

ABSTRACT

A NEW APPROACH IN BIOLOGICAL CONTROL OF INSECT PESTS: RELEASING ENTOMOPATHOGENIC NEMATODE-INFECTED INSECTS

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Entomopathogenic nematodes (Fam. Steinernematidae and Heterorhabditidae) are obligate insect pathogenic nematodes and are used in biological control studies. Generally, infective juvenile stages of the nematodes are sprayed with a large amount of water in field applications. However, this method is not efficient against the insect pests in cryptic habitats such as sapwoods and dense vegetation covers. With this study, the efficacy of releasing nematode-infected insects “living bomb” as a new application method was evaluated against chestnut tree pest *Cossus cossus*, and lawn caterpillar *Spodoptera ciliatum* larvae. Entomopathogenic nematode *Steinernema carpocapsae* species was used in the experiments. *Galleria mellonella* and *S. ciliatum* larvae were exposed to *S. carpocapsae* IJs for 24 h to get nematode-infected larvae. Chestnut logs were used for *C. cossus* study and the new application technique showed 86% larval mortality. For *S. ciliatum*, turf grass arenas were used to conduct the experiments and releasing the nematode-infected insect technique showed 91% larval mortality. There were significant difference between treatments and control groups for *C. cossus* and *S. ciliatum*. As conclusion, the data showed that releasing nematode-infected insect technique can be used against insect pests in cryptic or similar habitats.

Key words: Biological control, *Cossus cossus*, *Spodoptera ciliatum*, entomopathogenic nematodes,