plants and two liver pâté processing plants. A total of 336 samples were examined. The diversity of filamentous fungi in the processing areas was high; at least 17 different genera were identified. The main isolated genera were identified as Aspergillus, Botrytis, Cladosporium, Epicoccum, Eurotium, Penicillium, Phaeoacremonium and Phoma. Of these, Penicillium and Eurotium were the most important for contamination of fermented sausage, whereas Penicillium and Cladosporium were most important for liver pâté. Cladosporium was isolated more frequently in the processing plants examined in the autumn than in the spring. The seasonal variation indicates that outdoor air is an important source for this contamination. Eurotium was isolated frequently at one of the fermented sausage plants. Penicillium was isolated frequently at all four processing plants and was in addition found on moulded meat products. Sixteen Penicillium species were identified. The most frequently isolated were P. brevicompactum and the closely related P. bialowiezense, P. solitum, P. palitans, P. fagi and a new, not described species named P. "milanense" (ined.; Frisvad, 2007 personal com.). Isolation of a new species illustrates that the mycobiota in the processing areas of North European meat products has not yet been intensively investigated. Several mycotoxin producing species were isolated; the most prevalent were P. brevicompactum/P. bialowiezense and P. palitans. A screening for secondary metabolites showed that isolates of these species consistently produced mycophenolic acid and cyclopiazonic acid, respectively. Presence of these toxigenic species in the processing areas implies a risk of mycotoxin contamination of the products if they are or has been subjected to mould growth. The ochratoxin A producing species P. nordicum and P. verrucosum were not isolated during the study. It was concluded that Penicillium species are the most important contaminants of the meat products because of their high prevalence in the production environment, their presence on meat products and their toxigenic properties.

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