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## Strains of *Fusarium graminearum* Isolates from Wheat Kernels in Korea

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### [Introduction]

Fusarium head blight (FHB), primarily caused by several *Fusarium* species Schwabe (teleomorph: *Gibberella zeae*), is a major disease of wheats around the world. FHB significantly reduces yield through floret abortion and reductions in kernel size and weight. The objective of this study was to evaluate the mycotoxin production, pathogenicity and aggressiveness of Korean *F. graminearum* isolates, representing different mycotoxin chemotypes (NIV, DON, 3-ADON and 15-ADON), in wheat cultivars differing in their level of resistance or susceptibility.

### [Materials and Methods]

Wheat grain samples were collected from 17 counties in six provinces (Jeonbuk, Jeonnam, Chungbuk, Chungnam, Gangwon, and Gyeongnam) during June 2012. Isolates were characterized by sequencing the internal transcribed spacer (*ITS*) region and translation elongation factor 1- $\alpha$  (*TEF1*) gene. Trichothecene chemotypes were determined by multiplex PCR based on *Tri7* and *Tri13* sequences.

### [Results and Discussion]

Our findings indicate that *F. asiaticum* was the predominant (95% of all isolates) species in Korea. We recovered both *F. asiaticum* and *F. graminearum* from samples collected in Chungnam province. Of the 44 isolates recovered, 36 isolates had a NIV genotype while 8 isolates belonged to the DON genotype (3-ADON and 15-ADON). In order to characterize the pathogenicity of the strains collected, disease severity was assessed visually on various greenhouse-grown wheat cultivars inoculated using both NIV- and DON-producing isolates. Our results suggest that Korean *F. graminearum* isolates from wheat belong to *F. asiaticum* producing NIV, and both *F. graminearum* and *F. asiaticum* are not significantly different on virulence in wheat cultivars.

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