

Bare Root Dip Treatment of Tomato Transplants with *Paecilomyces lilacinus* for the Control of *Meloidogyne incognita*

C.V. SIVAKUMAR and P. VIDHYASEKHARAN

Centre for Plant Protection Studies, Tamil Nadu Agricultural University
Coimbatore-641 003

Results on the evaluation of bare root dip treatment of tomato seedlings in a spore suspension of *Paecilomyces lilacinus* for the control of *Meloidogyne incognita* is reported in this paper.

P. lilacinus culture required for the experiments were maintained on standard potato-dextrose-agar medium. Two glasshouse experiments were conducted, the first for assessing the effectiveness of bare root dip treatment with a fungal spore suspension and the second for fixing the effective spore concentration. Fifteen-day-old fungal cultures were macerated well in sterile tap water in a waring blender and the spore concentration adjusted to the required level. Tomato cv. PKM 1 was used in both the experiments. The first experiment consisted of two treatments viz., root dip in spore suspension containing 4×10^5 spores per ml and root dip in sterile tap water (control), with 10 replicates in each. In the second experiment, the same method of treatment was followed, the spore concentrations used being 0 (control), 1×10^5 , 2×10^5 and 4×10^5 per ml of suspension with seven replications in each treatment.

Twenty-five-day-old tomato seedlings were pulled out from the nursery and the roots were dipped in different concentrations of spores of the fungus for five minutes and transplanted in pots containing 2.5 kg of air-dried red loamy soil amended with 2% (w/w) well powdered and steam sterilized cattle manure artificially infested with *M. incognita* to obtain a soil population of 0.5 juveniles per g. The plants were removed 45 days

after transplanting and the galls in the roots were indexed on a 1-5 scale (1= no galling; 2=1-25% roots galled; 3=26-50% roots galled; 4=51-75% roots galled, 5=above 75% roots galled). In the first experiment, the percentage of eggs parasitized by the fungus was assessed by dispersing eggs from 10 egg masses selected at random in 4% sodium hypochlorite and counting the number of parasitized and unparasitized eggs.

Significant control of *M. incognita* was observed in plants treated with the fungus at 4×10^5 spores/ml in the first experiment, which was evident from reduced galling and increased shoot and root weight (Table 1). The nematode eggs were parasitized to the extent of 16.59% in the fungus-treated plants.

Spore concentrations of 2×10^5 and 4×10^5 per ml gave better results than the lower concentration of 1×10^5 per ml (Table 2). At high spore concentrations, significant increase in shoot weight and reduction in root galling was observed. The number of egg masses per unit weight of roots was, however, on par at all the three spore concentrations but significantly different from the untreated control. Treatment of planting material has also been reported to have given control of *Radopholus similis* on banana (Tandingan and Davide, 1986) and *Globodera rostochiensis* on potato (Davide and Zorilla, 1983, 1987).

Key words : *Paecilomyces lilacinus*, *Meloidogyne incognita*, tomato.

Table 1. Evaluation of bare root dip treatment of tomato seedlings with spore suspension of *P. lilacinus* for the control of *M. incognita*

Treatment	Fresh weight of shoot** (g)	Fresh weight of root* (g)	Gall index* (n = 10)	No. of egg masses/plant*	% parasitized egg
Roots treated with spore suspension (4×10^5 /ml)	69.8	38.1	4.07	81.8	16.59
Untreated	59.2	29.7	2.80	178.0	—

** , * : Significant at 1% and 5% level, respectively

Table 2. Influence of spore concentration in bare root dip treatment of tomato with *P. lilacinus* for the control of *M. incognita*

Spores/ml	Fresh weight of shoot (g)	Fresh weight of root (g)	Gall index	No. of egg masses/g of root
1×10^5	73.8 a	16.1 a	3.3 b	14.1 a
2×10^5	91.4 b	16.7 a	2.4 ab	14.9 a
4×10^5	100.5 b	19.8 b	2.0 a	10.0 a
0 (control)	69.8 a	15.1 a	4.1 c	64.1 b

Column figures followed by different letters are significantly different from each other at 5% level by L.S.D.

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