

## DEVELOPMENT AND GROWTH REGULATION

# Chemical Signals from Avocado Surface Wax Trigger Germination and Appressorium Formation in *Colletotrichum gloeosporioides*

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The surface wax of the host, avocado (*Persea americana*) fruit, induced germination and appressorium formation in the spores of *Colletotrichum gloeosporioides*. Waxes from nonhost plants did not induce appressorium formation in this fungus, and avocado wax did not induce appressorium formation in most *Colletotrichum* species that infect other hosts. Bioassays of the thin-layer chromatographic fractions of the avocado wax showed that the fatty alcohol fraction was the main appressorium-inducing component. Testing of authentic n-C8 to n-C32 fatty alcohols revealed that C24 and longer-chain alcohols induced appressorium formation. Gas-liquid chromatography/mass spectrometry analysis of free fatty alcohols revealed that avocado wax contains a high content of very long chains. Waxes from nonhost plants containing an even higher content of the very long-chain alcohols did not induce appressorium formation. Waxes from nonhost plants strongly inhibited appressorium induction by avocado wax. Thus, a favorable balance between appressorium-inducing very long-chain fatty alcohols and the absence of inhibitors allows the fungus to use the host surface wax to trigger germination and differentiation of infection structures in the pathogen.