

ADVANCES IN BIOLOGICAL CONTROL OF PLANT PARASITIC NEMATODES

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The measures presently in use for controlling plant parasitic nematodes are not adequately effective, and are even often harmful to those who employ them, and to the environment. Thus, alternative methods have been suggested, foremost among them biological modes of control.

Nematophagous fungi - such as *Arthrobotrys* - have long served as a research model for studying intimate fungus-nematode interactions, but an effective bionematicide has not yet emerged from this work. The fungus *Paecilomyces lilacinus*, which constitutes the biological component of the commercial product "Biocon", remains controversial as to its nematicidal efficacy and health safety. The bacterium *Pasteuria penetrans* is an obligate parasite of a number of sedentary plant parasitic nematodes and exhibits a close synchronization between its life cycle and the physiological development of its host; its nematicidal efficacy and its capacity to survive in the soil under extreme conditions make it a promising candidate as a potential alternative to nematicidal chemicals. However, mass production methods on a commercial scale are lacking.

The presence of a chitinous layer in the nematode egg shell has raised the idea of creating favorable conditions for chitinolytic activity in the rhizosphere of nematode-infested plants. This has led to the concept of applying industrial waste materials and chitinous compounds to the soil, or to the addition in the soil of chitinolytic and proteolytic microorganisms isolated from such soils. Field trials have shown promising results in reducing nematode infestation by such treatments.

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