

Title Expression of genes possibly correlated to the different susceptibility to *Colletotrichum acutatum* in unripe and ripe strawberry fruits

Author M. Guidarelli, M. Maradeo, L. Zoli, P. Bertolini, E. Baraldi.

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Abstract

Many fungal pathogens interact with fruit hosts at pre-harvest unripe stages and remain quiescent during ripening, causing severe economic losses for post-harvest fruit production. Similarly, *Colletotrichum acutatum* causes anthracnose symptoms only on ripe strawberry (*Fragaria x ananassa*) fruits, whereas, on white unripe fruits, it becomes quiescent as melanized appressoria. A previous microarray experiment revealed that ripe and unripe strawberries interacting with *C. acutatum* differently regulate the expression of several genes. Among these genes, few encode for proteins with important regulatory roles in plant response to pathogens. In this study, qRT-PCR was used to make a narrow time scale analysis of the different activation of these genes in white and red fruits challenged with the pathogen. In particular, the expression of *lectin*, *WRKY*, *brassinosteroid insensitive receptor kinase 1 (BRI)*, and phenylpropanoid and flavonoid genes was monitored in fruits after 8-16-20-24 hours upon the interaction with *C. acutatum*. Differently from phenylpropanoid and flavonoid genes, the expression of *lectin*, *WRKY* e *BRI* genes was found regulated exclusively on white fruits at 24 hours post-interaction (hpi), when the *C. acutatum* becomes quiescent. This strongly suggests that these genes play a specific role in *C. acutatum* quiescence.