Abstract

This study was carried out with the aim of developing sustainable approaches for management of phyto-nematodes affecting carnations. Selected organic substrates namely; sugarcane bagasse, tea, assorted flower composts and molasses, nematophagous fungus *Paecilomyces lilacinus* (PL plus®) and neem (Achook®) were evaluated against a standard chemical nematicide, fenamiphos (Nemacur®), and an untreated control. The experiments were carried out under greenhouse conditions. Soil samples were collected before application/planting and at 90 and 180 days after treatment. Parasitic nematodes belonging to 16 genera were detected in plots where carnations were grown as monoculture crop for several years. The most predominant nematodes detected were in the genera *Scutellonema, Meloidogyne* and *Helicotylenchus,* with 100 and 82% frequencies of occurrence, respectively. Incooporation of the treatments reduced the numbers of plant parasitic nematodes, except *Helicotylenchus, Criconema* and *Longidorus* genera. Galling due to root-knot nematode was reduced by 53%, in plots treated with sugarcane bagasse and, 69% by the neem product. This study established that application of organic substrates, neem and *P. lilacinus* were suppressive to plant parasitic nematodes. The materials could be recommended for use in sustainable carnation production systems.