

PONTE Project



Pathogenicity and virulence of the Apulian strain of *Xylella fastidiosa*

- In the **PONTE project**, scientists carried out tests proving that *Xylella fastidiosa* is the main agent of the desiccation and death of olive trees in Apulia. The particular genotype of the bacterium in the region is very aggressive to olive trees and one of the most virulent strains detected in Europe so far.

PONTE Project

The EU Horizon 2020 financed PONTE project started in 2015 and concluded in 2019. PONTE gathered 25 organizations and 120 researchers from 10 EU and three non-EU countries to foster and share knowledge for the prevention, detection, control, and management of a group of plant pests threatening crops, biodiversity, and the economy in Europe.

Xylella fastidiosa

The bacterium *Xylella fastidiosa* is one of the most threatening plant pests in the world. It can colonize more than 550 plant species and is pathogenic on a wide range of them, including grapevine, citrus, almond, oleander, peach, coffee, avocado, olive tree, and oak. Once confined to North and South America, *Xylella fastidiosa* was first detected in Europe in 2013.



- Laboratory and field experiments demonstrated that the incubation of infection in olive trees is quite prolonged. It can take up to 12 months before the symptoms become visible. Also, older plants may develop the symptoms faster than younger ones, especially under field conditions. The results in experimental plots planted in the infected areas helped to identify a timeframe for infection. Firstly, infected trees could be identified as soon as one year after planting healthy trees in highly infected areas. Secondly, the bacterium could be readily detected even if the olive plants were still asymptomatic. Once the infection takes hold in a plot it spreads rapidly, and the number of infected plants can double in a year.



Philaenus spumarius

The *Philaenus spumarius* spittlebug is 5-6 millimetres long and feeds on a huge variety of plants. This insect is the primary ascertained vector of *Xylella fastidiosa* in Apulia. The bugs transmit the bacterium from one plant to another by feeding on the plant sap. It is widespread in Europe (including the entire Mediterranean Basin) and Asia, and has also been introduced to North America.

- Scientists confirmed the crucial role of a spittlebug called *Philaenus spumarius* in the transmission of the bacterium from infected to healthy plants.
- Studies also showed differences in the incidence of infection and symptoms among various olive **cultivars**. This is an encouraging result for further research to identify highly susceptible, tolerant, and resistant cultivars.

Cultivars

Short for "cultivated plant varieties"



New findings, new questions

After *Xylella fastidiosa* was first detected on European Union territory, providing essential scientific information on the characteristics of this organism was of the utmost importance. Thanks to the POnTE project, researchers were able to isolate the bacterium to learn more about its biology and pathogenicity. They confirmed the aggressiveness of the Apulian strain of *Xylella fastidiosa* on olive trees and demonstrated its association to the Olive Quick Decline Syndrome. They also proved that some **cultivars** of olive are less susceptible to infection than others. Continuing the research into this aspect of the disease is of interest for restoring hope to olive growers in infected area in Apulia.

