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Entomology, Ornithology & Herpetology: Current Research

Commentary

The Significance of Entomopathogenic Nematodes in Pest Control

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DESCRIPTION

Entomopathogenic nematodes have been used in traditional, conservation, and augmentative biological control regimes. The majority of applied research has focused on their potential as biological control agents used in floods. Wide research has shown both their successes and failings in the controlling of insect pests of crops, ornamental plants, lawns, trees, and turf over the last three decades. Insects from hidden, soil surface, foliar, and subterranean habitats are among the insects directed. Advances in EPN mass-production and formulation technology, the identification of several efficacious isolates/strains, and the desire to reduce pesticide use have all contributed to an increase in commercial use and development of EPNs. Scarab larvae in turf and lawns, fungus gnats in mushroom production, invasive mole crickets in lawns and turf, black vine weevil in nursery plants, and Disappears root weevil in citrus, among other pest insects, are presently controlled by commercially produced Entomopathogenic nematodes. However, demonstrable success in controlling a variety of different insects has not always resulted in a large share of the pesticide market for these pests. Entomopathogenic nematodes are worms that parasitize insects and have been identified in 23 nematode families. The Steinernematidae and Heterorhabditidae have received the most attention of all the nematodes studied for biological control of insects because they possess many of the characteristics of effective biological control agents and have been used as conservational, classical, and augmentative biological control agents. The great majority of applied research has been on their potential as inundatively applied biological control agents. Over the last three decades, extensive study has shown both their achievements and failures in the management of insect pests of crops, ornamentals, and lawn and turf. The primary benefits and drawbacks of are outlined in. They can be regarded suitable candidates for integrated pest management and sustainable agriculture due to a range of characteristics, including the ability to recycle and persist in the ecosystem, which certain species lack. They may have direct and/or indirect effects on plant parasite nematodes and plant pathogen populations, can improve soil quality indirectly, and are compatible with a wide range of chemical and biological pesticides used in IPM programmes. This article will cover some of the literature on the successful use of EPNs for insect pest control above and below ground, as well as discuss some of the issues surrounding their commercialization. Pest insects can harm agricultural productivity and market access, as well as the natural environment and our way of life. Pest insects may be an annoyance and a health concern to humans, causing damage to crops and food production, parasitizing cattle, and being a nuisance.

Some of the world's most hazardous pest insects are preoccupied in Western Australia. In order to prevent the spread of insects, biosecurity precautions on your premises are essential. The term "biological control" has been applied to a variety of biological domains, most notably entomology and plant pathology. In entomology, it refers to the employment of live predatory insects, Entomopathogenic nematodes, or microbial infections to suppress pest insect populations. EPNs are one of the most effective bio-control agents for a variety of economically important insect pests. Many surveys have been undertaken around the world to identify that could be useful in the control of economically important insect pests. The term "Entomopathogenic" was originally used in nematology nomenclature in order to define the bacterial symbioses of Steinernema and Heterorhabditis.

CONCLUSION

Because of their mutualistic relationship with bacteria, EPNs kill their hosts in a very short amount of time, unlike other parasitic or necromenic nematodes. Operator and end-user safety, absence of waiting periods, minimization of the treated area by monitoring insect populations, minimum damage to natural enemies, and lack of environmental contamination are only a few of the advantages they have over chemical pesticides. EPNs have sparked a rush of scientific and commercial interest due to advancements in mass-production and formulation technologies, the finding of multiple effective isolates, and the desirability of increased pesticide use.

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CONFLICTS OF INTEREST

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