

Title Insights into fruit-pathogen interaction from An-omics perspective: citrus-*P. Digitatum* as a model

Author L. González-Candelas, M. López-Pérez, S. Alamar, A. R. Ballester, P. Sánchez-Torres, J. Forment, J. Gadea, M.T. Lafuente, L. Zacarías and J. F. Marcos

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Abstract

Implementation of new alternative methods of disease control is being slower than expected, mostly because it seems that there is no single alternative treatment that equals the effectiveness of chemically synthesized fungicides. Improvement of these alternative treatments or the development of new ones would be favoured by a deeper knowledge of the fruit-pathogen interaction. Such information is scarce in Postharvest Pathology and mostly derives from physiological studies, with a minor contribution from molecular approaches. Within this context – omics tools offer a new perspective for the global analysis of the pathosystems, including the possibility of conducting a simultaneous analysis of the host defence responses and the pathogenicity mechanisms. cDNA libraries construction and gene sequencing together with array hybridization constitute nowadays major approaches to analyze biological systems at a molecular level that can be implemented in Postharvest Pathology. In this communication we will summarize the tools that we can use and how we are implementing them to characterize the citrus- *P. digitatum* interaction at a global scale. We have addressed two complementary approaches. The first one involves the construction, sequencing and differential hybridization of subtracted cDNA libraries. The second approach has been undertaken under the framework of the Spanish “Citrus Functional Genomic Project, CFGP”. More than fifty cDNA libraries have been generated in this consortium, including cDNA libraries obtained from *P. Digitatum*-infected fruits. These clones have been used to develop a cDNA microarray representing roughly 7000 unigenes. With this tool we have analyzed the differences and commonalities of the citrus fruit responses to ethylene, wounding, *P. Digitatum* infection and induced resistance. We will present the results of both approaches and highlight and how this information can give us a wider perspective on the outcome of the interaction.