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## A European Database of *Fusarium graminearum* and *F-culmorum* Trichothecene Genotypes

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TI A European Database of *Fusarium graminearum* and *F. culmorum* Trichothecene Genotypes

SO FRONTIERS IN MICROBIOLOGY

LA English

DT Article

DE acetyldeoxynivalenol; chemotype; database; *Fusarium*; genotype; mycotoxin; nivalenol; trichothecene

ID SMALL-GRAIN CEREALS; HEAD BLIGHT PATHOGEN; ALPHA-GENE SEQUENCES; SPECIES COMPLEX; MICRODOCHIUM-NIVALE; FUNGAL PATHOGENS; SOFT WHEAT; PCR ASSAY; CHEMOTYPES; MYCOTOXIN

AB *Fusarium* species, particularly *Fusarium graminearum* and *F. culmorum*, are the main cause of trichothecene type B contamination in cereals. Data on the distribution of *Fusarium* trichothecene genotypes in cereals in Europe are scattered in time and space. Furthermore, a common core set of related variables (sampling method, host cultivar, previous crop, etc.) that would allow more effective analysis of factors influencing the spatial and temporal population distribution, is lacking. Consequently, based on the available data, it is difficult to identify factors influencing chemotype distribution and spread at the European level. Here we describe the results of a collaborative integrated work which aims (1) to characterize the trichothecene genotypes of strains from three *Fusarium* species, collected over the period 2000-2013 and (2) to enhance the standardization of epidemiological data collection. Information on host plant, country of origin, sampling location, year of sampling and previous crop of 1147 *F. graminearum*, 479 *F. culmorum*, and 3 *F. cortaderiae* strains obtained from 17 European countries was compiled and a map of trichothecene type B genotype distribution was plotted for each species. All information on the strains was collected in a freely accessible and updatable database ([www.catalogueeu.luxmcc.lu](http://www.catalogueeu.luxmcc.lu)), which will serve as a starting point for epidemiological analysis of potential spatial and temporal trichothecene genotype shifts in Europe. The analysis of the currently available European dataset showed that in *F. graminearum*, the predominant genotype was 15-acetyldeoxynivalenol (15-ADON) (82.9%), followed by 3-acetyldeoxynivalenol (3-ADON) (13.6%), and nivalenol (NIV) (3.5%). In *F. culmorum*, the prevalent genotype was 3-ADON (59.9%), while the NIV genotype accounted for the remaining 40.1%. Both, geographical and temporal patterns of trichothecene genotypes distribution were identified.

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