

**Genomic analysis of *Xanthomonas arboricola*: Pathogenicity and development of a real-time PCR protocol for bacterial spot disease of *Prunus* spp.**

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*Xanthomonas arboricola* pv. *pruni* (Xap) causes bacterial spot of stone fruits. The bacteria produce lesions that reduce the marketability of fruit and the yield and vigor of the trees. Xap is within the interesting *Xanthomonas* genus, which has been intensively studied due its strain specialization and its host range complexity. Comparative genomics of *Xanthomonas arboricola* revealed the evolutionary history of the pathogenic bacteria of this species, as well as a characterization of factors involved in virulence. Phenotypic assays on *Xanthomonas*, isolated from *Prunus*, have revealed the coexistence of non-pathogenic strains phylogenetically different to those pathogenic ones. Taking advantage of the variation in genomic features, a real-time PCR protocol, based on the *xopE3* gene, has been developed to differentiate *Prunus*-pathogenic and non-pathogenic strains of *X. arboricola* and to refine the diagnosis of this quarantine pathogen. The use of this protocol in conjunction with a previous real-time PCR test based on the gen *ftsX*, showed a high specificity to differentiate pathovar *pruni* from the other groups of *X. arboricola*. The new real time protocol is a valuable molecular tool for the diagnosis of the bacterial spot of stone fruits and almond and the detection of its causal agent. This work was supported financially by the Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA) project RTA2014-00018.



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