

PATHOGENICITY OF *FUSARIUM* SPP. AND *ASPERGILLUS FLAVUS* ON MAIZE EAR

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Sensitivity of seven maize hybrids to ear rot, caused by *Fusarium graminearum*, *F. culmorum*, *F. verticillioides* and *Aspergillus flavus*, was evaluated during 2010 and 2011 in field trials with artificial inoculations using colonized toothpick method. Significant differences in expression of symptoms were observed. The lowest susceptibility to *F. graminearum* and *F. culmorum* had hybrids: Sz349, Sarolta and Kenez and to *F. verticillioides* and *A. flavus* Kenez, Sz451 and Sarolta.

MATERIAL AND METHODS

Plant material

Seven hybrids that were used in this research were provided by Cereal Research Nonprofit Ltd., Szeged, Hungary. Trial was set up in Kupusina (Apatin County, Serbia) during 2010 and 2011.

Fungal material

Fungal isolates for artificial inoculations were obtained from Cereal Research Nonprofit Ltd. 12377 = *F. graminearum*; 12375 = *F. culmorum*; 18 = *F. verticillioides*; 172 = *A. flavus*.

Artificial inoculation

For artificial inoculations toothpick method was used (Reid et al., 1996). Inoculation was performed 10-12 days after 50% of plants reached silking phase using awl to make a hole in the middle part of the central ear and subsequently place a toothpick with inoculum.

Visual evaluation of disease intensity

Visual rating was performed according to Reid et al. (1996), which ranges from 1 (complete absence of symptoms) to 7 (76-100% infected kernels).

RESULTS

Two factorial ANOVA showed that both factors (year and hybrid) affected ear rot intensity caused by *Fusarium* species and *A. flavus* (Figure 1-4). Average disease intensity during both years and all tested hybrids showed that *F. culmorum* (2.55) and *F. graminearum* (2.52) had the highest pathogenicity while *F. verticillioides* (1.90) and *A. flavus* (1.81) expressed lower pathogenicity. *Fusarium* species were more pathogenic to tested hybrids during 2010, while in 2011 the most pathogenic was *Aspergillus flavus*. Given the reaction of tested hybrids, higher resistance to *F. graminearum* and *F. culmorum* exhibited hybrids Sz349, Sarolta and Kenez, to *F. verticillioides* Sz451, Sarolta and Kenez, and to *A. flavus* Kenez, Sz451 and Sarolta (hybrids in ascending order according to disease intensity).

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Figure 1. Intensity of maize ear rot caused by *F. graminearum* during 2010 and 2011.

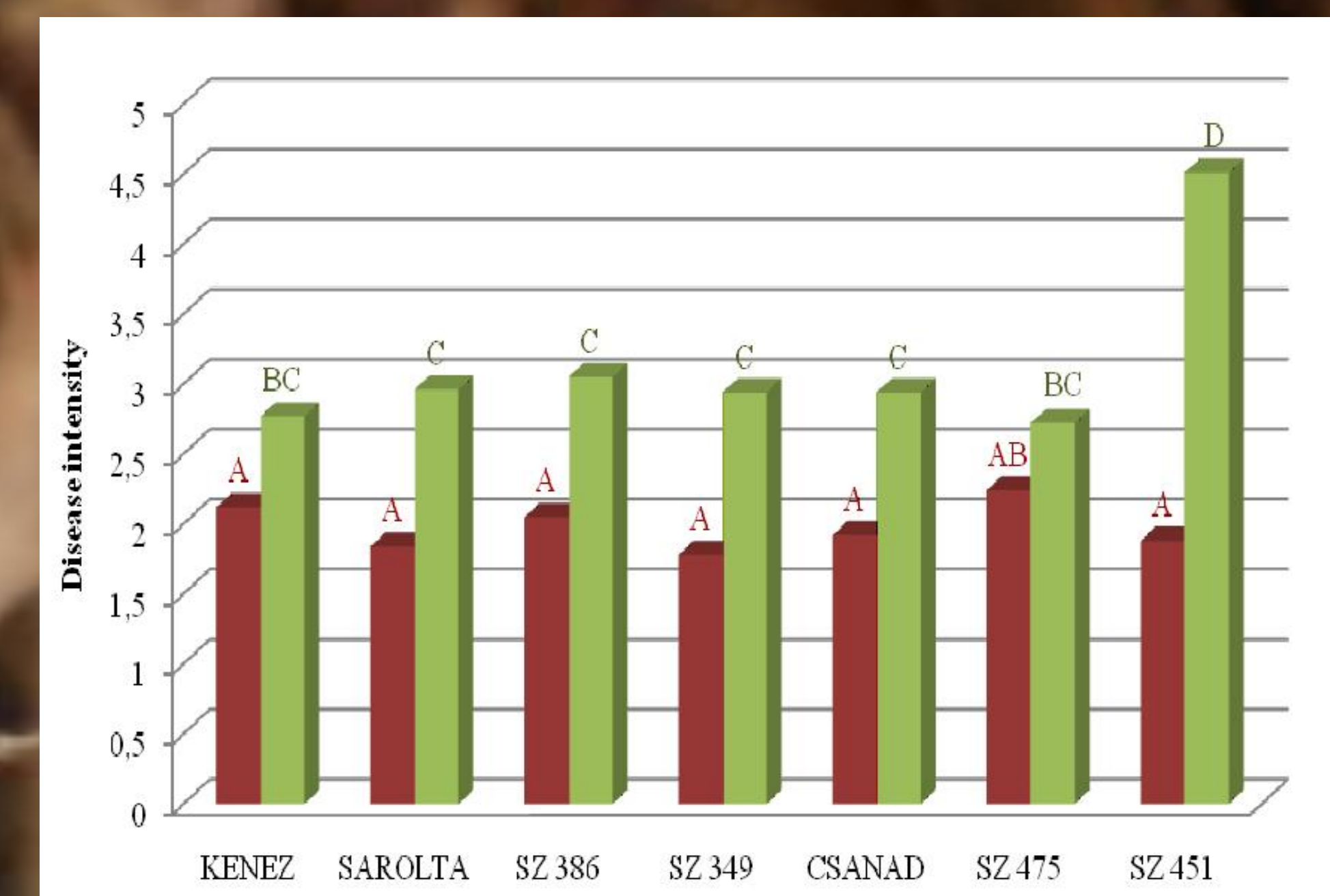


Figure 2. Intensity of maize ear rot caused by *F. culmorum* during 2010 and 2011.

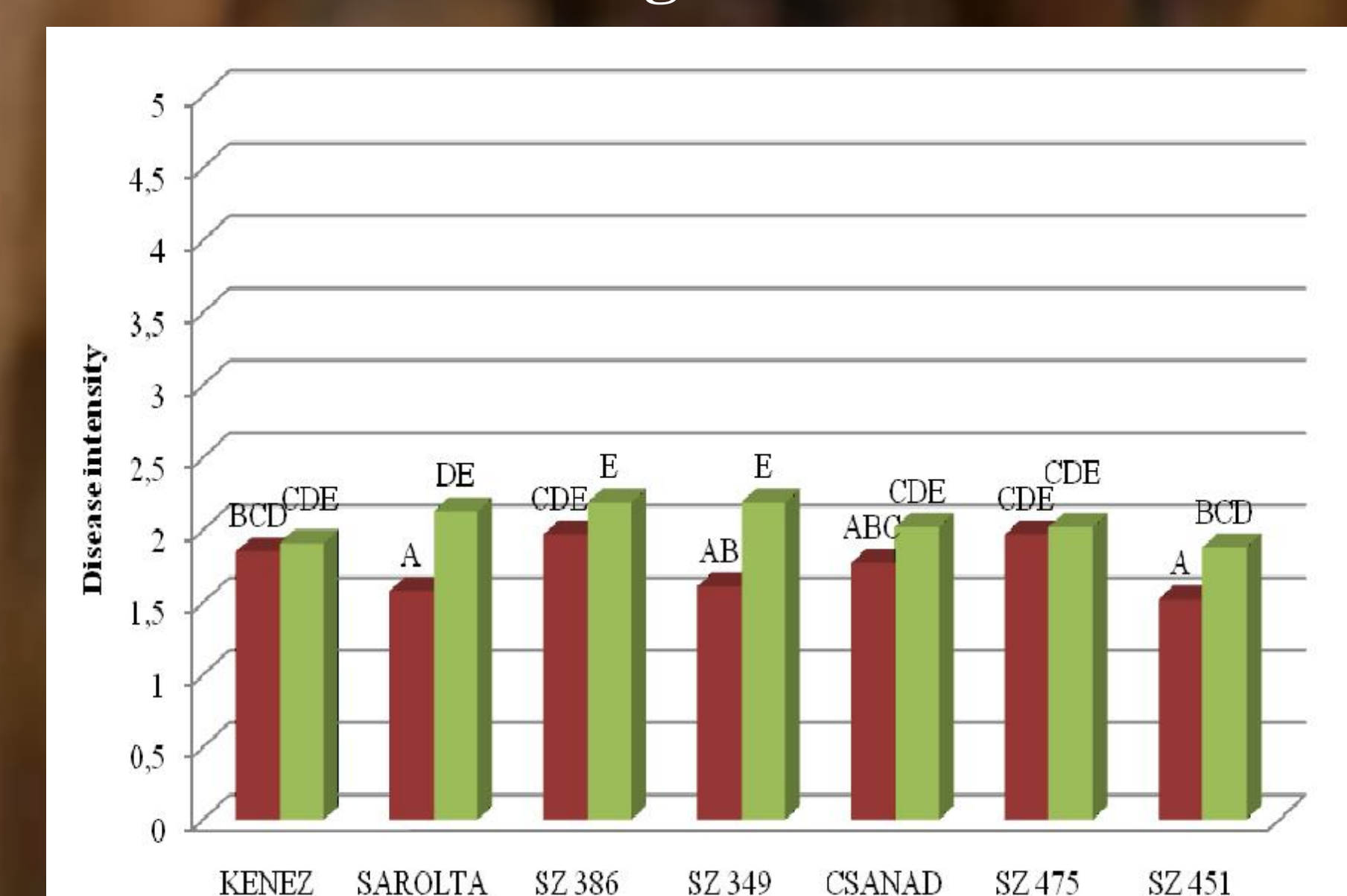


Figure 3. Intensity of maize ear rot caused by *F. verticillioides* during 2010 and 2011.

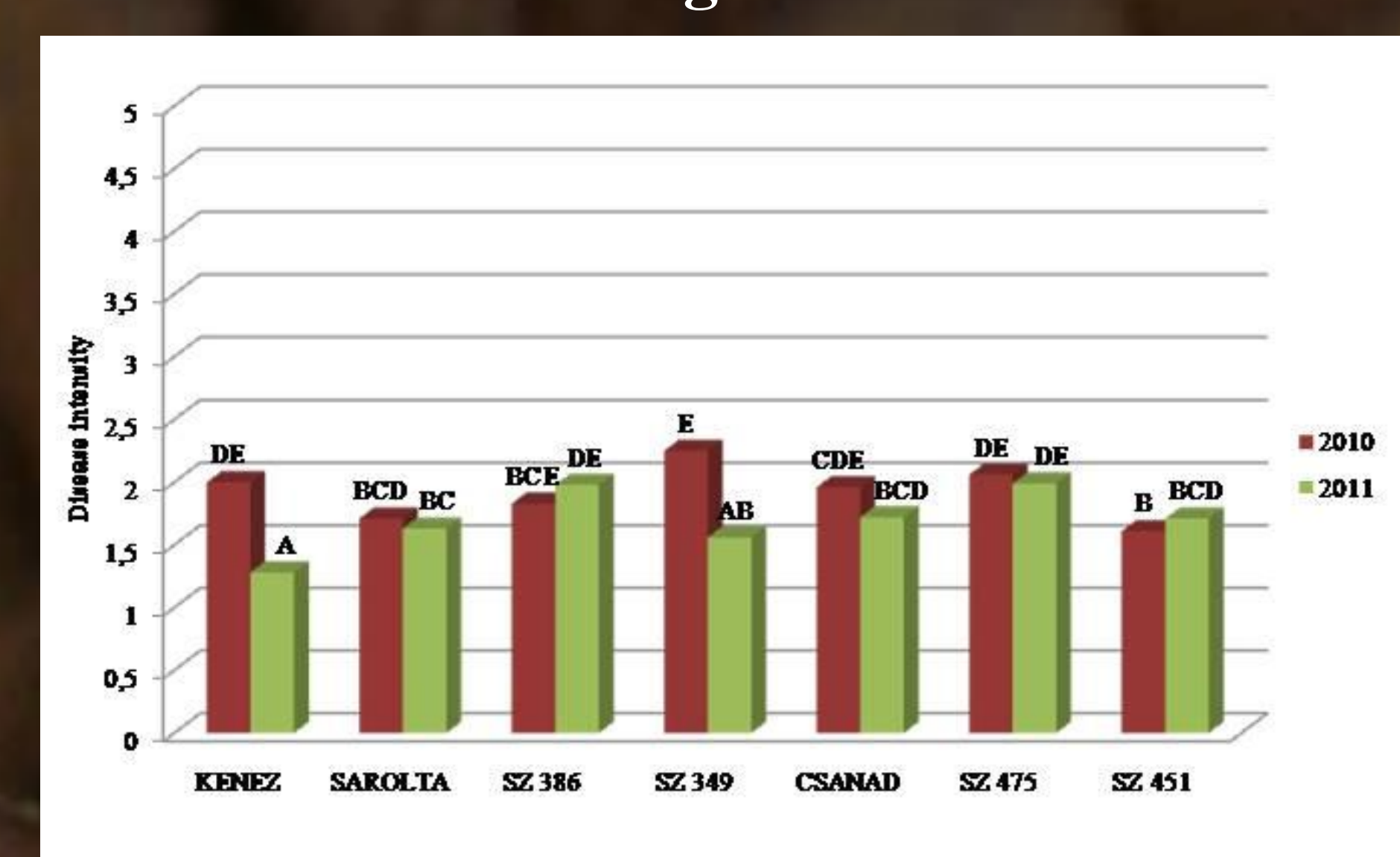


Figure 4. Intensity of maize ear rot caused by *A. flavus* during 2010 and 2011.