

***Verticillium dahliae*-Arabidopsis interaction causes changes in gene expression profiles and jasmonate levels on different time scales.**

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Abstract

Verticillium dahliae is a soil-borne vascular pathogen that causes severe wilt symptoms in a wide range of plants. Co-culture of the fungus with Arabidopsis roots for 24 h induces many changes in the gene expression profiles of both partners, even before defense-related phytohormone levels are induced in the plant. Both partners reprogram sugar and amino acid metabolism, activate genes for signal perception and transduction, and induce defense- and stress-responsive genes. Furthermore, analysis of *Arabidopsis* expression profiles suggests a redirection from growth to defense. After 3 weeks, severe disease symptoms can be detected for wild-type plants while mutants impaired in jasmonate synthesis and perception perform much better. Thus, plant jasmonates have

an important influence on the interaction, which is already visible at the mRNA level before hormone changes occur. The plant and fungal genes that rapidly respond to the presence of the partner might be crucial for early recognition steps and the future development of the interaction. Thus they are potential targets for the control of *V. dahliae*-induced wilt diseases.

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