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EFFECT OF LATEX SEED DRESSING ON *ROTYLENCHULUS RENIFORMIS* AND PLANT GROWTH OF SOME VEGETABLES

by
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The reniform nematode, *Rotylenchulus reniformis* Linford *et* Oliveira has been recognized as one of the serious pest problems in India. It causes enormous losses in some important vegetable crops. In the present study we have investigated the feasibility of use of plant latex seed dressings for the control of this nematode.

Materials and Methods

Latex was collected from *Calotropis gigantea* (L.) R. Br. ex Ait. (Family-Asclepiadaceae), *C. procera* (Ait.) R. Br. (Fam-Asclepiadaceae), *Euphorbia milii* Des Moulins (Fam-Euphorbiaceae), *E. neriifolia* (Fam-Euphorbiaceae) and *E. tirucalli* L. (Fam.-Euphorbiaceae), after making oblique cuts with the help of a sharp scalpel, and were arbitrarily termed as standard (S). Seeds of tomato, *Lycopersicon esculentum* Mill. cv. Pusa Ruby, eggplant, *Solanum melongena* L. cv. Pusa Purple long and okra, *Abelmoschus esculentus* Moench. cv. Pusa Sawani were thoroughly mixed with different plant latex so as to give a uniform and smooth coating over the seeds. The treated seeds were then spread in an enamel tray and allowed to dry in shade before sowing. Excepting okra, the treated as well as untreated seeds were then sown in different clay pots containing sterilized soil. Three-week-old seedlings were transplanted singly to 15 cm clay pots containing 1 kg autoclaved soil-manure mixture and then inoculated with different inoculum levels of freshly isolated specimens of *R. reniformis* viz. 50, 500 and 5000 per pot. Inoculations were made by transferring the nematode suspension to holes in the soil around the plant root system. In the case of okra, seeds were directly sown in pots. After germination, thinning was done to keep only one plant per pot. At 3 weeks plants were inoculated as above and each treatment replicated 3 times. The experiment was randomized on glasshouse benches, watered daily and maintained at 28 ± 2°C.

After three months, the plants were uprooted, roots were washed and plant weights determined. The final nematode population in the soil was determined by using Cobb's sieving and decanting method. Data were statistically analysed for critical difference (C.D.) at $P=0.05$ (Sukhatme and Amble, 1978).

Results and Discussion

Results as presented and summarized in table I clearly indicate that tomato, eggplant and okra showed high susceptibility to the reniform nematode as the populations of the nematode multiplied in all the untreated pots. The plant weights were reduced significantly at higher inoculum levels of the nematode (500 and 5000 specimens/plant). However, the results were not consistant when the plants were inoculated at 50 nematodes/plant.

Seed dressing with different plant latex brought about significant reduction in the population of the nematode with a corresponding increase in the plant growth. The results however show that the damage caused by the reniform nematode was not fully recovered by the seed coating with the latex. This was also evident from the fact that the nematode population was not completely checked.

It appears in the present findings that the plants raised from treated seeds, have acquired some resistance/tolerance against the test nematode resulting in its poor multiplication. The seeds of tomato, eggplant and okra when coated with different plant latex showed significant improvement in plant growth. This may also be due to the reduction in nematode population.

Our results support those of Maqbool *et al.*, (1987) who have obtained reduced root galling on eggplant and tomato by the soil application of latex of *Euphorbia caducifolia* and *Calotropis procera*.

In the present study it was also noted that the application of plant latex has improved plant growth even in uninoculated controls.

TABLE I - *Effect of latex seed dressings on* Rotylenchulus reniformis *and plant growth of some vegetables.*

Inoculum level	Treatments[2]	Plant weight[1] (g) and nematode population[1] in different latex[3] seed dressings									
		CG		CP		EM		EN		ET	
		Wt.	Pop.	Wt.	Pop.	Wt.	Pop.	Wt.	Pop.	Wt.	Pop.
Tomato											
0	UN	24.7	—	26.3	—	24.7	—	26.3	—	26.3	—
	TR	26.4	—	28.5	—	27.3	—	29.7	—	27.7	—
50	UN	22.3	110	23.8	100	22.3	110	23.8	100	23.8	100
	TR	25.1	50	26.0	40	24.3	40	26.4	0	25.5	30
500	UN	19.0	750	22.9	800	19.0	750	22.9	800	22.9	800
	TR	20.3	410	24.1	415	20.5	390	24.8	250	24.5	430
5000	UN	12.1	5630	12.3	5750	12.1	5630	12.3	5750	12.3	5750
	TR	15.4	4435	15.3	4533	15.1	4320	14.5	4250	13.5	4450
C.D. (P=0.05)		1.7	34.5	1.7	74.0	1.1	39.6	1.7	68.7	1.4	81.3
Eggplant											
0	UN	32.6	—	34.7	—	32.6	—	34.7	—	34.6	—
	TR	35.3	—	38.7	—	34.7	—	35.5	—	36.1	—
50	UN	28.2	70	31.0	80	28.2	70	31.0	80	31.0	80
	TR	32.5	30	32.5	35	32.0	10	31.2	25	32.6	40
500	UN	35.8	740	26.7	753	25.8	740	26.7	753	26.6	753
	TR	28.5	360	27.0	353	27.8	310	28.5	310	28.6	340
5000	UN	17.1	5800	18.0	5903	17.1	5800	18.0	5903	18.0	5903
	TR	20.4	4320	19.7	4423	19.5	4150	19.0	4016	19.7	4096
C.D. (P=0.05)		1.7	37.2	1.6	58.5	1.3	29.8	2.3	66.4	1.9	41.1
Okra											
0	UN	37.8	—	41.3	—	37.8	—	41.3	—	41.3	—
	TR	41.1	—	44.4	—	40.3	—	45.9	—	43.6	—
50	UN	36.8	130	38.9	120	36.8	130	38.9	120	38.9	120
	TR	41.1	40	42.3	35	39.9	30	40.2	30	40.9	50
500	UN	30.0	960	30.6	1080	30.0	960	30.6	1080	30.6	1080
	TR	34.1	370	32.4	390	32.6	300	35.8	360	32.3	480
5000	UN	15.2	6880	16.4	6860	15.2	6880	16.4	6860	16.4	6860
	TR	18.1	4130	21.7	4150	17.8	4010	23.0	4100	18.2	4470
C.D. (P=0.05)		1.9	42.5	3.9	43.0	1.1	34.7	3.5	49.3	2.1	69.1

[1] Each value is an average of three replicates
[2] UN=Untreated seeds; TR=Seeds treated with the natural concentration of latex
[3] CG=*Calotropis gigantea*; CP=*C. procera*; EM=*Euphorbia milii*; EN=*E. neriifolia*; ET=*E. tirucalli*.

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