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Characterization of *aspergillus flavus* isolated from maize

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Aspergillus flavus is the main producer of carcinogenic aflatoxins in agricultural commodities such as maize. This fungus produces aflatoxin B1 (AFB1) and aflatoxin B2 (AFB2) being the most relevant in crops and this can result in economic losses. The aim of this study was to investigate four strains of *A. flavus* field for the production of aflatoxin B1 and aflatoxin B2.The strains: 3909, 3911, 3951 and 3955 isolated from Lydenburg in Mpumalanga were morphologically identified at ARC-Plant Protection Research Institute and were further characterized by Polymerase Chain Reaction (PCR) and Sanger sequencing of the internal transcriber subunit regions: ITS-5. 8-ITS2.The strains were analysed for the presence of genes encoding AFB1, targeting both regulatory (*aflR, aflS*) and structural genes (*aflD, aflM, aflO, aflP and aflQ*). To determine the actual production of aflatoxin B1 and B2 of the four strains, a reverse high performance liquid chromatographic (HPLC) instrument was used. All the four strains amplified 600bp of ITS-5. 8-ITS2 rDNA region. Similarly, all of seven genes for aflotoxin 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 reduce 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.

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