



Xylella fastidiosa



Background

The bacteria *Xylella fastidiosa* is one of the most aggressive phytopathogens in the world, affecting more than 600 plant species including species of high economic value such as olive, coffee, citrus, almond, cherries, grapevines, lavender, etc. [[see list of host](#)].

X. fastidiosa is endemic to the American continent, from Canada to Argentina, but the bacteria is now found in Taiwan, Iran, Lebanon, Israel, and in several European countries, Italy, France, Spain and Portugal [[see distribution](#)].

The pathogen is transmitted by xylem-feeding insects, such as spittlebugs (e.g., *Philaenus spumarius*, see image above). Confined within the xylem of plants, the bacteria causes blockages obstructing the flow of raw sap, and therefore, causing symptoms that resemble those of water deficiency or nutrient deprivation.

Symptoms

- Plant species can show chlorosis or yellowing of the leaves. Chlorotic spots can be seen in citrus (Fig 1a), yellow leaves in grapevines (Fig 1b) and coffee (Fig 1c), and leaves with yellow borders in oleander (Fig 1d).
- Many species present leaf scorch when infected by *Xylella* (Fig 2). In some species the scorch starts from the tip (Fig 2a, b), and in some others is marginal (Fig 2 c, d). In coffee, initial leaf scorch looks like wilting (Fig 2e).
- In more advanced stages, entire branches dieback and the plants appear desiccated (Fig 3a, b). In some species early shedding of leaves can also occur (Fig. 4).
- In olive trees, abundance of suckers can develop at the base of the tree (Fig 5). In grapevines, irregular ripening of bark can be seen (Fig 6).
- X. fastidiosa* can cause phony peach disease, where there is a delayed growth that causes dwarfism (Fig 7). In some species, reduction in production and size or distortion of fruits can occur (Fig 8).



Fig 1. Chlorosis present on leaves of a) *Citrus x sienensis*, b) *Vitis vinifera*, c) *Coffea sp.*, and d) *Nerium oleander* infected by *Xylella fastidiosa*.

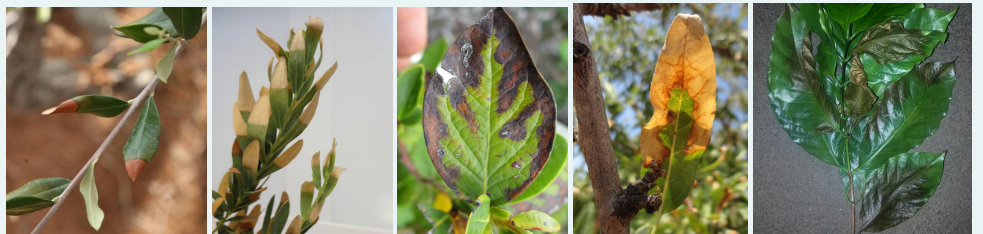


Fig 2. Leaf scorch in the tip of the leaves of a) olive tree and b) *Polygala myrtifolia*. Marginal leaf scorch on c) blueberry and d) almond. Initial leaf scorch symptoms and leaf curling margins on e) coffee.



Fig 3. Advanced symptoms on olive trees. a) Branch dieback and b) desiccated trees.

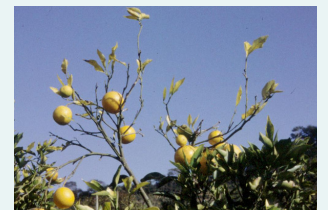


Fig 4. Branches of Citrus showing defoliation.



Fig 5. Suckers developed at the base of an olive tree (*Olea europaea*).



Fig 6. Irregular ripening of bark in a grapevine (*Vitis vinifera*).



Fig 7. Branches of Citrus showing dwarfism.



Fig 8. a) Reduction in size of oranges, b) distortion of grapes.