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MECHANISM TO OVERCOME INCREASED RESISTANCE TO  
LOCOMOTION IN *HELICOTYLENCHUS DIHYSTERA* (COBB,  
1893) SHER, 1961

BY

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The locomotary behaviour of Juveniles of *Helicotylenchus dihyстера* was studied in 1,2 and 4% water-agar. The movement of namatode decreases as the concentration of agar increases. The behavioural mechanism involved in decreasing the velocity of locomotion was studied.

## EFFICACY OF NEMATICIDES FOR FIELD CONTROL OF NEMATODES INFESTING CERTAIN VEGETABLE CROPS

BY

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Efficacy of nematicides *viz.*, DD, 1. 3-D, DBCP, Phorate, Fensulfothion and Dime-thoate was tested against some important genera of plant parasitic nematodes. All these nematicides significantly suppressed populations of all the nematodes to varying degrees around roots of tomato, eggplant, chilli, okra, cabbage, cauliflower and table beet. Fensulfothion proved to be most effective in reducing the population of nematodes around table beet and cabbage while DBCP was most successful in tomato and cauliflower and DD in eggplant, chilli and okra. Beneficial effects of these nematicides were evident by manifold increase in the yield or plant growth. DD gave best results with respect to the plant growth/yield in tomato, eggplant, chilli, okra and table beet, Fensulfothion in cabbage and Phorate in cauliflower.

**EFFECT OF MUSTARD CAKE ON THE HATCHING AND CYST  
POPULATION OF *HETERODERA AVENAE* ON WHEAT**

**BY**

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Studies on the effect of mustard cake on larval hatch and cyst formation of cereal cyst nematode, *Heterodera avenae* were carried out by soaking the cysts in different concentrations of extract (N, N/5, N/20, N/80 & N/160), and by growing wheat plants in cake amended (1, 2, 3, 4, & 5% w/w), naturally infested and artificially inoculated sandy loam soil. The hatching of cysts was minimum in normal concentration (N) and in 5% (w/w) amended soil. The application of mustard cake significantly reduced the cyst formation and increased the number of tillers and shoot weight of wheat plants. Initially mustard cake above 2 percent reduced the shoot length.

**ESTIMATION OF LOSS IN WHEAT YIELD DUE TO *ANGUINA TRITICI* AND SEEDGALL INFESTATION IN MARKET GRAINS**

**BY**

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Studies on estimation of loss due to *Anguina tritici* in wheat cv. S 308 under field conditions and incidence of cockles in market grains were undertaken. The per cent infestation, on earhead basis, of earcockle and *tundu* ranged from 2.5 to 6.2 and 2.3 to 8.2 respectively. The per cent loss due to *A. tritici*, based upon number and weight of grains, ranged from 3.8 to 8.7 and 3.3 to 8.0 respectively. With artificial inoculation under field conditions, maximum loss (52.23%) was observed in 64% infestation (W/W). The per cent incidence of galls in 103 wheat samples ranged from 0.06 to 0.19, averaging 0.11%.

**STUDIES ON *HETEROTYLENCHUS CRASSIROSTRIS* SP. N. PARASITIC  
IN *MUSCA CRASSIROSTRIS* STEIN AND *STOMYXIS CALCITRANS* L.**

**BY**

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Biology and life history of a parasitic nematode *Heterotylenchus crassirostris* sp. n. (Nematoda : Allantonematidae) parasitising *Musca crassirostris* Stein and *Stomyxis calcitrans* L. (Diptera : Muscidae) is described. Details of morphology, percentage of infection, seasonal incidence and the damage caused to the host is also given.

EFFECT OF INDIVIDUAL AND CONCOMITANT INOCULATION WITH  
*MELOIDOGYNE INCOGNITA* AND *ROTYLENCHULUS RENIFORMIS* ON  
THE GROWTH OF BLACK GRAM (*VIGNA MUNGO*)

BY

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Relationships between the different population densities of *Meloidogyne incognita* and *Rotylenchulus reniformis*, individually and concomitantly alongwith growth of black gram (*Vigna mungo*) were studied under pot culture conditions. Both the species caused significant growth reduction at the level of one infective individual per cc of soil. In concomitant inoculations the extent of growth reduction was relatively less than individual effects. The fresh shoot weight was more sensitive to nematode injury than shoot length.

**GROWTH OF MAIZE PLANTS IN THE PRESENCE OF  
*TYLENCHORHYNCHUS VULGARIS* UPADHYAY *et al.*, 1973, SINGLY  
AND IN COMBINATION WITH *PRATYLENCHUS ZEA* GRAHAM,  
1951 AND *FUSARIUM MONILIFORME* SHELD.**

BY

**K.D. UPADHYAY and GOPAL SWARUP**

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A population level of 1000 *T. vulgaris* and above per kg. of soil was found to affect plant growth significantly. The total number of nematode multiplication was highest at 10,000 inoculum level but the maximum rate of multiplication was at the 10 inoculum level. The plant growth was significantly reduced when inoculated with the combination of *T. vulgaris* and *P. zeae* or *T. vulgaris* and *F. moniliforme* than when either of the organisms were alone. The nematode multiplication was not significantly affected in the presence of either of the organisms but the total nematode population build up was affected in the presence of either of the organisms.

SOIL AND PLANT PARASITIC NEMATODES FROM MAHARASHTRA,  
INDIA : TWO NEW SPECIES OF *HEMICYCLIOPHORA* DE MAN, 1921  
(TYLENCHIDA : NEMATODA)

BY

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*H. ekdavici* sp. n., collected around the rhizosphere of *Zizyphus jujuba* Mill. has loosely fitted body sheath, lateral field absent, R=178-205; L=0.9-1.1 mm long body; 75-84  $\mu$ m long spear; a=20-23, b=6-8; c=6.0-7.5 and V=83-90. *H. punensis* sp. n., collected around the rhizosphere of *Eugenia jambolina* has tightly fitted body sheath, lateral field marked by a row of rectangular blocks, 40-50 longitudinal lines; L=0.8-1 mm long body; 56-70  $\mu$ m long spear; a=19-25; b=5.0-6.7; c=5-7 and V=80-90. *H. penetrans* Thorne, 1955 is being reported.

GROWTH OF WHEAT IN THE PRESENCE OF *MERLINIUS*  
*BREVIDENS* SINGLY AND IN COMBINATION WITH  
*TYLENCHORHYNCHUS VULGARIS*

BY

K.D. UPADHYAY\* and GOPAL SWARUP

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

A population level of 1000 *M. brevidens* and above per kg of soil was found to affect plant growth significantly. The total rate of nematode multiplication was highest at 10,000 inoculum level but the maximum rate of multiplication was at the 10 inoculum level. *M. brevidens* appeared to be a more aggressive parasite than *T. vulgaris* as far as plant growth of wheat was concerned and also *M. brevidens* appeared to suppress the multiplication of *T. vulgaris* on wheat roots.

TWO NEW SPECIES OF *SCUTELLONEMA* (NEMATODA : TYLENCHIDA)  
FROM TAMIL NADU, INDIA

BY

C.V. SIVAKUMAR\* and E. KHAN\*\*

*Scutellonema naveenum* sp. n. and *S. erectum* sp. n. are described from Tamil Nadu, South India. *S. naveenum* n. sp. is close to *S. magniphasmum* Sher, 1963 but differs from it in having smaller body size, a more conical head, rounded stylet knobs, absence of cephalids and epiptygma and the characteristic tapering tail having a round terminus. *S. erectum* sp. n. is the only species with almost straight body, but otherwise close to *S. bradys* (Steiner & Lellev, 1933) Andrassy, 1958 and can be distinguished from the latter by the presence of fewer number of lip and tail annules, six longitudinal striations on the basal annule of the lip, presence of epiptygma and the absence of vaginal glands and intestine not overlapping the rectum.

**MORPHOLOGICAL VARIATIONS IN POPULATIONS  
OF PRATYLENCHUS THORNEI SHER AND ALLEN, 1953**

BY

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The values like body length; a; b; c; v; lip dimension; body length/spear length; oesophageal length/spear length and length of posterior uterine sac/body width showed considerable variation even in single population of *Pratylenchus thornei* : whereas the number of head annules, length of spear and the length of post uterine sac in respect of vulval body dimension showed more stability. More work on these lines is needed to ascertain the morphological variation, so that a better evaluation of taxonomic characters can be made available for the identification of species of this genus.

SOME OBSERVATIONS ON THE GENUS *PARAXONCHIUM*  
(DORYLAIMIDA) WITH DESCRIPTION OF A NEW SPECIES  
FROM MANIPUR, INDIA

BY

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The systematic position of the genus *Paraxonchium* Krall, 1958 is discussed. *Paraxonchinae* n. subfam. is proposed under the family Qudsianematidae Jairajpuri, 1965 for this genus. Members of this genus have a typical robust body which is extremely narrow in the fore-part; the odontostyle is usually somewhat bent and asymmetrical; the odontophore is simple but unusually long; the cardia has three distinct gland cells. *Paraxonchium parvus* sp. n. from Manipur, India has 0.59-0.81 mm long body and resembles *P. shamimi* and *P. rhamphionus*, differing from both in the shape of odontostyle, presence of guiding ring and a dorsally recurved elongate conoid tail. A key to the species of *Paraxonchium* is given.