

CONTENTS

SINHA, B. K., NATH, R. P. & HAIDER, M. G., Studies on the nematodes of vegetable in Bihar III. Effect on interaction of <i>Meloidogyne incognita</i> and <i>Ozonium texanum</i> var. <i>Parasiticum</i> on brinjal	1
MUTHUKRISHNAN, T. S., RAJENDRAN, G., RAMAMURTHY, V. V. & CHANDRASEKARAN, J., Pathogenicity and control of <i>Hirschmanniella oryzae</i>	8
VENKITESAN, T. S. & SETTY, K. G. H., Pathogenicity of <i>Radopholus similis</i> to black pepper (<i>Piper nigrum</i>)	17
ALAM, M. M., SIDDIQUI, S. A. & KHAN, A. M., Mechanism of control of plant parasitic nematodes as a result of the application of organic amendments to the soil. III. Role of phenols and amino acids in host roots	27
PATEL, D. J. & DESAI, M. V., Relative tolerance of several tobacco varieties to root-knot Nematodes	32
BHATTI, D. S. & JAIN, R. K., Estimation of loss in okra, tomato and brinjal yield due to <i>Meloidogyne incognita</i>	37
GILL, J. S. & GOPAL SWARUP, Effect of interaction between <i>Heterodera avenae</i> woll. 1924, <i>Fusarium moniliforme</i> and <i>Helminthosporium gramineum</i> on barley plants and nematode reproduction	42
MISRA, C. & DAS, S. N., Interaction of some plant parasitic nematodes on the root-knot development in brinjal	46
CHHABRA, H. K., SIDHU, A. S. & INDERJIT SINGH, <i>Meloidogyne incognita</i> and <i>Rhizoctonia solani</i> interaction on okra	54
SITARAMAIAH, K. & SINGH, R. S., Response of <i>Meloidogyne javanica</i> and other nematodes to fatty acids	58
<i>Short Communications</i>	
MOHAMMAD AIJAZ SHAMSI, On the validity of <i>Helicotylenchus plumariae</i> and <i>H. insignis</i> (Nematoda : Hoplolaimidae)	66
SINGH, K. P., BAGHEL, P. P. S. & EDWARD, J. C., Feeding behaviour of <i>Aphelenchoides parietinus</i>	67
MUTHUKRISHNAN, T. S., SIVAGAMI VADIVELU & RAJENDRAN G., <i>Longidorus africanus</i> and its pathogenic effect on <i>Crossandra undulataefolia</i>	69
VARMA, M. K., Reaction of eggplant cultivars to <i>Meloidogyne incognita</i>	72
SEN, K., & DASGUPTA, M. K., Additional hosts of the root-knot nematode, <i>Meloidogyne</i> spp. from India	74
MATHUR, V. K., Record of abnormal spears in <i>Hirschmanniella oryzae</i>	74
SIVAKUMAR, C. V., PALANISWAMY, S. & BALASUBRAMANIAN, M., Control of <i>Rotylenchus reniformis</i> in tomato nursery	78
SHARMA, N. K. & MIDHA, S. K., Efficacy of temik for the control of wilt disease of <i>Abelmoschus esculentus</i> L.	80
RAJENDRAN, T. P. & JAYARATHNAM, K., On the occurrence and effect of nematode infestation in rubber plantations in India	82

(Continued on inner cover)

(Continued from back cover)

MUJIB I. AZMI & SHAMIM JAIRAJPURI, M., Studies on nematode behaviour VIII. Some observations on the effects of diffused light on <i>Hemicriconemoides mangiferae</i> ...	83
MUJIB I. AZMI, & SHAMIM JAIRAJPURI, M., Studies on nematode behaviour IX. Effects of light on the movement patterns of <i>Hemicriconemoides mangiferae</i> , <i>Tylenchorhynchus mashoodi</i> and juveniles of <i>Acrobeloides</i> sp.	87
BAJAJ, H. K. & SHAMIM JAIRAJPURI, M., Studies on nematode behaviour X. Observations on feeding of <i>Xiphinema basiri</i> on tomato	91
VARMA, M. K., A new device for rapid picking of nematodes from aqueous suspension	94
MISRA, S. R. & KISHAN SINGH, Spatial distribution of nematodes in a sugarcane field	95
RAO, Y. S., JENA, R. N. & KRISHNA PRASAD, K. S., Infectivity of two isolates of <i>Meloidogyne graminicola</i> in rice	98
CHAWLA, M. L. & E. KHAN, Two Nomenclatorial Corrections	100

STUDIES ON THE NEMATODES OF VEGETABLE IN BIHAR
III. EFFECT OF INTERACTION OF *MELOIDOGYNE INCOGNITA* AND
OZONIUM TEXANUM var. *PARASITICUM* ON BRINJAL

BY

B. K. SINHA, R. P. NATH and M. G. HAIDER

Sugarcane Research Institute, Pusa-848125, India

Root-knot nematode, *Meloidogyne incognita* and fungus *Ozonium texanum* var. *parasiticum* were found independently harmful to the brinjal plants but when they were combined the harmful effect on plant growth was reduced. Change in the galling pattern when nematode was inoculated with fungus was also noticed.

PATHOGENECITY AND CONTROL OF *HIRSCHMANNIELLA ORYZAE*

BY

T. S. MUTHUKRISHNAN, G. RAJENDRAN, V. V. RAMAMURTHY and
J. CHANDRASEKARAN

Tamil Nadu Agricultural University, Coimbatore-641003, India

Observations were carried out on the pathogenic effect, damage threshold, effect of fallow and chemical control of the rice root nematode, *H. oryzae* at the Tamil Nadu Agricultural University, Coimbatore, during 1971-76. Initial nematode population of 1000 or 2000 per seedling in the soil affected the plant growth particularly the yield in rice variety IR.20. Under field conditions significant negative correlation between the nematode population and yield was observed in two varieties IR. 20 and *Bhavani*. The population of the nematode reduced perceptibly in fallow soil and the nematode survived without host for a period of one year. Soil application of diazinon, fensulphothion, aldicarb, carbofuran, phenamiphos and phorate in split doses of 1.5 kg a.i./ha at planting, 40th and 60th day or at 1 kg a.i./ha on 30th day after planting as well as root dip with carbofuran W. P. and preplant application of DBCP decreased the nematode population significantly.

PATHOGENICITY OF *RADOPHOLUS SIMILIS* TO BLACK PEPPER
(*PIPER NIGRUM*)*

BY

T. S. VENKITESAN** and K. G. H. SETTY

Department of Plant Pathology, University of Agricultural Sciences, Bangalore-560024, India

The Pathogenic effect of *Radopholus similis* to black pepper (*Piper nigrum* L.) has been studied with four initial inoculum levels of 10, 100, 1000 and 10,000 on 55 days old rooted pepper cuttings cv Kalluvally. There was decline in growth of plants with increase in inoculum level. The nematode penetrated the roots within 24 hours producing dark brown lesions within 72 hours of inoculation. They were observed to feed on cortical parenchyma cells. The nematode laid eggs inside the roots within six days of their entry. A new technique to study root invasion by *R. similis* on black pepper feeder roots has been described.

MECHANISM OF CONTROL OF PLANT PARASITIC NEMATODES AS
A RESULT OF THE APPLICATION OF ORGANIC AMENDMENTS
TO THE SOIL. III—ROLE OF PHENOLS AND AMINO
ACIDS IN HOST ROOTS

BY

M. MASHKOOR ALAM, SHAMIM A. SIDDIQUI and ABRAR M. KHAN

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

Organic soil amendments in the form of oilcakes, bone meal and horn meal suppressed the population of *Tylenchorhynchus brassicae* attacking knol-khol and increased the level of phenols in its roots, thereby appeared to have induced certain degree of resistance.

RELATIVE TOLERANCE OF SEVERAL TOBACCO VARIETIES TO ROOT-KNOT NEMATODES*

BY

D. J. PATEL and M. V. DESAI

Department of Plant Pathology, Gujarat Agricultural University, Anand Campus,
Anand-388110, India

Out of 380 different varieties, selections, crosses and species of *Nicotiana* screened against root-knot disease in nursery, field and in pots with pure cultures of *Meloidogyne incognita*, and *M. javanica*, cross F₂ (NC 95 x Olor) and *Nicotiana glauca* showed high degree of tolerance to both the species, viz., *M. incognita* and *M. javanica*. Variety NC 73 indicated moderate tolerance to both the species of *Meloidogyne*. *N. trigonophylla* showed good tolerance to *M. javanica* as compared to *M. incognita*. The study indicated that root-knot resistance was partially dominant over susceptibility and additive gene action was involved in the inheritance of root-knot resistance.

ESTIMATION OF LOSS IN OKRA, TOMATO AND BRINJAL YIELD
DUE TO *MELOIDOGYNE INCOGNITA*

BY

D. S. BHATTI and RAMESH K. JAIN

Department of Nematology, Haryana Agricultural University, Hissar, India

In a field infested with *Meloidogyne incognita* @ 2800-3460 1/kg soil, the losses in yields of lady's finger, tomato and brinjal were assessed to be 90.9, 46.2 and 27.3 per cent, respectively.

EFFECT OF INTERACTION BETWEEN *HETERODERA AVENAE* WOLL. 1924,
FUSARIUM MONILIFORME AND *HELMINTHOSPORIUM GRAMINEUM*
ON BARLEY PLANTS AND NEMATODE REPRODUCTION

BY

J. S. GILL¹ and GOPAL SWARUP²

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

Barley plants infested with *Heterodera avenae* were observed to have fungal infections as well. Two fungi, *Fusarium moniliforme* and *Helminthosporium gramineum* were identified. The effect of these fungi singly, in combination and with different inoculum levels of the nematode on growth characters showed negative correlation. *H. gramineum* was found to suppress the effect of *F. moniliforme* whenever they were present together. Further, both fungi singly suppressed the nematode multiplication against nematode alone but in the presence of both fungi, nematode multiplication was significantly greater than their individual effects.

INTERACTION OF SOME PLANT PARASITIC NEMATODES ON THE ROOT-KNOT DEVELOPMENT IN BRINJAL

BY

C. MISRA and S. N. DAS

Department of Nematology, Orissa University of Agriculture &
Technology, Bhubaneswar-751003, India

Three ectoparasitic nematodes, *Criconemoides ornatus*, *Hoplolaimus indicus* and *Tylenchothynchus nudus* in combination significantly affected the infectivity of *Meloidogyne incognita* in brinjal (*Solanum melongena* L.) and greatest reduction in root-knot development was observed when associated with the lance nematodes, followed by stunt and ring nematodes. Dry weight of shoot and root as well as recovery of nematodes from soil were also variously influenced due to single and multiple infestations of these nematodes.

**MELOIDOGYNE INCOGNITA AND RHIZOCTONIA SOLANI
INTERACTION ON OKRA**

BY

H. K. CHHABRA, A. S. SIDHU and INDERJIT SINGH

Punjab Agricultural University, Ludhiana, India

The interactions involving *Rhizoctonia solani* and *Meloidogyne incognita* on 7-day-old okra plants were investigated with artificial inoculations. It was revealed that there was significant reduction in the shoot and root lengths, and their wet and dry weights in the plants receiving the inoculum of a fungus+nematodes simultaneously, nematodes+fungus 10 days after, and fungus+nematodes 10 days after over control while nematodes reduced the shoot length only. Maximum reduction in the plant growth was noticed where fungus+nematodes were inoculated simultaneously. Fungus alone has almost no effect on plant growth reduction.

RESPONSE OF *MELOIDOGYNE JAVANICA* AND OTHER NEMATODES TO FATTY ACIDS

BY

K. SITARAMAIAH and R. S. SINGH

Department of Plant Pathology, G. B. Pant University of Agriculture and Technology,
Pantnagar-263145, India

Butyric and propionic acids inhibited egg discharge and larval hatch of *Meloidogyne javanica* only at 0.1 M and 0.01 M concentrations. Higher dilutions of these acids had stimulatory effect. pH of fatty acids at different dilutions was not responsible for the observed effects. The higher concentrations of fatty acids (0.1 and 0.01 M) inhibited larval movement of *Dorylaimoides*, *Mononchus*, *M. javanica*, *Tylenchorhynchus*, *Helicotylenchus* and *Hoplolaimus*. When acetic acid was applied to soil more larvae of *M. javanica* were found in the roots and there was greater intensity of root galls as compared to check.