Abstract

Migration and Multiplication of Pathogenic *Bursaphelenchus xylophilus* Isolates of Diverse Geographic Origins [†]

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Abstract: Unfavorable pine wilt disease expansion predictions require a rapid advance in genetic breeding against the causative agent of this disease, *Bursaphelenchus xylophilus*. The main strategy for breeding more resistant trees to *B. xylophilus*, is the use of highly virulent isolates in inoculation experiments. Different inoculation assays were conducted on *Botrytis cinerea* cultures, in addition to *P. pinaster* and *P. radiata* branch sections and seedlings. Seven virulent isolates of different geographic origin (The Japanese nematode isolates S10 and Ka4, the Portuguese Pt72CH and Pt72T, the Spanish SpSA1 and SpPO1, and the American USA745.) were used in the experiments. The main aim of this work is to investigate differences among the seven isolates. The experiments determined that the studied isolates are significantly different. On fungal culture, the isolate from the USA showed the highest multiplication rate. Both seedling inoculation and branch sections experiments pointed to the Portuguese isolate Pt52T and the Spanish SpPo1 as the most virulent to *P. pinaster*. Conversely, higher numbers of the Pt72CH isolate passed through *P. pinaster* branch sections. The most virulent isolate for *P. radiata* was the Japanese S10, though it only showed significant differences in mortality when compared to the Spanish SpSA1. These results suggest that *B. xylophilus* have differential host specificities. The supplementary material depicts the methodology used in the inoculation assays, as well as shows figures of the most relevant results.

Keywords: pinewood nematode; branch sections; plant inoculation; maritime pine; Monterey pine

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Supplementary Materials: The following are available online at <https://www.mdpi.com/2673-4931/3/1/84/s1>.