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BIOEFFICACY OF SIX NEMATOCIDES FOR MANAGEMENT OF ROOT-KNOT NEMATODES IN TOMATO NURSERY

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Abstract : Evaluation of ethoprophos, phorate, sebufos, HOE 388 and benfurocarb each @ 3 and 6 kg / ha compared with carbofuran @ 3 kg / ha for the control of root-knot nematodes in infested tomato nursery indicated that none of the nematicides applied suppressed seed germination. Sebufos @ 3 kg / ha recorded maximum seed germination. Carbofuran @ 3 kg / ha gave maximum seedling height closely followed by sebufos and ethoprophos @ 3 kg / ha. However, production of transplantable and total seedlings was significantly more in ethoprophos @ 6 kg / ha followed by sebufos @ 3 & 6 kg / ha, ethoprophos @ 3 kg / ha and benfurocarb @ 6 kg / ha than the other treatments. Sebufos @ 3 and 6 kg / ha recorded significantly less root-knot index, next being ethoprophos @ 3 and 6 kg / ha. From overall observations, sebufos (Rugby 10G) even applied @ 3 kg / ha gave good growth of seedlings and thereby produced more numbers of transplantable seedlings with least root-knot disease.

Key words: Nematicides, nursery bed treatment, tomato, *Meloidogynespp.*

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EFFECT OF DATE OF TRANSPLANTING OF BASMATI CULTIVARS AND SPACING IN THE POPULATION BUILDUP OF RICE-ROOT NEMATODE, *HIRSCHMANNIELLA ORYZAE*

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Abstract: Population buildup of rice root nematode, *Hirschmanniella oryzae* on basmati rice cultivars in relation to the different dates of transplanting and two spacings revealed that there was more buildup of *H. oryzae* in crop transplanted in middle June or late July. Spacing of 15x15 cm and 20x15 cm in Basmati 370 and Pusa 615 had no effect on population buildup of *H. oryzae*. Comparatively higher population of *H. oryzae* was observed in Pak Basmati and Basmati 370. Basmati 385 supported minimum population of *H. oryzae*.

Keywords: *Hirschmanniella oryzae*, rice, dates, spacing, basmati cultivars, and population

MANAGEMENT OF ROOT-KNOT NEMATODE (*MELOIDOGYNE JAVANICA*) INFESTING GROUNDNUT WITH SOME PROMISING NEMATOCIDES

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Abstract: Field experiment was undertaken to evaluate the efficacy of nematicides in groundnut infested with root-knot nematode (*M. javanica*). On the basis of results it has been found that seed treatment with carbosulfan (25 ST w/w) alongwith soil treatment with phorate (1OG) @ 2 kg. a.i./ha increased the yield and minimized the nematode infestation.

Key words: *Meloidogyne javanica*, nematicides, root-knot index, yield.

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VARIATION INDUCED BY *MELOIDOGYNE INCOGNITA* IN TYROSINASE ACTIVITY IN THE ROOTS OF RESISTANT AND SUSCEPTIBLE VARIETIES OF COWPEA AND TOMATO

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Abstract:- Studies on the variation of tyrosinase activity in the roots of resistant and susceptible varieties of cowpea and tomato at three fortnightly intervals after inoculation with *Meloidogyne incognita* were conducted. The enzyme activity was enhanced at all stages of infection in both resistant and susceptible varieties of cowpea. In tomato, the enzyme activity was enhanced at early stage of infection but got reduced at later stages in both varieties.

Key words:- Tyrosinase, cowpea, tomato, *Meloidogyne incognita*, resistance.

COMPARATIVE EFFICACY OF SOME ORGANIC AMENDMENTS AND GRANULAR NEMATICIDES IN THE CONTROL OF *ROTYLENCHULUS RENIFORMIS* INFECTING PIGEONPEA.

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Abstract : Organic amendments and granular nematicides improved growth of pigeonpea and reduced population of *Rotylenchulus reniformis*. Poultry manure @ 0.720 g/pot with 800 g soil increased plant height, fresh shoot and root weights by 157, 500 and 390% respectively with 77% nematode reduction followed by pressmud, a sugar factory by product @ 1.198 g/pot that gave 151, 500 and 380% increase in plant height, fresh shoot and root weights respectively with 73% reduction in nematode population over control. Out of eight different nematicides tried, carbofuran and HOE 388 each @ 2kg a.i./ha and benfurocarb @ 1kg a.i. /ha significantly improved plant height, fresh shoot and root weights and effectively reduced *R. reniformis* on pigeonpea cv. T 15-15

Key words : Organic amendments, nematicides, pigeonpea, reniform nematode

EFFECT OF CHEMICALS AND NEMATICIDES ON THE ACTIVITY AND SURVIVAL OF *DORYLAIMUS STAGNALIS*, A PREDACEOUS NEMATODE

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Abstract : Ten concentrations of potassium chloride, sodium chloride, potassium iodide, urea, ammonia and five concentrations of aldicarb and carbofuran were used to determine their effects on the activity and survival of adult and juvenile stages of a predatory nematode, *Dorylaimus stagnalis*. It was found that high concentrations (0.6 - 0.8M) of all chemicals were very toxic. In low concentrations the activity decreased with an increase in the period of exposure but the nematodes survived for comparatively longer durations (2880 min). The effectiveness of salts on the activity and survival of nematodes corresponded with their molecular weights and salts with higher molecular weights (e. g., potassium iodide; Mol. Wt = 166.01) were more toxic as compared to the others with lesser molecular weight (Sodium chloride; Mol. Wt = 58.44).

Key words : Activity, chemicals, *Dorylaimus stagnalis*, nematicides, survival, toxicity.

CONTROL OF PLANT-PARASITIC NEMATODES BY SOIL AMENDMENTS WITH LATEX BEARING PLANTS

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Abstract : Soil amendments with chopped shoots of some latex bearing plants, viz., *Carica papaya*, *Artocarpus heterophyllus*, *Ficus carica*, *F. elastica*, *F. glomerata*, *Ipomoea fistulosa*, *Nerium odorum* and *Tabernaemontana coronaria* were effective in reducing the populations of *Hoplolaimus indicus*, *Helicotylenchus indicus*, *Rotylenchulus reniformis*, *Tylenchorhynchus brassicae* and *Tylenchus filiformis* infecting tomato and eggplant. Chopped shoots of *F. elastica* gave highest reduction of phytonematodes in both the plants. The plant growth of tomato and eggplant was also increased as a result of the application of these additives, highest being in plants treated with chopped shoots of *F. glomerata* and *F. elastica* respectively.

Key words : Organic amendments, latex bearing plants, tomato, eggplant, plant-parasitic nematodes, control.

EFFECT OF *HETERODERA AVENAE* ON THE GROWTH, PHOTOSYNTHESIS AND CHLOROPHYLL CONTENT IN TRITICALE

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Abstract: The studies on the growth of triticale as affected by *Heterodera avenae* revealed that the characters like shoot and root fresh and dry weights, leaf area, number of leaves and tillers and grain weight were adversely affected than shoot and root length with the increase in the level of inoculum. At 4 J2/g soil, there was significant decrease in these growth parameters but at 1 J2/g soil level there was stimulatory effect. Photosynthesis, photosynthetic efficiency as also the chlorophyll content of leaves was found to be lower at higher levels of nematode density.

Key words: Triticale, *H. avenae*, growth parameters, photosynthesis, chlorophyll.

**GENOTYPIC INFLUENCE ON LONG-TERM MULTIPLICATION OF POTATO
CYST NEMATODE, *GLOBODERA PALLIDA* AND *G. ROSTOCHIENSIS*
PRESENT IN SOUTHERN HILLS OF INDIA**

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Abstract: Two pathotypes of *Globodera pallida* and one of *G. rostochiensis* were studied for variation in long-term build up on three highly resistant VTn² potato clones and one susceptible potato clone in the southern hills of India. The variation due to genotypic influence and long-term build up relations were studied under microplot and pot conditions and compared. Existence of differential susceptibility in these clones and the utility relations of certain highly resistant VTn² clones were brought out along with the breeding worth of them.

Key words: *Globodera pallida*, *G. rostochiensis*, potato, genotypic influence, pathotypes

PREVALENCE OF RACES IN ROOT-KNOT NEMATODE, *MELOIDOGYNE INCOGNITA* IN INDIA

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Abstract : Seventeen different *Meloidogyne incognita* populations collected from 13 different states were evaluated for their reaction on differential host-plants, Cotton cv. Deltapine-16, Tobacco cv. NC-95 and Tomato cv. Rutgers. All the populations multiplied on susceptible tomato cv. Rutgers. However, in case of cotton even though penetration and gall formation occurred with all the populations, egg-mass production was recorded only with 7 populations while in tobacco, the penetration of J2 occurred with 8 populations, gall and egg-mass production was observed only with 4 populations. The reproductive factor both in cotton and tobacco was generally low when compared with tomato. Based on the reaction of test populations on host differential plants, four races were identified. Race-I was found to be widely prevalent.

Key words: Root-knot nematode, *Meloidogyne incognita*, races, reproductive factor

UPTAKE OF PHENAMIPHOS RESIDUES BY COWPEA, PEA AND OKRA

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Abstract: Rapid translocation of phenamiphos continued up to 30 days in okra, 45 days in cowpea and 60 days in pea. The residues in both root and shoot persisted as long as the chemical persisted in soil. Persistence in colder season was longer than warmer months. Residues in green pods of cowpea were below MRL while in green beans of pea and okra fruits, the levels were slightly higher than MRL.

Key words: Phenamiphos, absorption, translocation, cowpea, pea, okra