VARIATION IN SUSCEPTIBILITY OF WHEAT PARTS TO MAJOR Fusarium HEAD BLIGHT PATHOGENS

Abstract

Fusarium head blight (FHB) of wheat is caused by a complex of pathogens with *F. graminearum*, *F. culmorum*, *F. poae*, *F. avenaceum* and *F. tricinctum* being the most common worldwide. Besides ears, the species have been isolated from wheat roots, foot, stems, ears and leaves. Greenhouse studies were carried out to investigate differences in susceptibility of wheat parts – leaves, stems, kernels and spikelets – to the five *Fusarium* species inoculated at midanthesis. Tissue susceptibility was assessed by establishing *Fusarium* spp. re-isolation frequency 20 days post inoculation. Additionally, FHB severity and effect of the disease on grain weight were assessed. Tissue susceptibility to the *Fusarium* isolates varied significantly ($p \leq 0.05$) and was in decreasing order: spikelets (mean 83%), kernels (mean 79%), stems (mean 75%), and leaves (mean 31%). *Fusarium graminearum* and *F. culmorum* were re-isolated in the highest frequency from spikelets and kernels, respectively while the corresponding lowest re-isolation frequencies were *F. avenaceum* and *F. poae*; and *F. poae*. *Fusarium* head blight was initiated earlier and progressed significantly faster ($p \leq 0.05$) on plants inoculated with *F. culmorum* and *F. graminearum* than the other three isolates. Area under disease progress curve varied significantly ($p \leq 0.05$) and decreased in the order: *F. graminearum*, *F. culmorum*, *F. tricinctum*, *F. avenaceum* and *F. poae*, respectively. All *Fusarium* isolates except *F. poae* caused a significant reduction in 1000-kernel weight with *F. culmorum* resulting in the highest (87%) reduction, compared to non-inoculated controls. *Fusarium* species infect vegetative wheat parts where they may survive between cropping cycles and contribute inoculum for FHB development in a subsequent crop.