

Presence and diversity of Xf vectors, their vegetal hosts and functional diversity, under climatic conditions foreseen for the Iberian Peninsula due to the global warming effect

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Abstract: *Xylella fastidiosa* Wells et al. (Xf), as other phytopathogenic bacteria, is not directly controllable so disease management still largely relies on eliminating alternative

hosts, suppressing xylem-feeding vector populations and using resistant cultivars. Its emergence in Europe with considerable negative impact on olive culture has emphasised the importance of extended monitoring of susceptible host plants and potential vectors, in regions with favourable conditions for bacterium spread. Under this assumption this study aimed to evaluate the presence and diversity of Xf vectors, their hosts and the potential role of functional diversity associated with the vector's natural enemies, under climatic conditions like those foreseen for the Iberian Peninsula due to the global warming effect. Invertebrates were vacuum sampled during the autumn of 2016, from olive canopies and weeds, in 117 sampling sites distributed by an olive production region with more than 16 thousand square kilometres, where 585 olive trees were sampled, after two successive years with summers and autumns with temperatures and drought above average. Auchenorrhyncha, predators and parasitoids were identified to the lowest taxonomic level possible. *Philaenus tessellatus* Melichar and *Neophilaenus campestris* (Fallén) were the identified potential Xf vectors. Abundance of vectors and natural enemies was compared between olive canopy and weeds through GLMs. Mean abundance was generally higher on weeds with statistically significant differences for all analysed taxa, except for Platygastroidea (Hymenoptera), Coccinellidae (Coleoptera) and Aranea. This study showed the resilience of potential Xf vectors under conditions of high temperature and dryness associated with global warming conditions, as well as the notorious importance of weeds as hosts to vectors, despite their scarcity and availability, and reveals the existence of natural suppression relationships between potential vectors and parasitoids, even in these climatic conditions.