

Characterisation of *Aspergillus flavus* Isolated from Maize

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Aspergillus flavus is the main producer of carcinogenic aflatoxins (AFB₁ and AFB₂) in agricultural commodities such as maize. The purpose was to investigate four strains of *A. flavus* for aflatoxins production. The strains: 3909, 3911, 3951 and 3955 isolated in Mpumalanga were morphologically identified at ARC-Plant Protection Research Institute and further characterised by Polymerase Chain Reaction (PCR) and rDNA region of ITS-5,

8-ITS2. They were also analysed for the presence of genes encoding AFB₁, targeting both regulatory (*aflR*, *aflS*) and structural genes (*aflD*, *aflM*, *aflO*, *aflP* and *aflQ*). A reverse high performance liquid chromatographic (HPLC) instrument was used for aflatoxin analysis. All the four strains amplified 600bp of ITS-5. 8-ITS2 rDNA region. Similarly, all genes for aflatoxin B₁ were detected in four strains with expected band sizes. Aflatoxin production was present in strain 3911 and 3955 for AFB₁ and AFB₂ and in strain 3951 only AFB₁ while strain 3909 revealed negative aflatoxin (AFB₁ and AFB₂) production. The results may contribute to development of reliable molecular techniques for detection of aflatoxigenicity as well as illustrating the complexity of local fungal communities associated with maize.

Biography:

Athini Ntloko is currently a final year PhD student under Professional Development Programme (PDP) at Agricultural Research Council (ARC) and registered with University of the Western Cape in 2016 and conducting a research project in the study entitled: Evaluation of the capacity of hydrogen sulphide to impact infection and aflatoxin contamination of maize by *Aspergillus flavus*. In 2017, she has been awarded a third prize for poster presentation from an annually ARC PDP conference. Ms Ntloko earned her Bsc degree (Microbiology and Biochemistry) in 2013, honours (Microbiology) in 2014 and Masters in Microbiology (2016) with University of Fort Hare.