A. tamarii, *A. pseudotamarii* and *A. parasiticus*, totalizing 989 isolates. The frequency of occurrence of *A. flavus* was 42% in the samples with disinfection and 64.5% in the samples without disinfection, and 55% in the powder samples. Among 373 *A. flavus* isolated 38.3% were aflatoxin producers. Aflatoxins were found in 51.6% of the black pepper samples with levels varying from 0.09 to 11 µg/kg, with an average of 0.63 µg/kg. Concerning *Aspergillus* sections *Nigri* and *Circumdati* in the grain samples, the average infection was 15.4% and 1%, respectively. An increase of contamination by these species was observed in the samples without surface disinfection of 40.7% and 6%, respectively. The average contamination of the powder samples was 3.73×10^3 CFU/g for *Aspergillus* section *Nigri* and 7.65×10^2 CFU/g for *Aspergillus* section *Circumdati*. A total of 1,064 *Aspergillus* section *Nigri* and 132 *Aspergillus* section *Circumdati* were isolated according to their morphological and physiological characteristics, and 3.85% and 3.79% were OTA producers, respectively. The main group of OTA producers was characterized as belonging to *A. niger* aggregate (76.6%) followed by *Aspergillus* section *Circumdati* (38.3%). A total of 54 *Aspergillus* section *Nigri* representatives of total isolates were submitted to molecular identification and the following species were found: *A. niger* (19), *A. welwitschiae* (15), *A. luchuensis* (14), *A. carbonarius* (2), *A. brunneoviolaceus* (2), *A. japonicus* (1) and *A. neoniger* (1). Regarding to *Aspergillus* section *Circumdati*, 14 strains were sequenced and identified as *A. pallidofulvus* (8), *A. westerdijkiae* (3) and *A. ochraceus* (3). Ochratoxin A was found in 55% of the samples but in general at low levels, ranging from 0.05 to 13.15µg/kg (average of 1 µg/kg). Although there was a high incidence of ochratoxigenic fungi, the levels of ochratoxin A found in the black pepper samples were below the established limits of Brazil and the European Union.

26. Development of new avoidance strategies for aflatoxin contamination in maize grains in the framework of AflaZ, a new project to control aflatoxins in food

Eva-Maria Priesterjahn*, Rolf Geisen, Markus Schmidt-Heydt

Max Rubner-Institut, Karlsruhe, Germany

*Presenter: eva-maria.priesterjahn@mri.bund.de

Food and feed contaminated by filamentous fungi have become an extensive problem. In addition to allergies caused by mold, the production of mycotoxins is a serious health risk. Some *Aspergillus* strains of the species *A. flavus* and *A. parasiticus* are able to produce aflatoxins which are toxic and carcinogenic to humans and animals. A major problem is the contamination of cereals by *Aspergillus* in subtropical countries, as the climate benefits mold growth and the technical possibilities for the reduction of mycotoxin contaminations are still limited. However, the environmental conditions that lead to a high production of aflatoxins should be comprehensively analysed with respect to influences associated with climate change. The international research cooperation project AflaZ (Z = zero aflatoxin) between German and African Research institutions, is therefore intended to significantly contribute to the elucidation of aflatoxin formation and the development of suitable avoidance strategies. Since the production of aflatoxins occurs mainly after harvesting, suitable storage conditions must be analysed. In order to develop sustainable and cost-effective avoidance strategies, toxigenic strains of *Aspergillus* are cultured under variable physiological conditions. First results show that the two aflatoxin producing species, *A. flavus* and *A. parasiticus,* show a completely different response to physico-chemical influence factors such as light of different wavelength, temperature and substrate composition.

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