

**Competitive interaction between *Bursaphelenchus xylophilus* and the closely related species *Bursaphelenchus mucronatus***

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**Abstract:**

*Bursaphelenchus xylophilus* is an invasive pest of pines. When introduced accidentally into a new geographic area, it will share the same ecological niche as the closely related indigenous species, *B. mucronatus*. Competition between native and introduced species may affect the spread of invasive species, so we investigated the possible competitive interaction between these two nematode species transmitted by the same insect-vector, *Monochamus galloprovincialis*. In order to understand how the two species interacted, we compared, under laboratory conditions, their growth on fungi and pines, their ability to board *M. galloprovincialis*, and their competitive interaction in situations of double boarding. *Bursaphelenchus xylophilus* showed greater rates of growth than *B. mucronatus* in single and mixed treatments. The invasive species was competitively superior to the indigenous species in mixed treatments (fungi and pines). This competitive advantage in pines, prior to the beetles' infestation, could explain the greater abundance of the invasive (68%) species over the indigenous in the insect vector *M. galloprovincialis*. The indigenous species had no effect on beetle boarding of the invasive species. The occurrence of *B. mucronatus* in France and its wide distribution on numerous pine species could have an effect on *B. xylophilus* invasion in the initial steps of an invasion process. Nevertheless, due to the superior competitiveness of *B. xylophilus*, we cannot state that *B. mucronatus* will be efficient as a factor to decrease propagation of this invasive species.

**Keywords:** INSECT VECTOR; INTERSPECIFIC COMPETITION; LOTKA-VOLTERRA MODEL; MONOCHAMUS GALLOPROVINCIALIS; PINWOOD NEMATODE

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