

Differential Expression of Thaumatin-Like Proteins in Sorghum Infested with Greenbugs

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This study was designed to quantitatively analyze the expression of thaumatin-like protein (TLP) at the transcriptional level in different sorghum lines when they were infested with greenbugs. Three sorghum lines, Tx7000, PI550607, and PI550610, were used. RNAs were isolated from the different sorghum lines that were infested with greenbugs at different infestation times. The resultant mRNA was reverse transcribed into cDNA, and the RT-PCR products were separated by agarose gel. Then, real-time PCR data of the TLP gene expression were analyzed in comparison with the β -actin gene as a reference. The expression levels of the TLP gene were also compared between samples. The results showed that the transcripts of the TLP were induced by greenbug feeding and the increased levels were time-dependent. In the susceptible line, the TLP's transcripts increased several thousand-fold at 120 hours post infestation, while for the two resistant sorghum lines the TLP expression level increased less than one hundred-fold compared to the controls. This is the first demonstration that thaumatin-like proteins are involved in plant defense response against insects.

Key words: Greenbug, Sorghum, Thaumatin-Like Protein