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INTERACTION BETWEEN *MELOIDOGYNE INCOGNITA* AND
HETERODERA CAJANI ON COWPEA

BY

N. K. SHARMA* and C. L. SETHI

Division of Nematology, Indian Agricultural Research Institute
New Delhi-110012, India

Final population of *Meloidogyne incognita* and *Heterodera cajani* were maximum when inoculated separately on cowpea grown in 10 cm pots (containing 500 ml of soil) at 200 larvae/pot. Increase in final populations was found to be density dependent. The host infestation and total multiplication of both the species were mutually inhibited by each other. Prior inoculation of either of the species proved to be detrimental to the population development of the other. Penetration sites for *M. incognita* and *H. cajani* differed considerably. *H. cajani* larvae penetrated faster and in higher number than *M. incognita*. The durations of life cycle of either of the species were similar in concomitant and single inoculations.

MORPHOMETRIC AND ALLOMETRIC VARIATIONS IN THE ADULTS
AND JUVENILES OF *HELICOTYLENCHUS INDICUS* SIDDIQI, 1963

BY

MUJIB I. AZMI and M. SHAMIM JAIRAJPURI

Section of Nematology, Department of Zoology, Aligarh Muslim University
Aligarh-202001, India

Observations on the adults and juveniles of *Helicotylenchus indicus* Siddiqi, 1963 revealed that nearly all the characters are variable. The more variable characters in the adult females are the width of median bulb, vagina length, tail length, head width, width of lateral lines near phasmids, position of hemizonid, excretory pore, G_2 , c and b ; in juveniles the future vulva position, tail length, number of tail annules, body length, values a , b and c . The characters which appear fairly constant in the adults are head height, vulva position and values of V , G_1 , and a ; in the juveniles median bulb, excretory pore, and values of σ , V and ϵ .

EFFECT OF DIFFERENT LEVELS OF POTASSIUM ON THE GROWTH
AND NPK STATUS OF TOMATO, *LYCOPERSICON LYCOPERSICUM*
AND *L. PERUVIANUM* AND DEVELOPMENT OF ROOT-KNOT

BY

WASEEM ISMAIL and S. K. SAXENA

Department of Botany, Aligarh Muslim University, Aligarh-202001, India

There was an increase in the fresh and dry weights of *Lycopersicon lycopersicum* (a susceptible host) and *L. peruvianum* (a resistant host) with the increase in potassium levels at all the inoculum densities. There was no adverse effect on the growth of both the plants when inoculated with low inoculum densities (10 or 100 larvae). However, high inoculum density (1000 larvae) reduced the growth of both the plants at all the potassium levels. The root-knot development on both the plants not only increased with the increase in the inoculum levels but also with the increase in potassium levels, but the galling was severe on *L. lycopersicum* and light on *L. peruvianum*. There was no multiplication of *Meloidogyne incognita* on *L. peruvianum* as no mature females were observed inside the roots. As a result of inoculation there was greater disturbance in the NPK content of the susceptible host than in the resistant host resulting from poor translocation of these elements from roots to aerial parts.

CONTROL OF THE LESION NEMATODE *PRATYLENCHUS*
DELATTREI LUC, 1958 ON MAIZE

BY

T. G. NAGANATHAN* and C. V. SIVAKUMAR

Department of Entomology, Tamil Nadu Agricultural University, Coimbatore-641003, India

A field trial for evaluation of systemic granular nematicides, carbofuran, aldicarb and fensulfthion for the control of *Pratylenchus delattrei* on maize, Hybrid Ganga-5 showed that aldicarb was the most effective nematicide at 2.5 kg a. i./ha applied at the time of sowing in the seed hole. The nematode population was checked throughout the growth of plants and maximum grain yield was obtained due to this treatment. Toxic residues of nematicides in harvested grains were below tolerance level.

OBSERVATIONS ON THE PATHOGENICITY OF *MELOIDOGYNE*
INCOGNITA TO EGG PLANT AND ON RELATIVE SUSCEPTIBILITY
OF SOME VARIETIES TO THE NEMATODE*

BY

S. C. DHAWAN** and C. L. SETHI

Division of Nematology, Indian Agricultural Research Institute, New Delhi-110012, India

Pathogenicity studies indicate that there was a progressive decrease in growth of egg plant as the inoculum density of *Meloidogyne incognita* increased. Significant reduction in length of top and root as also in weight of top, was observed at an initial inoculum density of 1000 larvae/1000 g soil. Maximum number of galls and total multiplication were found at 100 larvae/1000 g soil. In addition, all the 29 varieties tested against the nematode were found susceptible to varying degrees though varieties T₃, S₁ and S₄ gave somewhat tolerant reactions.

COMMENTS ON THE CLASSIFICATION OF THE LONGIDOROIDEA (NEMATODA) WITH DESCRIPTION OF THREE NEW SPECIES

BY

E. KHAN, M. L. CHAWLA and M. SAHA

Division of Nematology, Indian Agricultural Research Institute, New Delhi-110012, India

Classification of the longidoroid nematodes, '*Longidorus-Paralongidorus-Xiphinema*' complex, is discussed. The type family Longidoridae of superfamily Longidoroidea Khan & Ahmad, 1975 is divided into two subfamilies—Longidorinae and Paralongidorinae subfam. n., mainly on the basis of shape of the amphid (pouch-like and funnel/stirrup-like respectively), while the amphidial opening (pore-like or slit-like) is used for differentiating the genera *Longidorus* and *Longidoroides* gen. n. respectively of the subfamily Longidorinae. Under Paralongidorinae, the genus *Paralongidorus* is restricted to species with continuous lip region not set off as in the type species *P. sali*; the remaining ones having lip region set off by constriction(s) are assigned to *Siddigia* gen. n. Xiphidioridae fam. n. is erected to accommodate *Xiphidorus* Monteiro, 1976.

Longidoroides cedari gen. n., sp. n., is distinguished by its continuous, narrow rounded head, spear 130-145 μm long, odontophore 70-80 μm , guiding ring 70-72 μm from anterior end, male with spicules 80 μm (along median curved line) and nine supplements. *Paralongidorus esci* sp. n. is distinguished by having funnel-like amphid with amphidial aperture extending 50-60 per cent of head width, spear 140-155 μm long, tail 0.5-0.6 anal-body-diameter in length and almost hemispherical to conoid rounded in shape, and presence of spermatheca and males. *Xiphinema elitum* sp. n. is differentiated by having smoothly rounded continuous head, spear 110-120 μm long, $V=48-50$, $c=39-50$, tail dorsally convex-conoid ending in a subacute terminus and $a=43-65$.

MORPHOMETRIC STUDIES ON *PRATYLENCHUS COFFEAEE* WITH
DESCRIPTION OF *PRATYLENCHUS TYPICUS* RASHID, 1974*

BY

A. RASHID** and ABRAR M. KHAN

Department of Botany, Aligarh Muslim University, Aligarh, India

Morphometric variations of *Pratylenchus coffeae* from a single population cultured on chrysanthemum are described. *P. typicus* Rashid, 1974 is redescribed.

Pratylenchus coffeae (Zimmermann, 1898) Filipjev & Stekhoven, 1941, is of common occurrence on chrysanthemum grown in the University gardens at Aligarh. Examination of a large number of nematode specimens obtained from in and around roots of infested plants revealed a high degree of variation in a number of taxonomic characters. Keeping in view the intraspecific diversity in the genus, as pointed out by Sher & Allen (1953), Taylor & Jenkins (1957), Loof (1960), Seinhorst (1968) and Roman & Hirschmann (1959), a systematic study on the variability in morphometric characters of *P. coffeae* was taken up. *Pratylenchus typicus* Rashid, 1974 has been fully described and illustrated. [Back to Contents](#)

EFFECT OF DECAFFEINATED TEA WASTE AND WATER HYACINTH
COMPOST ON THE CONTROL OF *MELOIDOGYNE*
GRAMINICOLA ON RICE

BY

A. K. ROY

Department of Botany and Plant Pathology, Assam Agricultural University
Jorhat-785013, India

Amending soil with decaffeinated tea waste (DCTW) and water hyacinth compost (WHC) reduced root-knot nematode (*Meloidogyne graminicola*) infestation on rice and increased plant growth. Although efficacy of DCTW in controlling nematodes was greater than WHC, both had almost the same effect in improving plant growth. Liquid ammonia significantly reduced hatching of larvae ; although water-extract of DCTW also reduced hatching to some extent, the difference with the control was not significant. Neither water-extract of DCTW nor ammonia had any effect on penetration of the larvae into roots. The possible reason for greater efficacy of DCTW to suppress nematode development has been discussed.

CONTROL OF ROOT-KNOT AND RENIFORM NEMATODES WITH LOW DOSES OF GRANULAR SYSTEMIC NEMATOCIDES

BY

C. V. SIVAKUMAR, P. L. LAKSHMANAN and S. PALANISAMY

Department of Entomology, Tamil Nadu Agricultural University
Coimbatore-641003, India

Application of carbofuran 0.18 and 0.36 kg a. i./ha 10 days after transplanting (DAT), gave significantly higher yields of tomato in *Meloidogyne incognita* infested fields. Carbofuran 0.15 and 0.30 kg a.i./ha and aldicarb 0.40 and 0.80 kg a.i./ha, 10 DAT, controlled *Rotylenchulus reniformis* and increased the yield. The lower doses of these nematocides were more economical than the higher doses.

NATURE OF RESISTANCE OF COWPEA TO THE ROOT-KNOT
NEMATODE, *MELOIDOGYNE INCOGNITA* AND THE PIGEON PEA
CYST NEMATODE, *HETERODERA CAJANI*

BY

C. L. SETHI & N. K. SHARMA

Division of Nematology, Indian Agricultural Research Institute, New Delhi, India

Of the two varieties of cowpea tested, fewer larvae of *Meloidogyne incognita* penetrated the root system of Barsati Mutant (resistant) as compared to variety Pusa Barsati (susceptible). Very few showed further development and tended to become males. High concentration of Mg in Barsati Mutant plants coupled with reduced content of total Fe has been speculated as a factor responsible for resistance in this variety against *M. incognita*.

PHENOLIC AND *ORTHO*-DIHYDROXY PHENOLIC CHANGES AND
THEIR ROLE IN THE RESISTANCE AND SUSCEPTIBILITY OF
THREE TOMATO VARIETIES TO *MELOIDOGYNE INCOGNITA*

BY

ANWAR MASOOD and S. ISRAR HUSAIN

Section of Plant Pathology and Nematology, Department of Botany
Aligarh Muslim University, Aligarh-202001, India

Estimation of phenols and *ortho*-dihydroxy phenols from roots and shoots of three tomato varieties, Nemared (resistant), Chicogrande (moderately resistant) and Marglobe (highly susceptible) inoculated with *Meloidogyne incognita* was made. Individual phenolic compounds were identified by paper chromatography. Highest concentration of phenolic and *ortho*-dihydroxy-phenolic compounds was recorded both in inoculated and uninoculated plants of Nemared and lowest in Marglobe. Accumulation of these compounds was rapid in Nemared than in Chicogrande and Marglobe varieties. Hydroquinone and phloroglucinol were present only in Nemared and Chicogrande plants infested with 500 and 5000 larvae per plant. These compounds could not be detected in the Marglobe variety.