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HISTOPATHOLOGY OF KOBE LESPEDEZA ROOTS INFECTED WITH
*HETERODERA LESPEDEZAE*¹

BY

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Histopathological studies revealed that second-stage infective larvae of *Heterodera lespedezae* penetrated the roots of Kobe lespedeza and became oriented for feeding alongside the stele within 24 hours. A feeding relationship was established in 48 hours and syncytia began to form within 72 hours. Syncytial development was initiated in the pericycle and extended into the phloem and xylem elements, sometimes occupying most of the stele. Degeneration of syncytia began in 30 days. In roots infected for 40 days, there was positive evidence of cytoplasmic breakdown, vacuolation, and absence of nuclei and nucleoli.

STUDIES ON THE EFFECT OF DIFFERENT LEVELS OF CERTAIN
ELEMENTS ON THE DEVELOPMENT OF ROOT-KNOT-II, EFFECT
OF DIFFERENT LEVELS OF POTASSIUM ON GROWTH AND
ROOT-KNOT DEVELOPMENT ON OKRA, EGG PLANT
AND TOMATO

BY

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The optimal growth of uninoculated plants of okra and tomato and those inoculated with *Meloidogyne incognita* was obtained at 2K and that of egg plant at 1K ; while the highest development of root-knot took place when okra, tomato and egg plants were inoculated with 5000 larvae and grown at 2K. Infestation by root-knot resulted in an accumulation of NPK in the infested roots of all the three plants tested with a corresponding decrease in tops. Translocation of these elements from roots to aerial parts in infested plants was adversely affected.

EFFECT OF SOME PESTICIDES ON NEMATODES ASSOCIATED WITH BRINJAL AND TOMATO

BY

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The relative efficacy of some pesticides viz., thionazin, phorate, lindane, dimethoate, DBCP, carbofuran and thionazin+phorate was tested against nematodes associated with brinjal and tomato. Experiments with dazomet were conducted separately. Thionazin, phorate and dazomet were used as dip/granule/dip+granule application. Lindane, dimethoate and DBCP were used as dip application; and carbofuran and thionazin+phorate were used as granular application. In each application there were four dosages. The observations were recorded in respect of nematode populations, plant growth characters and galls per plant. The higher dosages of dip+granule application of thionazin, phorate and dazomet; and granular application of thionazin, phorate, dazomet, carbofuran and thionazin+phorate were effective. Dip+granule application showed smaller galls when compared with those obtained in granular application. In general, thionazin, phorate and dazomet were effective as granular and dip+granular application; and carbofuran and thionazin+phorate as granular application. While phorate formulations were more effective in case of brinjal it was thionazin applications in respect of tomato.

STUDIES ON REACTION-XYLEM DEVELOPED DUE TO *MELOIDOGYNE*
INCOGNITA IN THE ROOTS OF *LAGENARIA LEUCANTHA*

BY

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Anatomical studies on the root-galls of *Lagenaria leucantha*, produced as a result of *Meloidogyne* infection, showed that the nematode after gaining entry into the roots, selected a feeding site in the stelar region, preferably in phloem or in the interfascicular regions and produced abnormality in the root structure. The affected elements, particularly parenchyma cells became meristematic and gave rise to isolated pockets of meristem whose derivatives differentiated into giant cells, tracheary elements and parenchyma. Examination of macerated elements showed that the abnormal xylem constituted vessels of varying size and shape with or without perforations carrying various types of thickenings and pits.

STUDIES ON THE WHEAT SEED GALLS CAUSED BY *ANGUINA*
TRITICI

BY

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Studies on the ear-cockle nematode of wheat resulted in a number of interesting findings. The size of the green galls was correlated with the number of adult nematodes inside. The mean number of adults per gall ranged from 10-80, but as many as 283 adult nematodes were recovered from a single large sized gall. The staminate tissues were generally preferred and converted into galls, and more than one gall could be formed in a single floret. The gall extract at lower dilutions (1 : 1000) stimulated plant growth in the initial stages. Chemical analysis of the gall extract showed presence of amino acids equivalent to 8 micromoles of leucine and sugars equivalent to 42 mg of glucose. A diet mixed with ear-cockle galls when fed to rats did not have any toxic effect on them.

REACTION OF SOME CULTIVATED VARIETIES OF EGGPLANT, PEPPER,
AND OKRA TO THE ROOT-KNOT NEMATODE,
MELOIDOGYNE INCOGNITA

BY

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Varieties of egg plant, pepper and okra were screened against root-knot nematode, *Meloidogyne incognita* under green-house conditions. All the varieties of eggplant and pepper proved to be susceptible to a varying degree, however, low root-knot development was observed in eggplant varieties giant of Banaras, black beauty and gola ; and pepper variety long red. All the varieties of okra were found to be highly susceptible to root-knot nematode.

INTERACTION OF ROOT-KNOT NEMATODE, *MELOIDOGYNE INCOGNITA* AND TOBACCO MOSAIC VIRUS IN TOMATO

BY

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A survey of fields around Delhi showed that TMV and root-knot nematode were commonly associated with tomato plants. Investigations were, therefore, taken up to study the nature of their association as also the effect of virus-nematode complex on plant growth characters. The plant growth was significantly reduced in simultaneous inoculations with both the pathogens (N+V) or when nematode preceded the virus in the inoculations (N+v) in comparison to inoculations with virus (V) or nematode (N) alone or where virus preceded the nematode inoculation (V+n). Further, there was a significant increase in the nematode population in N+V treatments but virus multiplication was inhibited. As against this, in the treatment where virus preceded inoculation, the plant growth and virus multiplication was not affected but the nematode population was suppressed. No significant difference in the trend of these results was recorded between the observations taken after 20, 30, 40, 50 and 60 days of inoculations and also between the different inoculation intervals of virus and nematode.

THREE NEW SPECIES OF NEOTYLENCHID NEMATODES FROM
NORTH INDIA

BY

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Nothotylenchus elongatus sp. n. can be differentiated by its typical elongate-cylindroid oesophagus with its long cylindrical terminal bulb, measuring 6-9 times as long as wide and 3-4 times as long as body width at the base of oesophagus, and by its posteriorly located vulva. *Nothotylenchus taylori* sp. n. is distinctive in possessing six incisures in the lateral field, posteriorly located vulva and long post-uterine sac, and *Boleodorus acutus* sp. n. can be differentiated by its long, elongate and narrow tail with acute terminus and a rudimentary post-uterine sac.