

**Proceedings of the 4th International Symposium
on *Fusarium* Head Blight**



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Session 4: Epidemics and disease control of *Fusarium*



OCCURRENCE OF *FUSARIUM* SPECIES AND THEIR MYCOTOXINS IN MAIZE KERNEL IN HUNGARY

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Fusarium species are among the most important mycotoxin producing pathogens of maize worldwide. These species cause ear rot of maize, and contaminate maize kernel with various mycotoxins including trichothecenes, zearalenone and fumonisins. Regarding the occurrence of *Fusarium* species and their mycotoxins, no data have been published since 1977 in Hungary. We examined the occurrence of *Fusarium* species and their mycotoxins in 6-6 maize hybrids collected from two maize fields in 2010-2011. The surface sterilized maize seeds were placed on selective media, and the colonies were purified using single conidial isolation. Identification of the isolates was carried out using both morphological and molecular methods. The species distribution of *Fusaria* was similar to that observed 35 years ago: in 2010, when the weather was rainy, *F. graminearum* and *F. subglutinans* dominated, while in 2011 with hot and dry summer *F. verticillioides* was the predominant species identified. *F. culmorum* could not be detected in any of the samples, in contrast with the results of the 1977 survey. *F. graminearum* favors higher temperatures than *F. culmorum* and the observed shift might be an indication of climate change. However, *Fusarium proliferatum* was detected in both years, in contrast with the 1977 study. Fumonisin and DON content of the maize samples was also analyzed using HPLC-MS. All samples were contaminated by these toxins under the EU limit. Similarly to the observations made in 1977, differences could not be observed in the species distribution of *Fusaria* in different locations. Regarding the species distribution of *F. graminearum sensu lato* isolated from Hungarian maize, all isolates (n=38) proved to belong to *F. graminearum sensu stricto* based on sequence analysis of the Tri101 gene of the isolates. *Fusarium boothii* or *F. meridionale* could not be identified, in contrast with studies carried out in other countries including South Africa and Argentina.

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Key word: Maize; Fumonisins; Deoxynivalenol (DON); Species distribution

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