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Diversity of Fusarium proliferatum Isolated from Asparagus Plants in Reference to Virulence, Toxigenicity and Patterns of DNA-Analysis

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Fusarium proliferatum was detected frequently as one of the dominant *Fusarium* species in asparagus rhizome. Isolates of this species were obtained from both symptomatic and non-symptomatic plants. Virulence tests and toxigenicity analysis regarding fumonisin production were carried out in this present study to assess the relevant characteristics of the populations of *F. proliferatum* infecting plants concerning both plant health and food safety. The results showed (1) The isolates both from symptomatic and non-symptomatic plants were differently virulent; (2) Isolates from symptomatic plants could be less virulent than those from non-symptomatic plants and vice versa; (3) Isolates from the same plant could be differently virulent; (4) All tested isolated could produce fumonisins in vitro, (5) but the abilities of fumonisin production differed quantitatively among the isolates; (6) No correlation between virulence and toxigenicity could be demonstrated in our tests. In addition to the tests above, DNA of the isolates of *F. proliferatum* were investigated by use of RAPD-PCR to determine the genetic diversity of the isolates. According to the patterns of the DNA-analysis the isolates fell into different groups, but a correlation of this grouping to virulence or toxigenicity of the respective isolates is unclear as yet and needs further investigation. Additionally, the results showed that isolates within a plant were genetically close to each other, but must not absolutely identical.