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Evaluation of maize cultivars for their susceptibility towards mycotoxigenic fungi under storage conditions

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ABSTRACT

Maize cultivation comprises the largest area of farmland in South Africa and it is the largest food crop consumed by the majority of its population. However, this food crop is frequently associated with mycotoxin contamination. Mycotoxigenic fungi that are regularly found in South African maize were selected and evaluated against 49 commercially produced maize cultivars for their ability to infest maize during storage. Four of these fungi, known to contaminate maize in the field included Fusarium graminearum, Fusarium verticillioides, Phoma sorghina and Stenocarpella maydis. The other five species included storage fungi such as Aspergillus flavus, Aspergillus ochraceus, Eurotium repens, Penicillium islandicum and Rhizopus oryzae. A unique method of inoculation was carried out where each maize cultivar was serially inoculated with each of the fungi. Results showed that four maize cultivars had a slower rate of infestation towards the field fungi while three cultivars had a slower rate of infestation towards the storage fungi. Only one of the maize cultivars, PAN 6146, showed an overall slower infestation rate for both field and storage fungi.