Submitted Abstract

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Abstract

The success of plant introductions has partly been explained by their presumed escape in their new environment from their natural enemies (e.g., herbivores and pathogens) that occur in their natural range (enemy release hypothesis - ERH). Improved growth and reproductive potential may lead to a rapid spread from the site of introduction and species may become invasive, such in the case of several species of Pinus introduced in the southern hemisphere. This may have been facilitated by their association with ectomycorrhizal fungi (as opposed to the prevalent arbuscular mycorrhizal (AM) symbiosis in the southern hemisphere) that may have afforded better protection from soil-borne pests and pathogens, such as nematodes. To test the ERH, we quantified nematode loads in P. elliottii plantation, under pine individuals growing in open grassy-shrubby vegetation (locally called ‘campo’), under herbaceous and shrubby species of the campo and in the native rain forest AM conifer Araucaria angustifolia.

Morphological identification was made, and the nematodes were assigned to trophic groups. We found that overall, nematodes were less abundant in the Pinus stand and under Pinus trees in ‘campo’ than under Araucaria and ‘campo’ species. Root-feeding nematodes were the most abundant trophic group overall; they were least abundant in the Pinus stand and under Pinus trees in ‘campo’. Fungal feeders were not different between vegetations with or without Pinus. We suggest that the ERH appears to support the success of establishment and invasiveness of P. elliottii, characterised by a reduced root-feeding nematode load in comparison with species in native vegetation. Nevertheless, to conclusively assess the existence and magnitude of enemy release, additional biogeographical comparisons between natural enemies in the native and exotic habitats of P. elliottii are necessary.