

**DIVERSITY OF NEMATODE DESTROYING FUNGI AND NEMATODE
COMMUNITY IN SELECTED VEGETABLE GROWING AREAS IN KENYA**

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ABSTRACT

Nematodes are a diverse group of microscopic worm like creatures. They provide essential ecological services that keep soil healthy. They are also parasitic to plants and cause economic damage to many plant crops. Chemical control of plant parasitic nematodes essentially involves the use of synthetic nematicides. However, apart from its very high cost; increased concern for the environment contamination has necessitated a reduction in the amount of nematicides used for nematode control. There has been an increase in the intensity for the search of efficient ecologically sound plant parasitic nematode management strategies. An environmental friendly management strategy that utilizes natural enemies to lower the population of pest has been employed on other agricultural pests. Likewise natural enemies of plant parasitic nematode can be used to control nematode pests. Nematode destroying fungi have received a lot of attention for development as biological control agent of plant parasitic nematodes. Unfortunately, there exist multidimensional drawbacks to the realization of the full potential of the nematode destroying fungi in the contest of plant parasitic nematodes. Unavailability of reliable methods to visualize the fungi and demonstrate their activity in their natural habitat is a major impediment. Consequently activity of the fungi in the soil has been inferential through the reduction in numbers of nematodes or reduction of their damage to plants. Unfortunately all factors affecting these groups of fungi have not been documented; some of the reported factors include soil condition, nematode species, rate of development and host plant. The objective of this study was to investigate the effect of temperature on the population of nematode and nematode destroying fungi in selected vegetable growing areas in Kenya. Soil samples were collected from five areas

with different temperature ranges, these areas were Kinale, Kabete, Athiriver, Machakos and Kibwezi. A total of 171 nematode destroying Fungi isolates were identified. Kabete had the highest frequency of occurrence at 33.92%, Followed by Machakos, Kibwezi, Athiriver and Kinale at frequencies of 24.56, 22.81, 11.70 and 7.02% respectively. The identified fungi belonged to the genera *Athrobotrys*, *Monacrosporium* and *Stylopaga*. *Athrobotrys oligospora* was the most diverse fungi and had the highest frequency of occurrence, followed by *A.dactyloides*, *Monacrosporium cionopagium*, *Stylopaga grandis* and the least was *Athrobotrys longispora* with frequencies of occurrence of 46.20, 45.61, 5.85, 1.17 and 1.17 % in that decreasing order. A total of 11,050 nematodes were collected from the five areas. Kinale had the highest nematode population followed by Athiriver, Kabete, then Machakos and the least was recorded at Kibwezi with population of 5,070, 2,080, 1,625, 1,235 and 1,040 in that decreasing order. From this study, it was evident that fungal population was low in soils with high fertilizer application. While nematode population was high in areas with low temperature. From this study, it can be concluded that agricultural activities affected the diversity and occurrence of nematode destroying fungi. The study shed some light on effect of agricultural activities and temperature changes on population, occurrence and diversity of nematode destroying fungi and nematodes.

KEY WORDS:

Biological control, *A. oligospora*, Agricultural practices, Vegetable field, Plant parasitic nematode.