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TWO NEW SPECIES OF *HEMICRICONEMOIDES* CHITWOOD &
BIRCHFIELD 1957 (NEMATODA : CRICONEMATIDAE) FROM ASSAM,
INDIA¹

BY

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Hemicriconemoides aberrans sp. n. and *H. conicaudatus* sp. n. collected from Assam from soil around roots of arecanut and peach respectively are described with the following characters. *H. aberrans* is distinctive by having cuticular sheath extending anteriorly beyond lip region while *H. conicaudatus* by L=0.430-0.525 mm; stylet=50-58 μ m; R=103-122; Rv=8-9; V=90-93; tail conoid, gradually narrowing to a pointed tip.

**EFFICACY OF PLANT LEAVES, NEMATICIDES AND FERTILIZERS
ALONE AND IN COMBINATION AGAINST *MELOIDOGYNE JAVANICA*
INFECTING CHICKPEA (*CICER ARIETINUM* L.)**

BY

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Experiment to study the effect of plant leaves, nematicides and fertilizers singly and in all possible combination was laid out in earthen pots in greenhouse. It indicated that neem leaves, aldicarb and potassium significantly reduced the number of galls per plant individually whereas, datura leaves and carbofuran increased the various growth parameters. Combined effect of various treatments were significant in reducing the number of galls. However, maximum reduction occurred in treatment where neem leaves were added with potassium and aldicarb.

TAXONOMIC STUDIES ON THE NEMATODES OF VIDARBHA
REGION OF MAHARASHTRA INDIA. V. TWO NEW SPECIES OF
THE GENUS *BELONDIRA* THORNE, 1939 (DORYLAIMIDA :
BELONDIROIDEA)*

BY

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Two new species of *Belondira* viz. *B. notabilis* sp. n. and *B. eugeniae* sp. n. collected from soil around the roots of santra from Nagpur and from jamun at Chandarpur, Maharashtra respectively are described. *B. notabilis* sp. n. is characterized by having anterior uterine branch measuring about twice the vulval body-diameter in length, slender body and spicules measuring 24-26 μm in length. *B. eugeniae* sp. n. is distinctive by L=1.20-1.42 mm; a=28-35; b=4.0-4.5; basal oesophageal bulb=150-160 μm \times 15-20 μm ; V=35-38 and odontophore=9-10 μm .

***SEVEN NEW DORYLAIMID NEMATODES FROM INDIAN
AGRICULTURAL RESEARCH INSTITUTE FARM, DELHI, INDIA**

BY

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Seven new species of Dorylaimid nematodes collected from the farm of the Indian Agricultural Research Institute, New Delhi are described and illustrated. *Discolaimoides teres* sp. n. is distinctive by having L=1.1-1.3 mm, a=34.3-40.1, b=3.9-4.3 and V=43.5-46.1 and *D. spatiolabium* sp. n. by L=1.3-1.7 mm, angular expanded set off lip region, a=44.7-54, odontostylet=11-12 μ m. *Discolaimus laksii* sp. n. is characterized by L=0.81-1.09 mm, odontostylet=15-16 μ m, odontophore=17-18 μ m and *D. rotundicaudatus* sp. n. by L=0.82-0.9 mm, odontostylet=14-17 μ m and odontophore=16-19 μ m. *Leptonchus neobaccatus* sp. n. can be separated by having rectum=3/4 anal-body width, prerectum=3 vulval-body-widths anterior to vulva and V=55-64. *Tylencholaimellus sagerus* sp. n. is characterized by a=33-34, c=29.5-37.8, V=40-42 and odontostylet =8-9 μ m while *Tylencholaimus rumjhumii* sp. n. by a set off constricted head, cuticularized vagina and absence of males.

SOME GROWTH CHARACTERISTICS OF RICE AS AFFECTED BY
HOPLOLAIMUS INDICUS

BY

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In studying some pathogenic aspects of *Hoplolaimus indicus* Sher, 1963 on rice under semisterile pot culture conditions, it was found that the nematodes caused, on an average, 5.71, 11.78, 20.35 and 31.42 per cent reduction in plant height; 1.89, 2.84, 3.79 and 4.43 per cent shortening of flowering time and 0.12, 0.63, 1.50 and 2.29 per cent decrease in crude protein content of rice grains (var. Annapurna) when inoculated with 10, 100, 1000 and 10,000 nematodes per pot, respectively.

TAXONOMIC STUDIES ON NEMATODES OF VIDARBHA REGION
OF MAHARASHTRA, INDIA VI. *SPATIOCEPHALUS VENUSTRUS*
GEN. N. SP. N. (NEMATODA : WILSONEMATINAE)*

BY

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Spatiocephalus venustrus gen. n. sp. n. collected from soil around roots of mango at Datala, district Buldana, Maharashtra is described, which is distinctive by having smooth margins of cervical expansion with its single cuticle (without mid-dorsal and mid-ventral invaginated inner cuticle), serrated lateral rims of cervical expansions and non-denticulate valvular apparatus in basal bulb and circular amphid.

APHELENCHID NEMATODES FROM HARYANA

BY

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Aphelenchid nematodes met within Haryana have been listed and descriptions of two new species of *Seinura* Fuchs, 1931, and *Aphelenchoides andrassyi* Husain and Khan, 1967 (males recorded for the first time) given. *S. tritica* n. sp. —L=0.57-0.70 mm, a=29-40, c=12-14, V=79-81, spear 16-18 μ m without knobs, post uterine sac short, tail terminus pointed; males with 15 μ m long spicules, tail with short flagellum and a post-anal papilla; *S. clavata* n. sp. —L=0.59-0.62 mm, a=26-34, c=13-19; V=74-76, spear 12-15 μ m long knobless, postuterine sac present, tail with clavate terminus; *A. andrassyi*—excretory pore distinct; males with 15 μ m long spicules, tail with flagellum and two post-anal papillae.

NEMATODES FROM WEST BENGAL (INDIA XII).
DORYLAIMUS INNOVATUS SP. N., *THONUS CONFUSUS* SP. N. AND
INDOKOCHINEMA EKRAMULLAHI SP. N. (DORYLAIMOIDEA)

BY

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Dorylaimus innovatus sp. n. has L=4.2 mm, cuticle marked with 34-36 longitudinal lines on the surface, lip region marked by a depression, odontostyle 47-52 μ m long; male with 110 μ m long spicules and a series of 44 contiguous ventromedian supplements. *Thonus confusus* sp. n. has L=1.1-1.3 mm; lip region offset by a slight constriction, odontostyle 11-12 μ m long with 41-42% aperture, female with rounded tail; male with 47-52 μ m long spicules, 14-16 contiguous ventromedian supplements and bluntly rounded tail. *Indokochinema ekramullahi* sp. n. has L=1.1-1.3 mm, lip region offset by a constriction and wider than adjoining body, amphids stirrup-shaped in labial region, and dorsally convex-conoid tail with rounded terminus.

INVESTIGATION ON THE LIFE-CYCLES OF *TYLENCHORHYNCHUS VULGARIS*, *PRATYLENCHUS THORNEI* AND *HOPLOLAIMUS INDICUS* INDIVIDUALLY AND IN COMBINED INFESTATIONS IN MAIZE¹

BY

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On maize Cv. Ganga-5, the three nematode species, *Tylenchorhynchus vulgaris*, *Pratylenchus thornei* and *Hoplolaimus indicus* completed their life-cycles (egg to egg) in 15-18, 25-29 and 39-43 days respectively under laboratory conditions ($30 \pm 2^\circ\text{C}$) when inoculated individually. In all cases there were 4 moults, the first being inside the egg. In combined inoculations, the life-cycle of *T. vulgaris* was shortened by 2-3 days (13-15 days). However, no such differences were observed in the case of *P. thornei* and *H. indicus*.

**EVALUATION OF MEPHOSFOLAN FOR NEMATODE AND INSECT
CONTROL IN OKRA, COWPEA AND TOMATO**

BY

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Residual toxicity of mephosfolan applied @ 1, 2 and 4 kg a.i./ha was studied against nematodes and insects infesting okra, cowpea and tomato crops under field conditions. The toxicity of insecticide was correlated with residues present in soil and plant. In general, mephosfolan was equally effective against nematodes and insects especially at high rates of application. Residues in soil persisted upto 45 days. In Plants, residues persisted beyond 45 days at higher rates of application. However, no residue could be detected in fruits in any of the crop.

TAXONOMIC STUDIES ON TYLENCHIDAE (NEMATODA) OF INDIA I.
DESCRIPTIONS OF FIVE NEW SPECIES OF *COSLENCHUS*
SIDDIQI, 1978

BY

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Five new species of the genus *Coslenchus* Siddiqi, 1978 viz., *Coslenchus brevis* sp. n., *C. emelcius* sp. n., *C. lycus* sp. n. *C. tausifi* sp. n. and *C. temperatus* under the sub-family Tylenchinae are described and illustrated. *Coslenchus brevis* sp. n. is characterized by having a body 0.41-0.44 mm long and posteriorly placed vulva $V=64.6-66.6$; *C. emelcius* sp. n. by 0.42-0.47 mm body length, larger 'b' value and more anteriorly placed vulva; *C. lycus* sp. n. by having body 0.35-0.43 mm long, $a=25.0-33.0 \mu\text{m}$; $b=4.4-5.4$; $c=04.3-5.8$; $V=68.1-70.6$, body cuticle marked by 12 longitudinal ridges. *C. tausifi* sp. n. is distinguished by possessing a body 0.37-0.42 mm long, $a=23.3-28.8$; continuous head, tail tip rounded and 12 longitudinal ridges and *C. temperatus* sp. n. is distinctive by having a body length 0.38-0.44 mm; $a=24.4-31.5$; $b=4.2-5.6$; $V=57-5.66.7$; and 14 longitudinal ridges on body.

TAXONOMIC STUDIES ON TYLENCHIDAE (NEMATODA) OF
INDIA. II. DESCRIPTIONS OF TWO NEW SP. OF *COSAGLENCHUS*
GEN. N. ALONGWITH PROPOSITION OF A NEW
SUB-FAMILY AGLENCHINAE

BY

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The systematic position of genera in the sub-family Tylenchinae is reviewed and a new sub-family Aglenchinae is proposed to incorporate the genera *Cosaglenchus* Gen. n., and *Aglenchus* (Type genus). Aglenchinae is characterized by having lateral vulval membrane. *Cosaglenchus* Gen. n. is distinguished by having longitudinal ridges and presence of post-uterine sac. *Cosaglenchus rafiqus* Gen. n. sp. n. is characterized by having 16 longitudinal ridges, distinct lateral vulval flap, vagina inclined epiptygma and post-uterine sac present. *Cosaglenchus modicus* sp. n. is distinctive by having a comparatively longer stylet and cylindrical basal oesophageal bulb.

THREE NEW SPECIES OF *ACULONCHUS* GEN. N. AND *ZETALAIMUS BLEPHERONCHUS* GEN. N., SP.N. (DORYLAIMIDA : BELONENCHINAE)

BY

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Aculonchus argutus gen.n., sp.n., *A. anaglyptus* sp.n., *A. africanus* sp.n. and *Zetalaimus blepheronchus* gen.n., sp.n. are described and illustrated. *A. argutus* and *A. anaglyptus* were collected in Colombian rain forest, and *A. africanus* and *Z. blepheronchus* in forest soil in Nigeria. *Aculonchus* and *Zetalaimus* have solid odontostyle, a knob-like lip region and stoma enlarging within the lip region; the stoma of *Zetalaimus* is inverted thistle funnel-shaped; they belong to the subfamily Belonenchinae.

TAXONOMIC STUDIES ON NEMATODES OF VIDARBHA REGION
OF MAHARASHTRA INDIA. VII. FOUR NEW SPECIES
OF TYLENCHID NEMATODES*

BY

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Four new tylenchid nematodes collected from Vidarbha region of Maharashtra are being described and illustrated. *Helicotylenchus gratus* sp.n. is distinctive by having L=0.75-0.90 mm, lip smooth conoid truncate, m=46-52, spear=25-27 μ m and short hemispherical tail with 14-18 annules; *H. ventroprojectus* sp.n. by having smooth conoid truncate lip region, spear knobs anteriorly indented, tail with 12 annules, notched ventrally with a projection; *Macroposthonia crassiorbus* sp.n. by having L=0.40-0.50 mm, body annules with serrated margins, first annule not broken into platelets and first two annules anteriorly and outwardly directed; *Basiria elegans* sp.n. is characterized by L=0.50-0.70 mm, orifice of dorsal oesophageal gland about 3-5 μ m from spear-base, post-uterine sac about one vulval-body-width long, spicula measuring 13 μ m long and phasmids 3 anal body widths posterior to anal latitude.

VERTICAL AND HORIZONTAL DISTRIBUTION OF
PHYTONEMATODES ASSOCIATED WITH CITRUS

BY

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Total nematode populations (recorded during 1978-80) reached peaks during October and April. Comparatively, higher population was recorded at 30 cm distance from tree base than 90 cm. Vertically, nematodes were more at 0-15 cm than 15-30 cm at both the distances from the tree base. Citrus nematode population in roots/soil showed similar trend. High populations of *Xiphinema index*, *Helicotylenchus dihystra* and *Pratylenchus pratensis* were recorded in October, while *Hoplolaimus indicus* population increased from April to May.

STUDIES ON PHYSIOLOGICAL SPECIALISATION IN SOME
POPULATIONS OF THE ROOT-KNOT NEMATODE
*MELOIDOGYNE INCOGNITA**

BY

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A study on the host reactions of the five populations of *Meloidogyne incognita* collected from five widely separated regions of India revealed the presence of inter and intra population differences. Considering the reactions on differentials used by the International *Meloidogyne* Project, these populations are similar to race 1 and/or race 2 of *M. incognita*. Based on the reactions on cowpea var. 82-1B, Delhi and Udaipur populations form one group different from Jabalpur, Kanpur and Kerala populations.

PATHOGENICITY OF THE RICE ROOT NEMATODE,
HIRSCHMANNIELLA ORYZAE TO RICE SEEDLINGS

BY

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Sprouted rice seeds of the variety *Jaya* were raised in pots with *Hirschmanniella oryzae* @ 0, 10, 100, 1000, 10000 per seedlings and observations on the growth characteristics were recorded at weekly intervals. On 7th day, the height and number of leaves of seedlings receiving 10,000 nematodes were significantly less over other treatments. In addition to this, 10% and 60% mortality was recorded in the above treatment on 14th and 21st day respectively. The height and number of leaves of seedlings were slightly more in treatments receiving 10, 100 and 1000 nematodes over control, upto 14th day. However on 21st day, the number of leaves started showing gradual reduction in these treatments too over control. Maximum number of tillers were recorded in the control followed by 10, 100 and 1000 levels respectively with zero tiller in the highest level. On 29th day, the height also recorded inversely proportional reduction as also, number of leaves and tillers. The same trend was noticed on 37th day in the above characteristics. Leaf area and fresh weight of shoot and root were also reduced.

EXTENT OF VARIATION IN *HOPLOLAIMUS INDICUS* SHER, 1963
II. MORPHOMETRIC CHARACTERS

BY

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A study of 22 different measurements and ratios generally used for nematode species' descriptions was conducted on eight hundred and eighty specimens of *Hoplolaimus indicus* collected from four different hosts (including type host-sugarcane) each from five different localities (including type locality—Karnal, Haryana, India) to work out the range, mean, S.D. and significance of difference (as indicated by 't' value) between means of a particular character as observed in populations collected from the two hosts within any of the six possible pairs of hosts. It was found that (i) the range of variation of the 22 measurements and ratios studied was much more than that given by Sher 1963; (ii) mean values of all these characters may differ with (a) host within the same locality, (b) locality when the host is same and (c) host-locality interaction; (iii) the effect of all these factors differed with the (a) sex and (b) the character under consideration and (iv) the significant change (due to these factors) in any of the computant values (L, ocephageal length, 'W' and tail length etc.) may not be reflected in the ratio (a, b and c etc.).

A METHOD TO EMPLOY TRITIUM-LABELLED COMPOUNDS IN
STUDIES ON HOST-PARASITE RELATIONS BETWEEN *GALLERIA*
MELLONELLA AND *NEOAPLECTANA CARPOCAPSAE*

BY

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A method to label *Neoaplectana carpocapsae* by incorporating ^3H -labelled compounds into the culture medium is reported. The labelled nematodes exuded radio-active compounds on incubation in the haemolymph of *Galleria mellonella* larvae. The method reveals vast potential for utilisation in studies on host-parasite relationships of nematods.