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ON THE SYNONYMY OF *TELOTYLENCHUS* SIDDIQI, 1960 WITH
TRICHOTYLENCHUS WHITEHEAD, 1959 (NEMATODA : TYLENCHIDA)*

BY

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Morphological studies on the genera *Trichotylenchus* Whitehead, 1959 and *Telotylenchus* Siddiqi, 1960 reveal that the two genera are very closely related. *Telotylenchus* differs from *Trichotylenchus* in having slightly stronger spear and 4 incisures in the lateral field. These differences are not regarded to be of generic rank and *Telotylenchus* is consequently synonymised with *Trichotylenchus*.

LIFE HISTORY OF THE RENIFORM NEMATODE, *ROTYLENCHULUS*
RENIFORMIS LINFORD AND OLIVEIRA, 1940¹

BY

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The embryonic, post-embryonic and post-infection development of *Rotylenchulus reniformis* have been studied in detail. The eggs develop in about 6-7 days and the second-stage larvae which hatch out develop in water, without feeding, into juvenile females in 11-14 days or into adult males in 10-13 days. The nematode passes through 4 moults to complete the larval development, the first moult being inside the egg. The juvenile females represent the infective stage and begin to lay eggs in about 7-8 days after infection. The life cycle takes about 24-29 days from egg to egg.

The different stages of the life cycle and the gonad development in both the sexes are described. The nematode secretes a gelatinous matrix through the vulval opening. Some glandular structures located near the vulval opening are probably involved in the production of the matrix.

RACES OF THE RENIFORM NEMATODE, *ROTYLENCHULUS*
RENIFORMIS LINFORD AND OLIVEIRA, 1940

BY

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Ten populations of *Rotylenchulus reniformis*, morphologically similar, from soil around different crops were tested for their capacity to reproduce on three test plants (cowpea, castor, and cotton) under greenhouse conditions. Nine populations were able to reproduce on cowpea, castor and cotton (designated as Race A) and one population multiplied on cowpea only (designated as Race B), failed to reproduce on castor and cotton. Differences in the reproduction capabilities of these populations on different plants indicate the existence of two races of *R. reniformis* in India.

**STRUCTURE OF THE OESOPHAGUS IN THE CLASSIFICATION
OF THE SUPERFAMILY TYLENCHOIDEA (NEMATODA)***

BY

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Structural modifications of the oesophagus in Tylenchoidea are discussed. Composition of and a key to families and subfamilies are presented. Anguinidae n. rank, Sychnotylenchinae n. rank, Pseudhalenchinae n. subfam; Merliniinae n. subfam., *Uliginotylenchus* gen. n. and *Quinisulcius* gen. n. are proposed and described. Diagnoses of certain old familial groups have been amended.

INVESTIGATIONS ON THE LIFE HISTORY OF THE PIGEON-PEA
CYST NEMATODE, *HETERODERA CAJANI**

BY

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Studies on the life history of *Heterodera cajani* have shown that temperature was an important factor governing the time required to complete the life cycle. At a soil temperature of 84°F the nematode completed one generation in 16 days whereas under cool conditions (10-25°C/ 50-75°F) the time required was 45 to 80 days.

The nematode was able to reproduce parthenogenetically even though it is a bisexual species. For rapid multiplication, males were however considered necessary.

STUDIES ON ROOT KNOT OF VEGETABLES VI. EFFECT OF
SCLEROTIUM ROLFSEI FILTRATE ON *MELOIDOGYNE INCOGNITA*

BY

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A pathogenic strain of *Sclerotium rolfsii* was found frequently associated with tomato plants infected with *Meloidogyne incognita*. The nature of the relationship between the fungus and the nematode was investigated. The fungus filtrate from a 10 days-old culture inhibited larval hatch upto N/8 concentration and was lethal to the larvae upto N/4 concentration. Shoot weight of tomato increased significantly with the addition of 100 ml fungus filtrate to nematode-infested soil. It is suggested that the lethal effect of the fungus filtrate on the nematode is not only due to low pH but also due to some inhibitory substance present in the filtrate.

A NEW SPECIES OF *CRICONEMA* ASSOCIATED WITH
POMEGRANATE (*PUNICA GRANATUM* L.)

BY

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Criconema punici sp. n. associated with pomegranate (*Punica granatum* L.) is described. *C. punici* sp. n. is distinct in having 65-75 body annules bearing rows of scales with maximum of 8 at mid-body and somewhat drawn out posteriorly with inconspicuously irregular margins, set-off head composed of two annules, 63-70 μ long spear, spermatheca, vulva and anus on 12th-14th and 7th-8th annules respectively from posterior end, and narrowly conical tail end.

ON THE HOST RANGE OF THE CEREAL CYST NEMATODE,
HETERODERA AVENAE WOLL. 1924, THE CAUSAL
ORGANISM OF 'MOLYA' DISEASE OF WHEAT
AND BARLEY IN RAJASTHAN, INDIA

BY

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Seventy-one plant varieties, representing 53 botanical species belonging to 9 families, were tested against *Heterodera avenae* populations collected from infested wheat and barley fields in Jaipur district, Rajasthan, India. *Echinochloa frumentacea*, *Phalaris canariensis*, *P. paradoxa*, *Polypogon monspeliensis* and *Senebiera pinnatifida* are described as new host records of the nematode. The last named species is the only non-graminaceous plant found susceptible. The nematode larvae penetrated sorghum roots but no cysts were formed. Maize was confirmed as a host for the nematode.

QUANTITATIVE ASPECTS OF PLANT-NEMATODE RELATIONSHIPS

BY

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For a discerning study of plant-nematode relationships, Koch's postulates which are qualitative and selective could be supplemented by quantitative studies on the nematode density and its effect, on host suitability for nematode reproduction and its susceptibility to nematode damage, and on environmental influences. All these phenomena can be related to and expressed in terms of nematode population density. Three graphs and corresponding formulae are discussed as useful models to quantify the main characteristics of plant-nematode relationships, namely, the seasonal fluctuation curve of a nematode, the nematode reproduction curve and the nematode density/plant yield regression. The graphs are illustrated in Fig. 1.

***TROPHURUS SIMILIS* SP. N. AND *TRICHOTYLENCHUS*
ASTRIATUS SP. N. (NEMATODA : TYLENCHOIDEA)
FROM MYSORE, INDIA**

BY

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Trophurus similis sp. n., and *Trichotylenchus astriatus* sp. n., are described and illustrated. *Trophurus similis* sp. n., collected from soil around the roots of coconut palm from Nanjangud, Mysore, is characterized by having a slender body, smaller spear, conspicuous cephalic framework and a longer tail. *Trichotylenchus astriatus* sp. n., found associated with the roots of grapevine at Bangalore, Mysore, is distinctive by the absence of annulation on lip, a small spear, presence of post-anal blind sac and shorter tail.

**CONTROL OF ROOT KNOT THROUGH ORGANIC AND INORGANIC
AMENDMENTS OF SOIL : EFFECT OF SAWDUST AND
INORGANIC NITROGEN¹**

BY

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Field experiments have shown that effective control of *Meloidogyne javanica* can be achieved if the soil is amended with 25 q/ha (2200 lb/acre) sawdust 3 weeks before planting followed by inorganic nitrogenous fertilizers along with P and K applied at the time of planting. Urea is the most effective source of nitrogen and the degree of control increases with increase in the amount of nitrogen applied after sawdust amendment. Not only is the intensity of root galls reduced but several-fold increase in yield has also been obtained by this treatment.