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THE EFFECT OF ROOT-DIP TREATMENTS ON INFESTATION OF BRINJAL BY *MELOIDOGYNE INCOGNITA*

by

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The brinjal (*Solanum melongena* L.) is a crop vegetable of commercial importance in India. It is commonly infested with root-knot nematode, *Meloidogyne incognita* (Kofoid *et* White) Chitw. Attempts to control this and other nematodes on various crops have been made with oxamyl, dazomet and other chemicals, as bare root dips, foliar sprays and soil drenches. Trials with ten pesticide chemicals for the control of root-knot nematode on brinjal plants are reported here.

The roots of 4 weeks old brinjal seedlings grown in sterilized soil were separately dipped in solutions of the pesticides (Table I) and then planted in 22 cm pots each containing approximately 2.5 kg of root-knot nematode (*M. incognita*) infested soil. After 45 days the roots were examined and the degree of nematode infestation assessed. In another trials seedlings that had been grown in soil naturally infested with nematodes for 28 days were treated with pesticides, as in the first trials, but at higher concentrations, before transplanting to sterilized soil or to nematode-infested soil. At the time of treatment the seedlings contained larvae in different stages of development but no egg masses were present. The infested soil into which they were transplanted was prepared by mixing soil, farm yard manure and sand (3:2:1 w/w) and adding finely chopped tomato roots heavily infested with root-knot nematodes egg masses. After 63 days the roots were examined (Table I).

In each of the trials the roots were stained with 0.5% boiling lactophenol/acid fuchsin to reveal the presence of larvae. Roots were

Table I - *Effect of pesticide root dips (for 60 min.) on root-knot infestation of brinjal.*

Pesticide	Conc. (ppm) a.i.	Mean root length (cm)	Mean root-knot index	Mean number of egg masses (per 2.5 cm root)
Untreated	—	13.2 ± 2.2	5.0	94.0 ± 8.0
Oxamyl	10,000	43.4 ± 4.5	1.0	no egg masses
Dazomet	5,000	32.6 ± 3.0	2.0	no egg masses
Dimethoate	7,500	21.4 ± 3.6	3.4	17.4 ± 4.4
Oxydemeton-methyl	7,500	31.4 ± 6.1	5.0	57.7 ± 9.4
Phorate	10,000	32.8 ± 4.5	5.0	73.0 ± 13.6
Aldicarb-S	10,000	28.4 ± 4.4	5.0	80.2 ± 22.0
Leptophos	10,000	27.0 ± 3.8	5.0	58.4 ± 16.6
Monocrotophos	10,000	24.6 ± 3.0	5.0	85.4 ± 17.1
Chlorpyrifos	10,000	22.6 ± 4.6	5.0	85.4 ± 15.0
Methamidophos	10,000	8.0 ± 0.9	5.0	93.0 ± 8.8

cut into 2.5 cm pieces and the number of egg masses counted in a sample of five pieces from each seedling. The severity of galling was then recorded to an index: 1 = no galling; 2 = < 25%; 3 = 25-50%; 4 = 50-75%; 5 = > 75%.

In both trials, dip treatments for 15 minutes (1,250 or 2,500 ppm) or for 30 minutes (2,500 or 5,000 ppm) did not prevent galling, with the exception of oxamyl at 5,000 ppm for 60 min which prevented the development of egg masses and for which the mean root-knot index was 2.2 compared with 5.0 in all other treatments. At the higher concentrations of pesticides used in the second trials, oxamyl (10,000 ppm) and dazomet (5,000 ppm) prevented the development of egg masses and dimethoate (7,500 ppm) reduced galling to some extent (Table I).

Oxamyl, and to a lesser extent dazomet, prevented infestation of the roots when the treated seedlings were transplanted to nematode infested soil. Some of the other treatments (Table I) decreased the number of egg masses to some extent but of these only dimethoate had an effect on the amount of galling. There was some evidence of phytotoxicity at concentrations higher than these.

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