EVALUATION OF MAIZE HYBRIDS RESISTANCE TO ASPERGILLUS EAR ROT AND AFLATOXIN B_1 ACCUMULATION IN SERBIA

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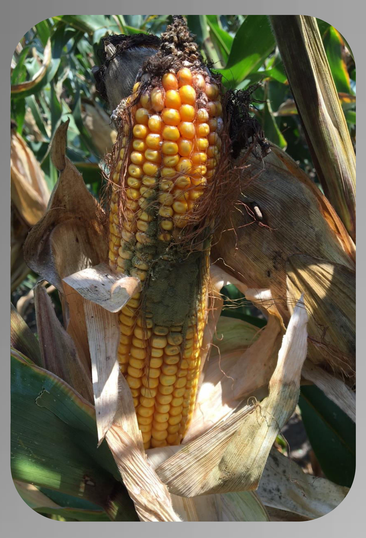
Introduction:

- Contamination of maize by *Aspergillus flavus* is a significant problem in agriculture due to the production of aflatoxins which are harmful for animal and human health.
- The most effective and economical method for reduction of *Aspergillus* ear rot and aflatoxin production is development of resistant maize genotypes. The aim of this research was to evaluate sensitivity of different maize hybrids to *A. flavus* infection and aflatoxin accumulation.

Materials and methods:

- Fifty maize hybrids belonging to different FAO maturity groups were evaluated for sensitivity to ear rot and aflatoxin acummulation during 2016 in field trials.
- Two toxigenic fungal isolates of *A. flavus* were used for artificial inoculations using colonized tootpicks method.
- Inoculation was performed 10-14 days after 50% of plants reached silking phase.
- Inoculated ears were harvested when kernel reached 14% or less grain moisture. The ears were visually rated using a scale of 1 (complete absence of symptoms) to 7 (76-100% infected kernels).
- Aflatoxin B_1 analyses were preformed by ELISA test.



Results:

- Results of this research indicate existence of significant differences in maize hybrids susceptibility to *Aspergillus* ear rot. The lowest susceptibility to *A. flavus* was recorded for hybrids: B10, A6, D8, B1 with disease intensity 1,23-1,5. The highest susceptibility to *A. flavus* was recorded for hybrids: E1, D1, D4, D10, E2, D3 with disease intensity 2,10-2,53.
- Aflatoxin B_1 concentration in grain differed significantly among hybrids. Aflatoxin B_1 was not observed in hybrids: D3, C2, D5. The lowest level of aflatoxin B_1 was detected in hybrids: E2, D4, D1, E1, C1. The highest level of aflatoxin B_1 was detected in hybrids: A18, A19, A11.

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