Virulence of entomopathogenic fungi from the olive ecosystem against *Philaenus spumarius*

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Philaenus spumarius (Linnaeus, 1758) (Hemiptera: Aphrophoridae), commonly known as the meadow spittlebug, is the main vector of *Xylella fastidiosa* (Wells et al. 1986) (Xathomonadales: Xanthomonadaceae) in Europe. This pest–disease complex affects a variety of economically important crops, including olives, almonds, and grapevine. *P. spumarius* is difficult to control, and broad-spectrum pesticides are often used, despite their negative environmental impacts. There is a need for more sustainable control methods. Due to their unique mode of action among entomopathogens, by contact, fungi are possibly the most promising tool for the control of pierce-sucking insects such as *P. spumarius*. This study aimed to evaluate the virulence of ten entomopathogenic fungi strains belonging to *Metarhizium*, *Beuveria* and *Akanthomyces* that have been isolated from the olive ecosystem, either soil, olive crop and olive natural covers, and applied to *P. spumarius* adults by spraying. Whilst four *Metarhizium* strains (EAMa 10/01-Fil, EAMa 09/01-Su, EAMb 01/58-Su, and EAMb 09/01-Su) and two *Beauveria* ones (EABb 08/04 - Ep and EABb 10/20- Fil) led to mortalities above 50.0%, strains EAMa 10/01-Su and EAMb 01/58-Su stood out for their 100.0% and 95.2% mortality rates, respectively, and for their average survival times of 4.57 and 5.83 days respectively. Therefore, these two strains show promise to be included in a *X. fastidiosa* IPM program, whereas semi-field and field level studies are mandatory to really unravel their possible benefits not only for meadow spittlebug control, but also for olive crop production.

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