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Host specificity in *Pseudomonas savastanoi* pathovars of woody hosts: comparative genomics and gene regulation

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Abstract:

Pseudomonas savastanoi belongs to the intensively studied *Pseudomonas syringae* complex, and includes four pathovars causing knots or excrescences in woody hosts. These are *P. savastanoi* pv. savastanoi (Psv), pv. nerii (Psn), pv. fraxini (Psf) and pv. retacarpa (Psr), comprising isolates from olive (*Olea europaea*), oleander (*Nerium oleander*), ash (*Fraxinus excelsior*) and Spanish broom (*Retama sphaerocarpa*), respectively. The recent availability of the draft genome sequences of several *P. savastanoi* strains isolated from different hosts has facilitated bioinformatics-based predictions of virulence determinants in this pathogen, including codification of phytohormones-related genes and type III secretion system effectors (T3E). The super-repertoire of T3E in the *P. savastanoi* pangenome comprises a core set of 21 effectors, some of which are truncated in the genomes of strains belonging to specific pathovars, suggesting a role of these proteins in host specificity. To address this issue, we have constructed both knock out mutants in some of these genes and strains expressing heterologously the complete version of the truncated effectors. Classification of *P. savastanoi* pathovar-specific genes into biological functions using Blast2GO revealed that most specific genes were included in the category "regulation of transcription". Thus, we decided to construct a pipeline allowing the identification of regulatory elements in bacterial genomes. Our preliminary results indicate that *P. savastanoi* strains show significant differences in the number of transcriptional regulatory proteins (TFs), ranging from about 380 to 440. The role of some of these TFs in virulence and host specificity is currently under analysis and the results will be presented. This project is supported by the Spanish Plan Nacional I+D+i grants AGL2017-82492-C2-1-R and AGL2017-82492-C2-2-R, co-financed by The Fondo Europeo de Desarrollo Regional (FEDER).