

Soil nematodes assemblage associated with ridge-gourd fields maintained with conventional and good agricultural practices (GAP)

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Soil nematodes play a key role in the functioning of soil ecosystems. Despite their great importance, to date, only a few studies focused on nematode assemblage in Sri Lanka, especially in the southern region. In this study, soil nematode communities associated with good agricultural practices (GAP) and conventionally managed ridge-gourd fields, located in “Mirissa”, Matara district, were identified and their abundance was determined in the rhizosphere and non-rhizosphere regions at three depths (0 - 5, 5 - 10, and 10 - 15cm) over three months from August to October 2022. Two fields per cultivating practice were assessed monthly by selecting five plants using systematic random sampling. Five soil cores (125g) were taken at each depth, and the nematode abundance was determined in three, 100 g sub-samples and averaged, using Baermann funnels. Randomly selected 150 nematodes were taxonomically identified up to the Genus level. Organic matter content, pH, soil moisture, and texture of the soil were measured. Altogether, 15 nematode species were found representing five feeding groups, bacterivores (2 spp.), plant feeders (6 spp.), omnivores (4 spp.), and predators (3 spp.). GAP fields contained higher ($P<0.05$) nematode abundance than the conventional fields. All the time, the larval abundance outnumbered the adults ($P<0.05$). In both practices, the rhizosphere region constituted higher nematode abundance ($P<0.05$) than the non-rhizosphere region, while the abundance decreased ($P<0.05$) with increasing depth. *Helicotylenchus* was the dominant species (72.2 ± 0.4) in GAP fields, while *Rotylenchus* was dominant (42.2 ± 0.12) in the conventional fields. GAP fields contained higher ($P<0.05$) organic matter content than the conventional fields. Based on the results, GAP supported higher nematode abundance and biomass compared to conventional management in vegetable fields.

Keywords: Abundance, conventional management, soil nematodes, rhizosphere

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