



APS ANNUAL MEETING
August 3–7 | Cleveland, Ohio, U.S.A.

Ionomes of plants infected with vascular pathogens: *Xylella fastidiosa* as a case study

Monday, August 05, 2019 - 🕒 2:00 PM - 2:20 PM

📍 HCC - Room 26A

Abstract

Recruitment and distribution of metals is fundamental for cell survival, and the mechanisms to maintain the appropriate metal concentrations have been highly conserved. Therefore, an evolutionary arms race exists between organisms to acquire the correct metal. In pathogenic microbes, a tug-of-war for available metals can define pathogenicity and host disease physiology. Plant vascular system forms a highway for the transport of critical nutrients including metals. *Xylella fastidiosa*, which is found in the xylem of numerous plants, concentrate metals from the xylem sap to facilitate growth, biofilm formation, and movement. *X. fastidiosa* infections results in changes in the total content of mineral elements in the host plant, the snapshot of mineral content is termed the ionome. Changes in the ionome of infected plants directly correlate with the severity of disease. Our most recent investigations have focused on *X. fastidiosa* outbreak in olive trees in the Salento region of Italy. In the outbreak area the 'Leccino' variety of olives has proven to be more resistant than the 'Ogliarola salentina' variety. We sampled both cultivars from infected field, classified the samples as symptomatic and asymptomatic and measured the ionome of leaf samples. These analyses reveal that 'Leccino' variety has increased manganese levels compared to 'Ogliarola salentina'. The transition from asymptomatic to symptomatic also showed further remodeling of the ionome. The differences in the two cultivars and the implications for disease will be discussed.

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