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UNIVERSITÀ DEGLI STUDI DI TORINO

AN ECTOMYCORRHIZAL FUNGUS MAY DECREASE THE SUSCEPTIBILITY OF *PINUS SYLVESTRIS* TO THE NATIVE PATHOGEN *HETEROBASIDION ANNOSUM* BUT NOT TO THE EXOTIC *H. IRREGULARE*

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In the last Century, the intensification of global trade has greatly enhanced the likelihood of biological invasions resulting in increasing threats to native ecosystems. The North American root rot agent *Heterobasidion irregulare* Garbel. & Otrosina was accidentally introduced in central Italy in 1944 where the Eurasian congener *H. annosum* (Fr.) Bref. is also present. *H. irregulare* has become invasive colonizing pine and oak stands along 103 km of coastline west of Rome. Although many studies have focused on factors driving biological invasions, very little is known on the role played by native mycorrhizal fungi in modulating host tolerance to non-native pathogens. The aim of this study was to compare the level of susceptibility of *Pinus sylvestris* L. to *H. irregulare* and *H. annosum* between plants mycorrhized and non-mycorrhized with the native ectomycorrhizal fungus *Suillus luteus* (L.) Roussel. Inoculation experiments were performed with 3 pathogen genotypes per species on seven-months-old mycorrhized and non-mycorrhized seedlings. To assess the level of host susceptibility, seedlings were inspected every day and scored depending on their time to death. The resulting survival curves pointed out that mycorrhizae reduced significantly the level of host susceptibility to the native pathogen, but not to the exotic one. Besides, non-mycorrhized plants were equally susceptible to both pathogens. These findings suggest that a symbiont-mediated mechanism of tolerance might protect the host plant from a native pathogen, but may fail in the presence of a non-native one. In this model system, this mechanism may confer an additional competitive advantage to *H. irregulare*.

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