J. Phytol. Res. 2(1), 1989

A SURVEY OF NEMATODES ASSOCIATED WITH BRINJAL (EGGPLANT) IN GUNA DISTRICT OF MADHYA PRADESH

G. C. SAXENA, Y. P. SINGH and R. K. DESHMUKH
Botany Department, Govt. P. G. College, Guna (M.P.), India.

A survey of plant parasitic nematodes associated with roots of Egg plant was organised in Guna district during 1987-88. It revealed the presence of 13 genera of plant parasitic nematodes and 3 genera of free living forms. The root-knot nematode, *Meloidogyne incognita* was found in 80 per cent of the samples collected. Members of *Hoplolaimidae* : *Helicotylenchus*, *Hoplolaimus* and *Pratylenchus* were recorded from the majority of the areas surveyed.

Keywords : Plant parasitic nematodes; Brinjal; Survey.

Nematodes are one of the limiting factors in vegetable production throughout the world (Reddy, 1979). Information regarding nematode populations and damage of crops in different areas of our country is meagre. In the present communication a survey was undertaken during 1987-88 to study the population density and distribution of nematodes associated with the Egg plant in the Guna district of Madhya Pradesh.

About 100 soil samples were collected from different locations in the Guna region. The sampling, for obtaining a composite sample, was made from different sub-samples taken at random within the area in a serpentine fashion. About one kg of soil from root zone and five g of root were collected in plastic bags. For extraction and counting of nematodes, 240 g soil samples were analysed by Cobb's washing and sieving technique, Baermann's funnel technique and method of direct observation of very small quantities of soil under the microscope. For endoparasites, roots washed free of soil, cut into small pieces, macerated in blender, then stained in cotton-blue–lactophenol solution and examined under the microscope. The nematodes collected by these methods were stored in FA or FAA. Analysis of soil was also undertaken. The soil samples were categorised on colour basis into five broad types and results of the various tests conducted are presented in Table 1.

Table 1. Soil–Analysis.

Soil type	% moisture	pH range	Conductivity Micromhos/cm	% Mechanical fraction			% organic occurrence
				Sand	Silt	Clay	
Black	16.5	5.7–8.0	564	60	20	20	0.21
Grey	13.5	5.7–8.5	655	57	22	20	0.15
Yellow	13.1	5.7–8.0	625	50	30	20	0.16
Brown	13.5	5.7–7.7	518	62	20	13	0.09
Brick red	10.0	5.7–7.2	524	67	20	13	0.08

Table 2. Population density of Nematode genera associated with Egg plant in Guna district.

Family	Nematodes	Population density	Per cent occurrence
Tylenchidae	*Tetylenchus*	42	10
	Zygotylenchus	06	10
	Tylenchus	72	60
	Tylenchorhynchus	54	50
	Ditylenchus	13	20
Heteroderidae	*Meloidogyne incognita*	above 500	80
	Meloidogyne species	above 100	50
Hoplolaimidae	*Helicotylenchus*	27	60
	Hoplolaimus	09	40
	Pratylenchus	24	50
Criconematidae	*Paratylenchus*	27	45
	Hemicriconemoides	03	10
Aphelenchidae	*Aphelenchus*	09	10
	Aphelenchoides	12	20
Dorylaimida (Order)	*Dorylaimus*	21	60
	Trichodorus	27	30
	Mononchus	09	60
Rhabditidis	*Rhabditis*	15	80

About seventeen different nematode genera were found associated with the Egg plant in the Guna region Table 2 indicates that the most abundant phytoparasitic genera with very high population density occuring in this district is *Meloidogyne incognita*. The populations of *Tylenchus*, *Tylenchorhynchus*, *Helicotylenchus*, *Pratylenchus*, *Paratylenchus* and *Trichodorus* are recorded from the different areas but their populations are generally low. The other phytoparasitic genera, *Tetylenchus*, *Zygotylenchus*, *Hoplolaimus*, *Aphelenchoides*, *Aphelenchus*, *Ditylenchus* and *Hemicriconemoides* recorded in a limited area with poor populations. The frequent occurrence of some free living forms of nematodes like *Dorylaimus*, *Mononchus* and *Rhabditis* around the roots in the soil indicated that some biotic relationship exists which influences the variation in the populations of these forms in the different areas.

The authors are grateful to the Director M.P. Council of Science and Technology, Bhopal for the financial assistance and Dr. B. P. Saxena, Principal, Govt. P. G. College, Guna for providing laboratory facilities and encouragement during the course of this study.

Accepted March, 1989

References

Reddy P 1979 *Indian Phytopath* 32 534