materials (e.g. plastic caps and their boxes, PET bottles, slip sheets, layer boards, palletizers, etc.) and processing environments, too.

This work has been carried out to evaluate the thermal resistance of two fungal species, *Humicola fuscoatra* and *Talaromyces wortmannii,* isolated at the SSICA from some of the above-mentioned materials at concentrations up to 85 CFU/cm^2. Since no literature data about their heat-resistance have been released so far and a transfer from packaging materials to finished products could be supposed, it could be of great importance to collect data about their inactivation. *H. fuscoatra* proved to possess high decimal reduction values (D_{80}=76'; D_{84}=30'; D_{88}=16'; D_{92}=9' in a glucose solution; D_{80}=42'; D_{84}=20'; D_{88}=10'; D_{92}=6'in blueberry and grape juice), its parameters being incompatible with those industrially applied during the sanitization of the packaging by heat of a non-aseptic filling process. On the contrary, *T. wortmannii* proved markedly less heat-resistant (D_{71}=8.2'; D_{75}=1.4'; D_{78}=0.3' in a glucose solution; D_{71}=7.0'; D_{75}=1.4'; D_{88}=0.3' in blueberry and grape juice), its inactivation being therefore possible within a traditional industrial hot-filling process. These data have stressed the importance of a continuous monitoring of HRM in packaging materials, since they proved to be a potential source of contamination and a cause of background spoilages for acid products.

31. Inhibition of the aflatoxin biosynthesis of *A. flavus* by arginine

Alexandra Schamann[1*], Markus Schmidt-Heydt[1], and Rolf Geisen[1]

[1] *Max Rubner – Institut, Department of Safety and Quality of Fruit and Vegetables, Karlsruhe, Germany*

[*]Presenter: Alexandra.Schamann@mri.bund.de

The contamination of maize with mycotoxins, like aflatoxins produced by *Aspergillus flavus*, poses a serious health risk in sub-Saharan countries and will most likely be an increasing problem in European countries in the future due to climate change. One goal of the ongoing collaborative project AflaZ is the reduction of aflatoxin contamination in sub-Saharan countries to improve the food safety among others by finding natural inhibitors of the growth of *A. flavus* and of its mycotoxin production. A variety of amino acids can influence the biosynthesis of mycotoxins of different fungi. According to literature data it has been shown that the amino acid arginine has a quite broad spectrum of inhibitory activity against various mycotoxin biosynthetic fungi. The objective of this study was to investigate the effect of arginine on the aflatoxin biosynthesis of *A. flavus* grown on maize medium at 25°C for 7 days. The fungal growth was reduced starting with 20 mM arginine added to the medium, whereas a complete inhibition was achieved by adding 80 mM arginine. Additionally, a reduction of the aflatoxin production was measured. These results were independent of the pH value of the medium. Interestingly, it was shown that the production of cyclopiazonic acid as a further mycotoxin increased by adding arginine and that the regulation of its production depends on the pH value. The exact mechanism explaining the effect of arginine on the mycotoxin production of *A. flavus* still has to be clarified. However, these results question if aflatoxin and cyclopiazonic acid are regulated by the same molecular mechanism as it is proposed in the literature.

32. Analysis of genetic diversity in the *Aspergillus niger* clade

Josué J. Silva[1], Larissa Souza Ferranti[1], Fernanda P. Massi[1], Sophie Lorber[2], Olivier Puel[2], Marta H. Taniwaki[3], Beatriz T. Iamanaka[3*], Maria Helena P. Fungaro[1*]

[1] *State University of Londrina – Londrina, PR, Brazil,* [2]*Toxalim (Research Centre in Food Toxicology), Université de Toulouse, INRA, ENVT, INP-Purpan, Toulouse, France,* [3] *Food Technology Institute – ITAL, Campinas, SP, Brazil.*

[*]Presenter: beatriz@ital.sp.gov.br

The aim of this study was to investigate the genetic diversity of the *Aspergillus niger* clade. Firstly, we investigated the molecular diversity using calmodulin gene (*CaM*) sequences of approximately 700 accessions belonging to this clade. Based on *CaM* sequences, eight haplotypes were clearly identified as *A. niger* (*n*= 247), and 17 were identified as *A. welwitschiae* (*n*= 403). However, *CaM* sequences did not provide definitive species identities for six haplotypes, representing 45 strains. To elucidate the taxonomic position of these haplotypes, two other *loci*, part of the beta-tubulin gene and part of the

ICFM

International Commission on Food Mycology

Conference 2019

Food- and Airborne Fungi – Challenges for Food Safety and Supply

Programme and Abstracts

Freising - Germany, 3-5 June, 2019