

The resistance of different wheat species to greenbug aphid *Schizaphis graminum* Rond.

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In our work, we studied the expression of genes encoding PR proteins and redox enzymes of wheat species *Triticum aestivum* L., *T. monococcum* L. and *T. timopheevii* Zhuk., infected by *Schizaphis graminum* Rond. It was detected that hydrogen peroxide performs an important signaling function in triggering defense reaction in the short-term response of plants to insect feeding. In the long-term response of plants to pest infection, the processes of detoxification of reactive oxygen species, in which peroxidase and catalase involve, were important. The processes of reactive oxygen species detoxification were important in the long-term response of plants to pest infestation. Analysis of antibiosis and tolerance (persistence) showed that *T. aestivum* Omskaya 35, *T. timopheevii* k-58666 and *T. monococcum* k-39471 were tolerant to *S. graminum*. *T. monococcum* k-39471 was the most resistant species. The most tolerant to *S. graminum* species *T. monococcum* k-39471, showed the highest peroxidase activity throughout the experiment, and the catalase activity was regulated depending on the stage of infection. It is known that infection by aphids forms jasmonate/ethylene and salicylate-dependent defense in plants. In our work, the expression of genes encoding PR proteins, markers and regulators of salicylate (*TaRboh*, *TaPAL*, *Tapr1*, *TaPrx*) and jasmonate signaling pathways (*TaPI*, *TaLOX*, *TaPrx*) was studied. In the early stage of infection in susceptible *T. aestivum* varieties, expression of only jasmonate-dependent genes was activated, which reflected the response of plants to damage. In the resistant accession k-58666, expression of only salicylate-dependent genes was activated, while the aphid practically did not reproduce. In the tolerant accession k-39471, expression of both salicylate-dependent and jasmonate-dependent genes was activated, while the aphid mortality rate was the highest among all studied samples (39 %). Aphids attack set off jasmonate-dependent activation of proteinase inhibitors and lipoxygenases in tolerant samples. Thus, salicylate signaling pathway is probably the joint mechanism of antibiosis and repelling aphids in resistant plant forms.