

shoot weight was also adversely affected. Damage caused by inoculum densities other than lowest and highest was also significant in case of shoot and root weights when compared with the uninoculated control.

Final nematode population is also found to increase significantly at all inoculum densities both at six months and one year. At six month, rate of increase has been 19.6, 9.8, 2.7 and 1.6 times and at one year, 36.9, 17.1, 4.1 and 1.7 times in the first, second, third and fourth inoculum densities.

From these results it appears that plant growth and rate of nematode reproduction decreases linearly with increase in inoculum density. Similar results were also obtained by Rao and Swarup (1974) and Potter and Othof (1974), Winslow (1965) and Haque (1976).

REFERENCES

- HAQUE, M.S. (1976). Studies on plant parasitic nematodes of West Bengal. Ph. D. thesis University of Burdwan. India.
- POTTER, J.W. & OLTJOF, T.H.A. (1974). Yield losses in full maturing vegetables relative to population densities of *Pratylenchus penetrans* and *Meloidogyne hapla*. *Phytopathology* 64 : 1072-1075.
- RAO, V.R. & SWARUP, G. (1974). Pathogenicity of the spiral nematode, *Helicotylenchus dihystra* to sugarcane. *Indian J. Nematol.* 4 : 160-168.
- REYNOLDE, H.W.; O'BANNON, J.H. & NIGH, E.L. (1974). The citrus nematode and its control in the South West. *U.S. Dep. Agric. Tech. Bull, No. 1478* : iv+15 pp.
- WINSLOW, R.D. (1975). Effects of frequency of potato cropping on cyst numbers in plots artificially infested with the potato cyst nematode, *North Irel. Minist. Agric. Rec. Agric. Res.* 21 : 9-12.

REACTION OF RESISTANT TOMATO VAR. NTDR-1 TO VARIOUS ISOLATES OF ROOT-KNOT NEMATODES

BY

Y. D. NARAYANA* and D. D. R. REDDY**

Department of Plant Pathology, University of Agricultural Science, Hebbal,
Bangalore (Karnataka)

To study reaction of resistant tomato variety NTDR-1 to *Meloidogyne* spp. isolates (*M. incognita* and *M. javanica*) were obtained from the cultures collected and maintained in

*Present address : Sorghum Pathology, ICRISAT, PATANCHERU P.O. Andhra Pradesh, 502 324, India.

**Present address : Agricultural Research Institute, Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad-500 030, Andhra Pradesh, India.

department of Plant Pathology, University of Agricultural Sciences, Hebbal, Bangalore. Nematode isolates were initiated from single egg mass and established on Pusa Ruby tomato in 15cm pots containing sterilized soil to provide inoculation for studies. Resistant N1DR-1 and susceptible Pusa Ruby tomato seedling of four weeks old were transplanted individually one seedling per pot having sterilized soil. Four replicates of each variety were inoculated with 1000 larvae of the given isolates 7 days after trans plantation. Forty five days after inoculation the plants were depotted and used as criteria for of soil. Total number of galls present in each root system were counted and roots were washed free determining the infectivity of particular isolate.

The data show (Table I) that out of 11 isolates of *M. incognita* 10 isolates did not produces any galls on the resistant NTDR-1 whereas one population from Tirupati produced only one gall, out of 4 *M. javanica* populations tried produced less than two galls in the resistant

TABLE I

Reaction of resistant and susceptible tomato varieties to various isolates of Meloidogyne incognita and M. javanica

Serial No.	Place	Mean number of root-knot galls/Plant	
		Pusa Ruby (Susceptible)	NTDR-1 (resistant)
<i>M. incognita</i>			
1	Bangalore, GKVK (Karnataka)	142.2	0.0
2	Bangalore, Hebbal (Karnataka)	150.7	0.0
3	Challakere (Karnataka)	188.5	0.0
4	Hassan (Karnataka)	134.7	0.0
5	Madhugiri (Karnataka)	132.0	0.0
6	Mysore (Karnataka)	139.0	0.0
7	Bhubaneshwar (Orissa)	209.2	0.0
8	Hissar (Haryana)	107.5	0.0
9	Kayangulam (Kerala)	182.0	0.0
10	Chittoor (Andhra Pradesh)	92.0	0.0
11	Tirupati (Andhra Pradesh)	319.2	1.0
<i>M. javanica</i>			
1	Shikaripur (Karnataka)	123.2	2.0
2	Mandya (Karnataka)	346.7	1.7
3	Barakpur (West Bengal)	130.5	1.5
4	Bhubaneshwar (Orissa)	173.0	1.7

NTDR-1 tomato variety. Whereas the susceptible Pusa Ruby produced as high as 123 to 346 346 galls per plants. Presence of one or two galls in resistant NTDR-1 infected with *Meloidogyne* spp. is in agreement with the earlier findings of Shivashanker *et al.* (1975). Thus it is evident that among the isolates tried none of these are aggressive and resistant breaking type. The screening of the resistant NTDR-1 needs to be extended to the many isolates of *M. incognita* and *M. javanica* available in India and also other related species like *M. hapla* and *M. arenaria* have to be tested to confirm the resistance.

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REFERENCES

- SHIVASHANKER, G. REDDY, D. D. R., SHETTY, K. G. H. & RAJENDRA, B. R. (1975). Strains of tomato resistant to root-knot nematodes (*Meloidogyne* spp.) *Curr. Sci.* **44** : 241.