

programme under grant agreement N. 727987 “*Xylella fastidiosa* Active Containment Through a multidisciplinary-Oriented Research Strategy XF-ACTORS”.

### 3.6 The endophytic microbiome of *X. fastidiosa* susceptible and resistant olives

Morelli M., Giampetruzzi A., D’Attoma G., Saponari M., Nigro F., [Saldarelli P.\\*](#)

\*Consiglio Nazionale delle Ricerche, Istituto per la Protezione Sostenibile delle Piante, Bari (IT)

**Abstract:** A multi-factorial strategy is required to co-exist with *X. fastidiosa* infections, which are devastating olive trees in the southern area of Apulia (Italy). Observations in the outbreak area can provide information on potential approaches for containment. Olive cvs Leccino and FS17 show lessened symptoms and host lower bacterial populations (1,2) than cvs Ogliarola salentina, Cellina di Nardò and Kalamata. We are evaluating whether microbial communities inhabiting the xylem vessels of olive cvs showing different susceptibilities to *X. fastidiosa* -infection play a role in resistance. To explore these endophytic microbiomes, a whole-metagenome shotgun analysis is currently ongoing. *X. fastidiosa* -infected and healthy olive plants of the cultivars FS17, Leccino and Kalamata, were selected from the same plot to limit the influence of diverse soil composition and crop management. Shotgun sequencing of DNA extracted from the xylem tissues will be used to investigate the microbiome community by bio-informatic analysis. Moreover, efforts to isolate culturable microorganisms to be used in antagonistic assays against *X. fastidiosa*, will be performed. Concurrently, the *X. fastidiosa*-biocontrol potency of *Paraburkholderia phytofirmans* PsJN strain, whose beneficial effects in the reduction of symptoms in Pierce’s Disease (3) have been recently described, are under evaluation. We are testing the ability of *P. phytofirmans* to colonise xylem vessels and interact with *X. fastidiosa* in tobacco and olive.

#### Acknowledgment

This work has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement N. 635646 “Pest Organisms Threatening Europe POnTE” and grant agreement N. 727987 “*Xylella fastidiosa* Active Containment Through a multidisciplinary-Oriented Research Strategy XF-ACTORS”.

#### Bibliography

- Giampetruzzi A, Morelli M, Saponari M, Loconsole G, Chiumenti M, Boscia D, Savino VN, Martelli GP & Saldarelli P. 2016. Transcriptome profiling of two olive cultivars in response to infection by the CoDiRO strain of *Xylella fastidiosa* subsp. *pauca*. BMC Genomics 17:475.
- D. Boscia, G. Altamura, A. Ciniero, M. Di Carolo, C. Dongiovanni, G. Fumarola, A. Giampetruzzi, P. Greco, P. La Notte, G. Loconsole, F. Manni, G. Melcarne, V. Montilon, M. Morelli, N. Murrone, F. Palmisano, P. Pollastro, O. Potere, V. Roseti, P. Saldarelli, A. Saponari, M. Saponari, V. Savino, M.R. Silletti, F. Specchia, L. Susca, D. Tauro, D. Tavano, P. Venerito, S. Zicca & G.P. Martelli. 2017. Resistenza a *Xylella fastidiosa* in diverse cultivar di olivo. Informatore agrario. Vol 11, pag 59.
- [Lindow S., Antonova E. and Baccari C., 2017. IMTERIM PROGRESS REPORT FOR CDFA AGREEMENT NUMBER 14-0143-SA: Comparison and optimization of different methods to alter dsf-mediated signaling in \*Xylella fastidiosa\* in plants to achieve pierce’s disease control.](#)

## Session 4 - *Xylella fastidiosa*: pathogen and disease control in the host plants

### 4.1 In vitro activity of antimicrobial compounds against *X. fastidiosa* causing OQDS in Apulia (IT)

[Bleve G.\\*](#), Altomare C. F., Cardinali A., Vurro M., Gallo A., Logrieco A. F., Marchi G., Mita G.

\*Istituto di Scienze delle Produzioni Alimentari - Consiglio Nazionale delle Ricerche, Lecce (IT)

**Abstract:** Olive quick decline syndrome (OQDS) caused by *X. fastidiosa* is currently causing severe damages to the production and reducing the life span of the plants in the Salento peninsula of Apulia (Italy). No effective means of control of *X. fastidiosa* is currently available. The objective of this study was to evaluate in vitro antimicrobial activities against *X. fastidiosa* (strain Salento-1) of different classes of compounds having diverse origins, i.e. traditional antibiotics, plant-derived natural products,