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Indian J. Nematol. 9 (1979) : 91-94

PATHOGENICITY OF *RADOPHOLUS SIMILIS* ON GINGER

BY

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Pathogenicity of the burrowing nematode, *Radopholus similis* on ginger was studied with five different levels of population viz. 0, 10, 100, 1000, and 10,000 nematodes per plant. In general, reduced plant growth, intensity of root lesions and rotting were directly proportional to the increase in nematode population. Significant reduction was recorded in root and rhizome weight as well as in the length of root and shoot. As high as 73.6 per cent reduction in the rhizome weight was recorded with an initial inoculum level of 10,000 nematodes over a period of six months. A negative correlation of nematode multiplication was seen with an increase in initial inoculum level. The present studies establish the potential of burrowing nematode as a pathogen of ginger crop.

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Indian J. Nematol. 9 (1979) : 95-100

PLANT PARASITIC NEMATODES FROM RHIZOSPHERE OF VEGETABLE CROPS AROUND CALCUTTA. 4. (NEMATODA : HOPLOLAIMIDAE)

BY

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Helicotylenchus seshadrii sp. n. and *Helicotylenchus belurensis* sp. n. collected from the rhizosphere of okra and sponge gourd respectively are described and illustrated. *H. seshadrii* sp. n. can be distinguished by its conspicuously indented stylet knobs, lip region with 4-5 annules, tail with 12-18 annules and hemispherical terminus and by its rounded, set off spermatheca which is without sperm. *H. belurensis* is characterized by its continuous, truncate lip region with 5-6 annules, lateral fields with four incisures, outer ones being crenate, by the lateral field being aerolated on outer side, tail with 10-15 annules, ventrally projected and by rounded set off spermatheca filled with sperm.

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Indian J. Nematol. 9 (1979) : 101-110

INFLUENCE OF COMBINATIONS OF ORGANIC AMENDMENTS AND NEMATICIDES ON TOMATO INFECTED WITH *ROTYLENCHULUS RENIFORMIS* AND ASSOCIATED POPULATIONS OF PREDACIOUS AND SAPROPHYTIC ARTHROPODS AND MICROPHAGOUS NEMATODES

BY

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Applications of multiple treatments involving organic amendments and nematicides on tomato revealed that aldicarb and possibly oxamyl combined with pigeon droppings or poultry droppings were the best treatments in producing highly profitable plant growth. Fensulfothion increased growth when incorporated with poultry dropping or pigeon droppings but not in the presence of sheep dung. Tomato did not show any appreciable growth with miral or DBCP when combined with any organic additive. Populations of *Rotylenchulus reniformis* were closely correlated with the degree of plant root growth and thus varied greatly within treatments. Although nematode control by miral and DBCP combinations with organic amendments was more efficient in controlling nematode populations, plant growth was not increased. Populations of microphagous nematodes and, predaceous and saprophytic arthropods increased with combinations of pigeon droppings, poultry droppings, aldicarb and oxamyl and decreased with combinations of miral. Sheep dung alone or in combination did not sustain build-up of these forms in soil.

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Indian J. Nematol. 9 (1979): 111-116

HEMICRICONEMOIDES NEOBRACHYURUS SP. N. AND *HEMICALOOSIA LUCI* SP. N. (NEMATODA : CRICONEMATOIDEA) FROM MANIPUR, INDIA

BY

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Two new species, one belonging to *Hemicriconemoides* Chitwood & Birchfield, 1957 and another to *Hemicaloosia* Ray & Das, 1978 are described from Manipur, India. *Hemicriconemoides neobrachyurus* sp. n. 0.47–0.61 mm long, has 140–162 body annules, three annules on lip region, a longer spear, a more posteriorly located excretory pore and large vulval flaps. *Hemicaloosia luci* sp. n. 0.89–1.21 mm long, has 292–330 body annules, lateral fields marked with two lines and a small oesophagus.

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PATHOGENICITY OF *ROTYLENCHULUS RENIFORMIS* ON BRINJAL (*SOLANUM MELONGENA* L.)

BY

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Pathogenicity of *Rotylenchulus reniformis* Linford & Oliveira, 1940 on brinjal (*Solanum melongena* L. var. purple round) was studied in pots. Symptoms like chlorosis, stunted growth, curling of central crown leaves, premature fall of flowers and sparsely developed roots were observed during the experiment. The data on plant growth and nematode population build up in soil and in plant roots in each pot were recorded. The nematode was highly pathogenic to brinjal at 100, and above initial levels of inoculum.

The nematode fed on pericycle cells of brinjal roots resulting in hypertrophy of the cell, thickening of cell wall and granular cytoplasm. Multinucleate giant cells were not observed in this host. Nematodes caused injury to cortical cells also.

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Indian J. Nematol. 9 (1979) : 125-135

FOUR NEW SPECIES OF LEPTONCHOIDEA (NEMATODA : DORYLAIMIDA)

BY

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Four new species of the superfamily Leptonchoidea (Thorne, 1935) Ferris, 1971 belonging to the genera *Basirotyleptus* Jairajpuri, 1964 ; *Dorylaimoides* Thorne & Swanger, 1936 ; and *Tylencholaimus* De Man, 1876 have been described. *Basirotyleptus upicus* sp. n. has 0.77-0.85 mm long body ; a=33-37 ; b=5.6-6.3 ; c=41-48 ; V=39-42 ; spicules=29-34 µm and is closely related to the type species, *B. basiri* Jairajpuri, 1964. *Basirotyleptus soueastus* sp. n. has 0.46-0.55 mm long body ; a=29-32 ; b=3.8-4.7 ; c=38-42 ; is closely related to *B. caudatus* Jairajpuri, 1966 and *B. lieberi* Goseco *et al.*, 1974. *Dorylaimoides ilyasi* sp. n. has 1.00-1.09 mm long body ; 145-158 µm long tail ; 29-30 µm long spicules and is closely related to *D. brevidens* Thorne, 1964 and *D. constrictus* Baqri & Jairajpuri, 1969. *Tylencholaimus innebus* sp. n. has 0.54-0.68 mm long body ; amphidelphic gonads ; small hemispheriod tail and is related to *T. teres* Thorne, 1939 and *T. crassus* Loof & Jairajpuri, 1963. *Dorylaimoides micoletzkyi* (De Man, 1921) Thorne & Swanger, 1936 is reported for the first time from India.

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Indian J. Nematol. 9 (1979) : 136-142

MECHANISM OF CONTROL OF PLANT PARASITIC NEMATODES AS A RESULT OF THE APPLICATION OF ORGANIC AMENDMENTS TO THE SOIL. V—ROLE OF PHENOLIC COMPOUNDS

BY

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Considerable amount of phenols was detected in the oilcakes of *mahua*, castor, mustard, *neem* (margosa) and groundnut, with highest concentration in mustard cake. Studies on the effect of ten phenolic and related compounds on the mortality and population of nematodes showed that all the compounds tested were highly deleterious to *Hoplolaimus indicus*, *Helicotylenchus indicus*, *Rotylenchulus reniformis*, *Tylenchorhynchus brassicae* and *Tylenchus filiformis* both *in vitro* and *in vivo*. However, their effect was selective. Hydroquinone, *p*-cresol, catechol, pyrogallol and gallic acid were found most toxic.

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Indian J. Nematol. 9 (1979) ; 143-151

SEQUENTIAL DEVELOPMENT OF PEROXIDASE (EC 1.11.1.7) AND IAA-OXIDASE ACTIVITIES IN RELATION TO RESISTANT AND SUSCEPTIBLE RESPONSES IN TOMATOES TO THE ROOT-KNOT NEMATODE, *MELOIDOGYNE INCOGNITA*[1]

BY

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Investigations on sequential development of peroxidase and IAA-oxidase activities were carried out in two tomato varieties, viz. Pusa Ruby (susceptible) and SL-120 (resistant) inoculated with root-knot nematode, *Meloidogyne incognita*. Quantitative increase in peroxidase activities were conspicuous throughout the period of observation in the inoculated plants of both the varieties. The disc electrophoretic analysis of peroxidase activities isolated from the nematode-infested plants revealed that both the resistant and susceptible plants responded to parasitic invasion by synthesizing new peroxidase isozymes. IAA-oxidase activities in both the varieties consisted of two anionic isozymes having peroxidase activities. It was observed that the same molecule showed IAA-oxidase as well as peroxidase activities.

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Indian J. Nematol. 9 (1979) : 152-159

EFFECT OF DATE OF SOWING ON THE RELATION BETWEEN THE POPULATION DENSITY OF THE ROOT-KNOT NEMATODE, *MELOIDOGYNE INCOGNITA* AND THE GROWTH OF THREE VARIETIES OF CHICKPEA, *CICER ARIETINUM*

BY

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The relationships between four nematization levels viz., 0, 100, 1000, and 10,000 second stage *Meloidogyne incognita* juveniles per 1000 cc of soil and the growth of three varieties of chickpea (*Cicer arietinum*) viz., B. G. 203 (Amar), H-208 and L-550 (Kabuli) were studied on four dates of sowing viz., middle of September, October, November and December. The reduction in shoot growth was maximum at the optimum sowing time, i. e., October, followed by that in September. When sowing was done in November and December, the extent of damage was minimum, perhaps due to low temperature unfavourable to infection, development and reproduction thus reducing subsequent infection. At nematization levels below the injury threshold, i. e., 1000 second stage juveniles per 1000 cc of soil, the plant growth was best in October sowing, but at higher levels the growth was best in November sowing. Plant growth was poor in December sowing and germination was poor. The variety L-550 put up more shoot growth than B. G. 203 and H. 208. The two factor interactions of dates of sowing with nematization levels and varieties were significant.

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Indian J. Nematol. 9 (1979) : 160-163

EMINENSIA ORNATA GEN. N., SP. N. (NEMATODA : RHABDITINAE) FROM KASHMIR, INDIA

BY

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Eminensia ornata gen. n., sp. n. is characterised by the presence of three lips, tubuliform stoma with anisomorphic metarhabdions having a single tooth like tubercle on the dorsal metarhabdion. Four well elevated lips guard the vulvar opening. Ovaries are didelphic and a more than three anal body widths long tail with a sub-acute terminus is present.

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Indian J. Nematol. 9 (1979) : 164-168

ON THE BIOTYPES OF *HETERODERA AVENAE*, THE CAUSAL ORGANISM OF 'MOLYA' DISEASE OF WHEAT AND BARLEY IN INDIA

BY

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Five different location populations of *Heterodera avenae* have been screened on International differentials. Presence of 2 biotypes in the nematode populations are indicated from these tests. Based on reactions on the differential varieties, populations from Jaipur, Udaipur and Narnaul appear to be one pathotype similar to pathotype B of Netherlands and the populations from Hoshiarpur and Ludhiana form another pathotype which differs from other pathotypes recorded elsewhere.

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