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EFFICACY OF BOTANICALS ON HATCHING OF MELOIDOGYNE INCOGNITA

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Use of chemical nematicides are effective in management of nematode problem but their hazardous effect on environment, ground water contamination and ill effects on human health create a necessity to search newer and cheaper as well as eco-friendly methods of nematode control. Chemical nematicides very often lead to environmental pollution and even depletion of stratosphere ozone (1). A number of botanical nematicids though effective and easily biodergradable (2), are not easily available in large quantities from natural sources. Plants are known to respond to pathogens by synthesizing some proteins (3). Root-knot nematode, Meloidogyne incognitais one of destructivepest which causes losses to many economically important crops. Recently, this nematode has been found as great menace in the successful cultivation of different medicinal and aromatic plants (4). Use of botanicals for the management of nematode disease is gaining importance of their selective action, low, cost, easily bio-degradable and stimulation of hot metabolism. Several workers have reported medicinal plant extract for their nematicial and nematosatatic properties against plant parasitic nematodes (5). Consequently leaves extract of some botanical, viz. *Azadirachtaindica, Ocimumcanum, Menthaspicata, Aloebarbedeneses, vinciarosea, Tageteserecta, Calotropis gigantean, Humuluslipulus. DaturaInnoxia. Rosa damascene and Ricinuscomunis were* evaluated for the management of root knot nematode.

Fresh leaves of *Azadirachtaindica, Ocimumcanum, Menthaspicata, Aloe barbedenses, Vinciarosea, Tageteserecta, Calotropis gigantean, Humuluslupulus, Daturainnoxia, Rosa damascene* and Ricinuscomunis were washed and macereated separately in pestle and mortar. Extracts were squeezed through muslin cloth and thus collected extract were centrifuged at 2000 rpm for 15 min. A stock solution (100%) was maintained and further dilutions of 50% and 25% were prepared. Pure culture of *Meloidogyne incognita* was maintained on soybean variety "J.S-335 " raised in pots with sterilized mixture (2:1:1) sand, loamy soil and farmyard manure respectively. Sixty days after inoculation, the pots were deported and roots were washed properly and egg masses were collected from the roots by passing through 60 mesh sieve. The dilutions were tested against egg masses of *Meloidogyne incognita* by exposing 5 egg masses of uniform sizes in cavity blocks containing dilutions with 4 replications and a control with sterile distilled water at 28+1°C. The observations on egg hatched were taken after every 24 hours till 72 hours.

The different plant extract treatments and their potentized dose had favorable effect on the hatching of Meloidogyne incognita (J2) from egg masses. All the medicinal plants viz. *Azadirachtaindica, Ocimumcanum, Menthaspicata, Aloe barbedenses, Vinciarosea, Tageteserecta, Calotropisgigantean, Humuluslupulus. Daturainnoxia, Rosa damascene and Ricinuscomunis* significantly inhibit the emergence of second stage juveniles (J2) from egg masses as compared to control. Complete inhibition (100%) of the hatching was observed in treatment with Tagetes erects and *Azadirachtaindica* as compared with other treatments including control. (6) reported that hatching of larvae from fresh eggs of M. incognita were placed 24 hours into extract of *Azadirachtaindica* take was significantly reduced in all the dilution as compared with control. (7) used plant extracts for Arnica Montana, Calendula officinal is, *Carica papaya* and *Azadirachtaindica* for evaluating the nematicidal effect against M. incognita infesting tomato, variety PKMI. They reported that all plant extracts tested were found to reduce the root galls and nematode population in soil, further they reported that maximummortality was recorded in plants treated with *Azadirachtaindica* at 30% dilution. (8) reported fruits leaves extracts of *Citrus aurantifolia, Annonasquamosa, Psidium-guajava, Musaspeicesand Aeglemarmeloshad-nematostatic* properties and effective against M. incognita after exposed to various concentration viz.,

Table-1 : Efficacy of botanical on egg hatching of *Meloidogyne incognita.*

Treatments	Concent rations	% of hatched juveniles during exposure time		
		24 hours	48 hours	72 hours
Azadirachtaindica	Control	20.0	54.0	97.0
	100%	00.0	00.0	00.0
	50%	00.0	00.0	00.0
	25%	00.0	04.0	06.0
Ocimumcanum	Control	36.0	63.0	108
	100%	00.0	06.0	11.0
	50%	02.0	10.0	17.0
	25%	05.0	14.0	35.0
Menthaspicata	Control	24.0	59.0	105
	100%	05.0	12.0	18.0
	50%	09.0	16.0	27.0
	25%	13.0	20.0	35.0
Aloe barbadenses	Control	17.0	54.0	89.0
	100%	00.0	02.0	05.0
	50%	00.0	05.0	09.0
	25%	00.0	09.0	15.0
Vinciarosea	Control	14.0	34.0	72.0
	100%	00.0	03.0	08.0
	50%	00.0	07.0	15.0
	25%	02.0	13.0	27.0
Tageteserecta	Control	21.0	39.0	76.0
	100%	00.0	00.0	00.0
	50%	00.0	00.0	00.0
	25%	00.0	00.0	02.0
Calotropis gigantean	Control	23.0	60.0	94.0
	100%	00.0	07.0	15.0
	50%	00.0	12.0	21.0
	25%	07.0	21.0	36.0
Humuluslupulus	Control	25.0	73.0	101
	100%	06.0	15.0	29.0
	50%	10.0	19.0	36.0
	25%	17.0	25.0	43.0
Daturainnoxia	Control	23.0	40.0	91.0
	100%	00.0	00.0	03.0
	50%	00.0	00.0	07.0
	25%	01.0	06.0	10.0
Rosa damascene	Control	21.0	53.0	80.0
	100%	09.0	15.0	28.0
	50%	13.0	22.0	36.0
	25%	22.0	35.0	59.0
Ricinuscommunis	Control	18.0	47.0	106
	100%	00.0	02.0	06.0
	50%	02.0	09.0	15.0
	25%	25.0	11.0	26.0

250, 500, 1000 and 2000 ppm for 3,6,24,48 and 72 hours.

CONCLUSION

The result show that used of botanical plant extracts is successful in reducing the number of juveniles hatching from egg masses of *Meloidogyne incognita.* The extent of number of hatching reduces depending on qualitative and quantitative application of specific plant extracts and time duration. Therefore use of leaves extract of botanical plant (as in experiment) in more beneficial than the use of chemical treatments. The natural materials are generally non-toxic to plants as well as animals (non-bio hazardous as well as eco-friendly) as compared to chemicals.

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