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Biocontrol potential of endophytic aspergillus spp. against fusarium verticillioides

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Abstrak

Fusarium verticillioides is the causal agent of ear, stalk and root rot of maize that results in the severe reduction in yields and quality of infected products. Endophytic fungi have been purported as potential candidates in controlling pathogens since they are considered strong plant mutualists that confer disease resilience to their host. The present study was carried out to determine the in vitro antagonistic activity and biocontrol potential of endophytic Aspergillus spp. associated with P. amboinicus leaves against F. verticillioides. Three fungal endophytes from the genus Aspergillus were isolated and identified from the leaves of P. amboinicus, namely A. flavus, A. terreus and A. niger. The fungal isolates were tested for antagonism against F. verticillioides in dual culture plates. Results indicate that the Aspergillus endophytes can restrict growth of F. verticillioides and employ varying mechanisms of antagonism. A. niger inhibited F. verticillioides by 47.37%, followed by A. flavus (41.02%) and A. terreus (27.91%) respectively. Observations of dual culture plates revealed that A. flavus and A. niger antagonized the pathogen via overgrowth mechanism while A. terreus employed antibiosis to restrict the growth of F. verticillioides. The varying degrees of antagonism exhibited by the Aspergillus endophytes show their potential as biocontrol agents and source of bioactive compounds