STUDIES IN THE CONTROL OF PLANT PARASITIC NEMATODES, USING SOME HALOGENATED HYDROCARBON FUMIGANTS

BY

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Many crops all over the country are seriously affected by plant parasitic nematodes. The damage caused by one of these nematodes, "Meloidogyne spp", in Iran is very serious and a more recent appraisal of the situation places the losses even very high.

The susceptibility of different plants listed as hosts so far is about 2000 in which the parasite is able to reproduce very freely, sometimes even 4 generations per year.

Since the damage caused by plant parasitic nematodes to different crops is of great economic importance it is desirable to find an effective method for their control.

Soil fumigation using nematicides is reasonably effective against most of these parasites but because the kill is not complete the residual population will build up very quickly.

Various chemicals have been used to control nematodes in the soil, some of them have shown considerable effect under favourable conditions.

Bearing in mind the economic importance of plant parasitic nematodes the present work was designed in different fields in Iran, Guilan, Rafsanjan, Esphahan, & Tehran area to investigate the efficacy of some of the better known nematocides against these parasites.

Many different chemicals have been tried which are listed in table No. 1.

Criteria – Host plants were grown in pots and in field trials, and the roots of growing plants in infested soil were examined at different stages of growth to measure the efficacy of nematicides by the root invasion assay.

The height of the host plants, the weight of production and the number of invaded larvae per gram of root after growing host plants, were measured to investigate the effect of nematicide.

On pot experiments the final eelworm population after growing a host plant was used as another criterium.

The estimation of mortality was expressed as a percentage based on a comparison of the final population level of each treatment with that of the untreated control.

Finally the results obtained have statistically been compared by using analysis of variance and other statistical methods, those nematicides showing a satisfactory effect, being significantly different from control have been selected and reexamined to emphasize their efficacy for further use.

The following nematicides have shown better results and good effect on many phytoparasitic nematodes considering their phytotoxicity on some plants which has to be considered.

methyl bromide, Terracur P. Nemagon, Nemacur, Ditrapex, Vapam, Basamid, and 1410L.

Methyl bromide (CH3 Br) is a well known fumigant and is used widely for killing insects, mites, weeds, and nematodes.

It is very expensive that when used, care should be taken into consideration, therefore its use in nematode control should be limited to nurseries and greenhouses.

Nemagon (1, 2, Dibromo – 3 chloropropane) has been used by many workers against different nematodes. One of the advantages of Nemagon is that it can be formulated absorbed on granules but some plants show high sensitivity to this chemical, therefore it is advisable to use it with care and previous examinations.

Other products have shown reasonable results being good nematicides against many nematodes.

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