Molecular analysis of aflatoxigenic fungal strains on rice grains

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Aflatoxins have been emerged as a serious threat to food safety and quality assurance. A variety of fungal species i.e., multiple strains of *Aspergillus flavus, Aspergillus niger, Fusarium oxysporum, Alternaria alternata* have been reported as aflatoxigenic. Main objective of this study was to evaluate the genes responsible for aflatoxins production in the fungal strains isolated from rice grains being stored in warehouses of district Lahore, Pakistan. Total five (05) representative samples of rice grains were obtained and analysed for the fungal microflora. Isolation and identification of fungal strains were initially done based on morphological characters, later confirmed by using universal primers of internally transcribed spacers regions (ITS-1 and ITS-4). Eleven (11) fungal strains were identified based on phylogenetic analyses. Potential to produce afaltoxins was checked by using a set of specific primers including genes of aflR, *nor1, omt1, ver1*. Four (04) out of total eleven (11) strains showed the potential to produce aflatoxins. This might be due to humidified environment of warehouse that is helpful for the rapid growth of fungal strains. Research for the root causes for the growth of aflatoxigenic fungal strains in warehouses is continued.

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