

Ground covers in orchards: reservoirs and potential sources of inoculum of *Pseudomonas syringae*

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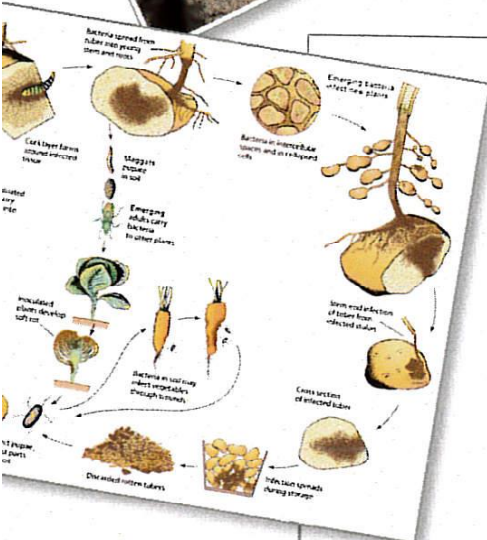
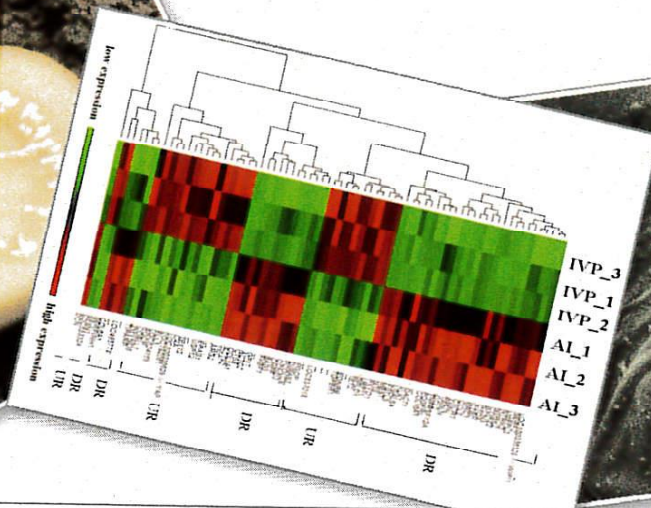
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Abstract

Blights and cankers of fruit trees caused by *Pseudomonas syringae* generate significant economic losses worldwide. Given the epiphytic lifestyle of *P. syringae* orchard ground covers represent a potential source of inoculum of *P. syringae* for fruit trees. They also represent a reservoir of bacterial diversity that could be beneficial for plant health via natural antagonistic and competitive interactions within the microbial flora. This microbial reservoir could be exploited for the development of ecological engineering practices, specifically the management of ground covers to reduce their negative impact on plant health and in particular as a source of pathogenic strains of *P. syringae*. Within the species *P. syringae* there is a very high genetic variability, and strains are distributed into 13 phylogroups (Berge et al., 2014) with very marked differences in pathogenicity among some of these phylogroups. Until now the only method for phylogenetic identification was the sequencing of specific and conserved genes. We have now replaced this with a PCR-based method allowing fast and accurate identification of 9 of the 13 current phylogroups (Borschinger et al., submitted). Here we will present the results of an exploratory study of *P. syringae* populations hosted by different compartments from 4 kiwifruit and 3 apricot orchards located in the southwest of France. The analysis of the phylogenetic structure of the *P. syringae* populations isolated from samples of ground cover, buds, leaves, twigs, irrigation water and soil, indicates a very large inter- and intra-orchard variability. Populations are largely constituted by an assembly of strains belonging to different phylogroups. Similarities between the phylogenetic structures of populations, and genetic similarities between strains, from different samples suggests a connection between these different compartments.

References

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