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ON THE OCCURENCE OF THE SPIRAL NEMATODE *HELICOTYLENCHUS*
MULTISINCTUS (COBB, 1873) ASSOCIATED WITH
BANANA PLANTS IN KERALA

Banana plants are known to be infested by a few species of nematodes of which *Rotylenchulus reniformis* (Dasgupta *et al* 1968), *Radopholus similis*, *Meloidogvne incognita* and *M. javanica* (Nair *et al*, 1969), *Criconemoides* sp., *Helicotylenchus* sp., and *Pratylenchus* sp., (Mammen, 1973) are reported from Kerala. *R. similis* is reportedly the most serious pest of banana plantations throughout the world (Blake, 1972). *Helicotylenchus multisinctus* also has a world wide distribution and is also definitely known to cause decline in the yield of banana in some countries (Miny *et al*, 1960). Published literature on the distribution and pathogenecity of this nematode in India is practically absent. The present contribution is made in this context.

Main roots of banana (*Musa paradisiaca* var. *palayamthodan*) were collected from four localities in the Trivandrum District, washed free of soil and cut into pieces of 2 cm. and the pieces mixed well. An aliquot of 5 gm of the root sample was taken from this mixture and homogenized in a warring blender for two minutes at the lowest mixing speed (Coolen and D'Herde, 1972) in order to release the nematodes from the roots. The population of the nematode was then estimated by diluting the homogenate to a fixed volume and counting the nematodes in the subsamples of the homogenate with the aid of a counting chamber.

The population density of this nematode in four localities in the Trivandrum District is given in Table 1. It appears from the data that nematodes are more abundant in Kariavattom compared to other localities. The population of the nematodes in the feeder roots collected along with the main roots has also been estimated separately but only from Kariavattom. Population density as high as 23,700/5 gm has been noted in the feeder roots which is more than or as high as that in the main roots. In addition to the localities given in Table 1, root samples from other localities in this district were also found to harbour this nematode.

Infested roots show lesion (Fig. 1, LE) which are reddish brown and dark brown in young and old roots respectively. In severe infestations the lesion coalesce and the entire surface of the roots turn dark in colour leading to necrosis and death of the roots. Feeder roots (Fig. 1, FE) die quickly than

main roots and in the case of the latter abnormal branching of the roots above the point of death (Fig. 1, BR) are noticed as reported by earlier workers. Sections of the diseased roots indicated that parenchyma cells in the cortex in the affected area were reddish brown in colour and more vacuolated in appearance as observed by Blake (1966). The discolouration spreads to the stele in severe cases.

Table 1

Population of *Helicotylenchus multisinctus* in banana (*Musa paradisiaca* var. *palayamthodan*) roots from four localities in the Trivandrum District

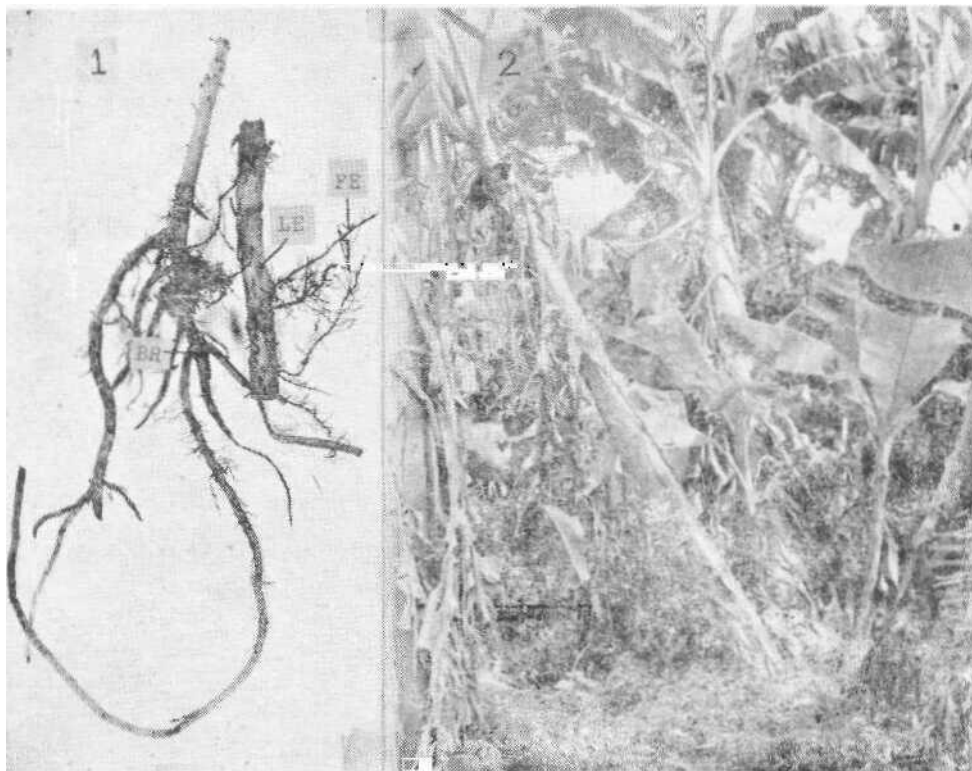
Locality	No. of nematodes in 5 gm of the main roots			Total
	0	0	Juveniles	
Kariavat tom	3,400	1,125	6,450	10,975
Parasala	1,800	500	1,533	4,833
Nedumangadu	1,266	466	3,333	5,065
Kesavadasapuram	1,666	200	3,733	5,599

Heavily infested plants of the variety *rasakadali* with a population of 10,250/5 gm roots showed insecure anchorage (Fig. 2), lesser number of leaves and stunted growth. The nematode was noted in 1 cm thick slices from the periphery of the suckers and here a population of 4000/5 gm sample was maintained. These instances were observed in Kariavattom. Apparently the nematode has the potential to become an economically important pest in Kerala.

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സംഗ്രഹം

തിരുവനന്തപുരം ഡിസ്ട്രിക്ടിൽ കാര്യവട്ടം, പാറശ്ശാല, നെടുമങ്ങാട്, കേശവദാസപുരം എന്നീ സ്ഥലങ്ങളിലെ വാഴകൃഷിയെ സാരമായി ബാധിച്ചുകൊണ്ടിരുന്ന 'ഹെലികോപൈലൈങ്കസ്' മൾട്ടിസിൻക്ടസ് എന്ന ഒരു നിമാറോഡിനെ കാണുകയുണ്ടായി. വാഴയുടെ വേരുകളിലും മണലിൽ ഒരു സെൻറിമീറ്റർ വരെ OT²yranglejo ഈ നിമാറോഡുകൾ കണ്ടു വരുന്നു. ഇതു ബാധിക്കുന്ന ഭാഗങ്ങൾ നിരം മാറി ക്രമേണ അഴുകുന്നു. വളരെ അധികം നിമാറോഡുകൾ ആക്രമിക്കുന്ന ചെടികൾ കട പറിഞ്ഞു വീഴുന്നതും കാണാം.



Musa paradisiaca var. *rasakadali*. fig. 1 Roots; LE - leishones; FE - feeder roots; BR - branch roots.

Fig. 2 Plants showing insect anchorage and stunted growth.

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