



Nematophagous Fungi: An Alternative Green Approach Against Chemical Nematicides

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ABSTRACT

Plant parasitic nematodes are causing major problems in agricultural crop production. The earlier chemical management approaches are polluting the soils. So, utilization of nematophagous fungi helps in managing the below ground nematode problems by trapping and parasitizing then in all the stages. They can also serve as potential bioagents to trap the other plant pathogens too. These nematophagous fungi can interplay in nutrient conversion and help in uptake and also regulate the growth promotion and defence activities.

Keywords: Biocontrol agents, *Paecilomyces lilacinus*, *Pasteuria penetrans*, Biotic stress, Crop protection

Plant parasitic nematodes are the important pests infecting many cultivated plants as they pose a severe threat to agricultural produce. But nematode problems often go unnoticed because of their presence in the soil and attack on the root of seedling and plant and the absence of conspicuous above ground symptoms. They only produce yellowing and stunting symptoms of plant that are quite similar to mineral disorder or drought and other abiotic stress. Therefore, they are known as “hidden enemies” or “unseen enemies”. Their infestation causing 10-80% yield losses in nursery as well as in the field (Khan *et al.* 2010). In India, there is also report of various species of plant-parasitic nematode infecting different crops and their host range gradually increases due to monoculturing, intensified agro-ecosystem and adaptation on non-host plant species *viz.*, castor. Therefore, their management is our prime target for the sustainable development of agriculture.

In recent decades, the method of controlling nematodes namely *Meloidogyne* spp. *Xiphinema* sp., *Rotylenchulus* sp. etc., present in soil is the main concern. The present management techniques like, chemical nematicides *viz.*, carbofuran, carbosulfan, fenamiphos, dazomet and aldicarb which are already present in market are mostly less effective to target pests, but hazards to non-target microbial population. They have an adverse effect on soil health as leaving of residual effect by prolonged application in soil and these also lost its efficacy in control of nematodes. They resulted in increase the probability of mutagenesis in microbes, ill effects such as reproductive toxicity and carcinogenesis

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