

Biocontrol of root-knot nematode, *Meloidogyne incognita* damaging queen palm, *Livistona rotundifolia* using *Trichoderma* species.

Jegathambigai, V., Karunaratne, M.D., Svinningen, A. and Mikunthan, G.

Green Farms Limited, Marawila, Sri Lanka.

Abstract

Livistona rotundifolia is a widely grown queen palm in all the net houses of floriculture industries in Sri Lanka. It is grown to an extent of 10,000 m² in Green Farms Ltd, Marawilla under shade net house. Root knot nematode is one among the key pests of queen palms and causes heavy loss in the queen palm industry. Queen palm is grown in a coir based compost media under sprinkler irrigation. Management of nematodes using chemicals is impractical due to the non availability and selectivity of the nematicides available in the market. This study attempted to evaluate the efficacy of *Trichoderma* species to control root knot nematode, *Meloidogyne incognita* that damage *L. rotundifolia* and caused heavy loss at Green Farms Ltd, Marawilla. Experiments were conducted using organic amendments with *T. viride* + *T. harzianum* (1×10^{10} cfu/ml) to control the nematodes. Carbofuran (3%) (2.5 g/750 ml pot with organic amendments), the only available pesticide with nematicidal property, was used as a standard check. Queen palm naturally infected with *M. incognita* was treated with *Trichoderma* species and the effect was compared with the carbofuran treatment. Standard procedures were adopted to count the nematodes in the pre and post treated queen palm plots. The results revealed that the application of mixture of *T. viride* and *T. harzianum* at 1×10^{10} cfu/ml significantly reduced the nematode populations in the media and number of galls in the palms compare to Carbofuran treated palms. Eggs and juveniles of *M. incognita* were found infected with *Trichoderma* species under the in-vitro conditions. The population of *M. incognita* was started declining significantly 3 weeks after the first application of *Trichoderma* species in the field. The response was apparent in the palms treated with mixture of *Trichoderma* species and recovered within 3 months as a healthy and quality product with export standards.

Indexed keywords

EMTREE drug terms: antinematodal agent; carbofuran

EMTREE medical terms: animal; antibiosis; Arecaceae; article; biological pest control; growth, development and aging; methodology; nematode; parasite identification; parasitology; physiology; plant root; population density; *Trichoderma*

MeSH: Animals; Antibiosis; Antinematodal Agents; Arecaceae; Carbofuran; Parasite Egg Count; Pest Control, Biological; Plant Roots; Population Density; *Trichoderma*; Tylenchoidea

Medline is the source for the MeSH terms of this document.