IDENTIFICATION OF POTENTIAL BIOCONTROL AGENTS OF MYCOTOXIGENIC FUNGI IN HUNGARIAN AGRICULTURAL FIELDS[17]

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Plant pathogenic fungi and the mycotoxins produced by some of them pose serious threat to human and animal health. Agricultural fields including the agricultural products themselves and the soil are important sources of microorganisms which can be used in biocontrol strategies to combat plant diseases, or to lower the mycotoxin content of agricultural products. Prime examples of these useful microbes are various microorganisms like *Trichoderma, Phanerochaete, Acremonium* or *Bacillus* species which can be used as biocontrol agents against various plant pathogens, or important sources of mycotoxin degrading enzymes. Our aim was to identify such useful organisms in Hungarian cereal fields. We examined the mycobiota of various cereals and soil of wheat growing areas. The surface-sterilized cereal seeds were placed on selective media, and the isolated fungal strains were identified using morphological and sequence-based methods. Regarding the soil samples, appropriate dilutions were plated on selective media, and the purified fungal cultures were identified to species level using sequence-based methods. Apart from several pathogenic and/or mycotoxigenic fungi, several species have been identified which could be useful in developing environmentally friendly strategies to lower mycotoxin levels in agricultural products. Among *Trichoderma* species, *T. hamatum, T. koningiopsis, T. virens, T. brevicompactum, T. gamsii* and *T. pleuroticola* were identified. *Sarocladium zeae* (previously known as *Acremonium zeae*) was also found in several maize samples collected in different areas of the country. This species is a seed-borne protective endophyte of maize, which exhibits antagonistic properties against maize pathogens including *Fusarium* species like *F. graminearum* and *F. verticillioides, Nigrospora oryzae*, *Diplodia maydis*, *Rhizoctonia zeae* and *Aspergillus flavus*. *Sarocladium zeae* inhibits the growth of several fungal and bacterial pathogens of maize through producing pyrrocidines, amino acid-derived antibiotics. This is the first report on its occurrence in Hungary. Examination of the genetic variability and antagonistic activities of the Hungarian isolates is in progress. Another interesting fungus, *Clonostachys rosea* (teleomorph: *Bionectria ochroleuca*) has also been identified for the first time in Hungarian soil samples. This species produces a range of enzymes which can be used for the biodegradation of zearalenone. Further studies are in progress to examine the applicability of these species as biocontrol agents against plant pathogens and their mycotoxins.

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