

Tracking short-range attraction of vectors of *Xylella fastidiosa* to volatile organic compounds

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Xylella fastidiosa is the causative agent of economically devastating plant diseases, with *Neophilaenus campestris*, *Philaenus spumarius*, and *Cicadella viridis* confirmed as its vectors. Currently, there's no foolproof method for eradicating this bacterium, making controlling the insect vectors the most efficient approach for limiting its spread. To reduce pesticide usage and develop sustainable control strategies for insect vectors, we explored the potential of volatile organic compounds (VOCs) in modulating vector behavior. We assessed short-range attraction to five specific VOCs—D-Limonene, Nonanal, Benzaldehyde, cis-3-Hexenyl acetate, and cis-3-hexenol. Our approach involved recording vector behavior in Petri dishes using Media Recorder 2.5 software and analyzing the data with Noldus Ethovision XT 11.5 software. Our results showed that the frequency of visits within the Petri dish varied significantly based on species, gender, and the specific volatile substance. Interestingly, all species spent more time in the control area, indicating a repellent effect of proximity to the volatile substances. In conclusion, our study highlights the potential of volatile organic compounds as a means to manage *X. fastidiosa* vectors by repelling them. This research has the potential to inform the development of environmentally friendly and effective control measures, safeguarding economically valuable plants from the devastating impacts of *X. fastidiosa*.

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