



# European conference on **Xylella** 2017

Finding answers to a global problem

Palma de Mallorca, 13-15 November 2017

BOOK OF ABSTRACTS

depends on the establishment of biofilms that enhance antimicrobial resistance. Indeed, pathogenicity-related proteins secreted into the environment can facilitate the processes of infection and invasion. The expression of many virulence factors, such secreted proteins depends on the aggregation state of the microorganism, which exists either in a planktonic, motile condition or associated with other cells and an extracellular matrix within a biofilm. This study revealed that antimicrobial synthetic peptides effectively control and/or inhibit totally *X. fastidiosa*. In this study were tested 5 syntetic peptides - hIF-[1-11]; Dhvar-5; CA(1-7)M(2-9); Licotoxina I and D4E1, with different bioactivity targets, resulting from total Xf growth inhibition to alteration, and disaggregation of *X. fastidiosa* biofilm. Excellent antifungal activity was revealed when used on *Phytophthora cinnamomi*.

Note: The present study was developed within the scope of the *X. fastidiosa* -Freeolive project funded by FCT (PTDC/AGR-PRO/0856/2014) aiming to characterize the level of susceptibility to *X. fastidiosa* infection of olive cultivars, extensively used in Portugal and to identify the critical factors that are correlated to it.

## Session 5 - Vectors and epidemiology

### 5.1 Host-plant preference of *Philaenus spumarius* nymphs in olive orchards of the Apulia Region of Italy

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**Abstract:** Field surveys were conducted in 2015-2016 in a total of 50 olive orchards of Apulia region, by recording the incidence of the different plant species and the presence of *Philaenus spumarius* (*Ps*) nymphs on at least 100 plants within each genus (Cornara et al. 2017). Percentage of infested plants, number of infested plants over total infested plants within each orchard were determined and host-plant preference was estimated by Chesson's index (Chesson J. 1978). Nymphs were recorded on plant species of ca. 70 different Genera, with the highest rates of infestation recorded on plants belonging to the Asteraceae and Fabaceae. *Sonchus*, besides being a very common weed in the olive orchards of the region, was one of the preferred host-plants, representing up to 22% of total infested plants. On the contrary, other common weeds, such as *Papaver*, *Fumaria*, *Lamium*, *Oxalis*, *Mercurialis* and *Capsella*, were not found infested by the nymphs of *Ps*. Indeed, very rarely spittlebugs were found on plants of Cruciferae and Gramineae. In conclusion, our surveys confirmed that *Ps* has a very high polyphagy and capacity to adapt to very different plant communities. Nevertheless, densities of this insect showed great variability between orchards characterized by different plant communities, type of soil, environmental conditions and management.

#### *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".

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### 5.2 Development of mating disruption methods to suppress populations of insect vectors of *X. fastidiosa*

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**Abstract:** The glassy-winged sharpshooter, *Homalodisca vitripennis* (Germar) (Hemiptera: Cicadellidae), is a vector of *X. fastidiosa*, an important bacterial pathogen of several crops in the Americas and Europe. Mating communication of this and many other cicadellid pests involves the exchange of substrate-borne vibrational signals. Exploitation of vibrational signals to interfere with *H. vitripennis* communication and suppress populations could prove to be a useful tool, but knowledge of the mating behavior was insufficient to initiate development of control methods. In this study, six different *H. vitripennis* communication signals were identified and described, candidate disruptive signals (natural and synthetic) were designed and tested in the laboratory via playback to individuals and male-female pairs, and efficacy of candidate signals in disrupting *H. vitripennis* mating were validated under field conditions via playback of signals through wires used in vineyard trellis. Data support application of vibrational mating disruption as a novel method to control *H. vitripennis* populations.

### 5.3 Evaluation of sampling methods for sharpshooters and spittlebugs in Brazilian olive orchards

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**Abstract:** Sharpshooters (Hemiptera: Cicadellidae, Cicadellinae) and spittlebugs (Hemiptera: Cercopoidea) are potential vectors of *X. fastidiosa*, which is associated with Olive leaf scorch (OLS) in Brazil. Identification of key vector species involved in OLS spread depends on systematic surveys of these insects in olive orchards. Here we compared methods for sampling sharpshooters and spittlebugs in orchards of two localities in the states of Minas Gerais (Maria da Fé) and São Paulo (Cabreúva), from June/2015 to Nov/2016. In each orchard, yellow sticky cards (30 x 10 cm) were fortnightly hanged on nine olive trees. Two cards were placed per tree, at 0.8 and 1.6 m above ground. In addition, sweep net samplings were performed every 3 months on the tree canopy (2 sweeps per tree; 60 trees per orchard) and ground cover (3 samples per orchard; 30 sweeps per sample). Among 28 prevalent species of sharpshooters and spittlebugs, few were common to both areas (25%) or to both sampling methods (sweep net and sticky traps) in the two areas (26.7-50%). The prevalent species were trapped in similar numbers at 0.8 and 1.6 m by sticky cards, except for 5 species that were more frequent at 0.8 m. In contrast, few species (7.7-20%) were common by sweeping the canopy vs. ground cover. The observed variations indicate that vector surveys should be done in various localities over a growing region, by combining sticky traps (preferably at 0.8 m above ground) and sweep net (on trees and ground cover).

#### Acknowledgment

This work has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N. 727987 "Xylella fastidiosa Active Containment Through a multidisciplinary-Oriented Research Strategy XF-ACTORS" and FAPESP-Sao Paulo State Research Foundation (Proj.# 2016/02176-7)

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### 5.4 Vector acquisition efficiency of sequence types of *X. fastidiosa* subsp. *pauca* from citrus

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**Abstract:** Different sequence types (STs) of *X. fastidiosa* subsp. *pauca* have been described in citrus causing Citrus variegated chlorosis, but little is known about their interactions with insect vectors. In this study, we compared acquisition efficiency of four STs (11, 13, 64 and 65) by two sharpshooter