

EFFECT OF SOME INDIGENOUS PLANT MATERIALS AND OIL-CAKE AMENDED SOIL ON THE GROWTH OF TOMATO AND ROOT-KNOT NEMATODE POPULATION : B. K. Goswami and K. Vijaylakshmi, Division of Nematology, Indian Agricultural Research Institute New Delhi-12.

Applications for both soil organic amendments and dry products of certain indigenous plants which are known to possess nematicidal properties have received attention in the recent years for the control of plant parasitic nematodes. In the present study the efficacy of ten dried plant materials viz., *Eclipta alba*, *Cannabis sativa*, *Chenopodium amaranticolor*, *Atropa belladonna*, *Amaranthus* sp., (whole plant) *Calotropis gigantea*, *Ricinus communis*, *Datura metch*, *Mangifera indica* and *Azadirachta indica* (leaves only) and five oil cakes, *Carthamus tinctorius*, *Shorea robusta*, *Calophyllum inophyllum*, *Pongamia glabra* and *Azadirachta indica* were tested against root-knot nematode on tomato. Each of the dried plant material and cake was ground to fine power and tests conducted in 10 cm plastic pots. Three dosages were selected after the preliminary trial for each soil amendment. For every dosage, six replications were maintained out of which three were inoculated with 1000 larvae of *Meloidogyne incognita* per pot while the other three were left uninoculated as checks. Besides, adequate checks were also kept without any amendments. Observations were recorded on plant growth characters, nematode populations (both in roots and in soil) as also of the rhizosphere fungi of each treatment. Among plant materials, *Eclipta alba* was most effective followed by *Azadirachta indica*, *Datura metch* and *Amaranthus* sp. in reducing root-knot galls while *Cannabis sativa*, *Ricinus communis* and *Calotropis gigantea* also showed a high inhibition of nematode population. Length and weight of tomato plants in response to above materials also significantly increased in comparison to infested control. In case of cakes, *Shorea robusta*, *Pongamia glabra*, *Azadirachta indica* and *Carthamus tinctorius* reduced galls as well as nematodes in soil while *Calophyllum inophyllum* did not reduce the gall number but inhibited nematode population. The results thus indicated that all the plant extracts and cakes tested possess nematicidal properties.

CHEMICAL CONTROL OF PHYTONEMATODES OF GRAPEVINE (*VITIS VINIFERA*) : P.P.S. Baghel and D.S. Bhatti, Department of Nematology Haryana Agricultural University, Hissar.

Four chemicals, viz. aldicarb (Temik 10-G), carbofuran (Furadan 3-G), fensulfothion (Dasanit 5-G), and phorate (Thimet 10-G) each @ 2, 4 and 6 kg

a.i./ha were applied in basin area of nematode-infested grapevines (var. Perlette) to determine their comparative efficacy. Phytonematodes infesting grapevines included *Meloidogyne*, *Pratylenchus*, *Helicotylenchus*, *Longidorus* and *Xiphinema* (940 nematodes/kg soil). Apart from the lowest dose (2kg a.i./ha) of aldicarb, fensulfothion and phorate and fensulfothion @ 4 kg a.i./ha, all the doses of different chemicals used registered significant increase in yield over the control. Aldicarb @ 6 kg a.i./ha was found to increase yield by 26.1 per cent as compared to control. Highest reduction (71.4%) in nematode population was also observed at the highest dose of aldicarb. Production of higher number of *Meloidogyne* males in soil treated with aldicarb was noticed. A tendency in males to develop intersexes was also observed, indicating a phenomenon affecting normal development. Among all these chemicals, aldicarb @ 6 kg a.i./ha appears to be the most effective chemical for controlling nematodes associated with grapevines. On the basis of cost benefit ratio (1:3.6), application of aldicarb @ 6 kg a.i./ha can be advocated.

IN VITRO TOXICITY OF DBCP TO SOME PHYTOPHAGOUS NEMATODES AND HATCHABILITY OF *HETERODERA CAJANI*: C. L. Sethi and D. Prasad, Division of Nematology, Indian Agricultural Research Institute New Delhi-12.

Toxicological tests with different concentrations of DBCP and exposure of *Pratylenchus zaeae*, *Tylenchorhynchus vulgaris* and *Hemicriconemoides cocophillus* revealed that the percentage mortality was directly proportional to both concentration and exposure period. There is almost complete kill of all three species when exposed to 160 ppm or more for atleast 24 hours. Using CTP as parameter, *T. vulgaris* was found to be more susceptible to DBCP exposure as compared to *P. zaeae* and *H. cocophillus*. Further *P. zaeae* was found to be more susceptible at 20°C than at 10° or 30°C. Similarly, larval emergence for cysts of *Heterodera cajani* was proportionately affected with an increase of DBCP concentration and exposure period. Larval emergence was reduced to 9.5, 4.8 and 0.8 per cent in 640 ppm for 2, 4 and 8 days respectively as against 41.0 per cent emergence in check treatment.