

Short Communication

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EFFECT OF THREE NEMATOCIDES ON POPULATION DENSITY OF TWO PLANT PARASITIC NEMATODES AND YIELD OF OKRA

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The present study was carried out to test the efficacy of three nematocides, Aldicarb, Carbofuran and Tenekil against *H. indicus* and *T. goffarti* and their effect on yield of okra. A plot containing initial population (Pi) of 140 *H. indicus* and 102 *T. goffarti* per 100 ml of soil was divided into 12 microplots each with an area 3 x 4 m. The dose of Aldicarb 10 G and Carbofuran 3 G was 50 g per plot and that of Tenekil (polychlorinated petroleum hydrocarbon) 95% E.C was 50 ml per plot. Microplots receiving no nematocide served as control. Each treatment was replicated three times in a randomized complete block design. Soil was treated with these nematocides a week before planting. Ribbed variety of okra which is commonly grown by farmers, was used in these tests. The name of this variety, however, could not be determined. On account of the soil being heavy seeds of okra were first germinated in pots and then 14 seedlings were transplanted into each plot.

The plots were irrigated weekly. Picking of okra was started at 9 weeks and carried out weekly upto 13 weeks. In all, five pickings of fruit were taken. Yield of okra/treatment was determined by taking the total weight in grammes of fruit picked during five pickings.

For determining nematode population soil samples were randomly collected from each treatment at a depth of 0-30 cm, mixed thoroughly and finally processed through Baerman's funnel technique [3] in which 100 ml of soil was spread over a separating seive. In this a tissue paper was spread on a nylon gauze supported by plastic rim which was kept in a funnel (dia 15 cm). Water was poured through the space between the separating seive and the funnel till the soil spread over the tissue paper moistened. A rubber tubing closed with a stopper was already fitted to the opening of funnel. The arrangement was left for 24 hr. at room temperature ($30 \pm 2^\circ$) after which 20 ml of nematode water suspension was collected by releasing the stopper. This contained almost all the nematodes which infiltrated through the separating seive.

Nematodes were counted using a counting dish bearing 1/2 cm squares on outer surface of the bottom with the help of

a marking diamond. 5 ml of nematode - water suspension was pipetted out into the counting dish after thorough blowing of air with the mouth. Nematodes were counted using a stereoscope binocular microscope. This way three counts were done and their average was considered as number of nematodes per 100 ml of soil. Statistical method was used [4]. The analysis of variance (ANOVA) was done following Scheffes multiple contrasts to compare the differences between treatments and control.

The population of *H. indicus* after 13 weeks of treatment were found significantly lower in Aldicarb ($F = 40.11, P < 0.001$), Carbofuran ($F = 43.43, P < 0.001$) and Tenekil ($F = 19.65, P < 0.01$) as compared with control. The population of *T. goffarti* significantly decreased only in Aldicarb ($F = 14.66, P < 0.001$) and carbofuran ($F = 11.59, P < 0.001$) (Fig. 1). Naqvi *et. al.* [5] reported Tenekil to be highly effective against *Tylenchorhynchus* spp. Similarly Khan *et. al.* [6] found a mixture of Tenekil and Polyvinyl alcohol highly suitable for control of *Helicotylenchus microdorus* and

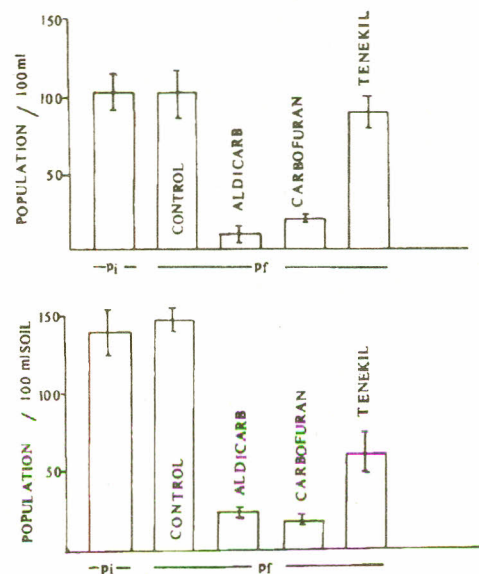


Fig. 1. Initial (Pi) and Final (Pf) population per 100 ml of soil of *Helicotylenchus indicus* and *Tylenchorhynchus goffarti*.

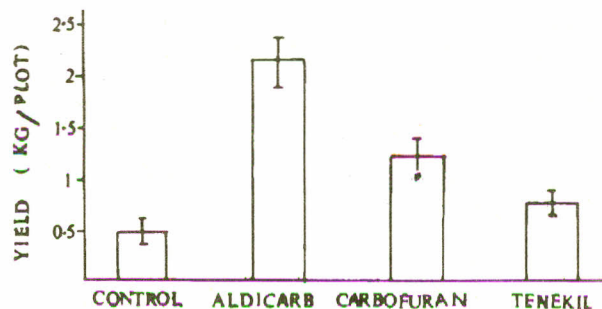


Fig. 2. Yield of okra per plot in control and various treatments.

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Tylenchorhynchus clavicaudatus associated with banana but in the present studies Aldicarb and Carbofuran were found more effective than Tenekil against *H. indicus* and *T. goffarti*.

The analysis of variance of yield data showed a highly significant difference between treatments ($F = 20.71, P < 0.001$). The yield of okra in plots, treated with Aldicarb and Carbofuran were significantly higher than control plots ($F = 17.8, P < 0.001$ and $F = 3.99, P < 0.05$, respectively) (Fig. 2). Our results give an indication of the overall benefits to be gained by the use of these nematicides, particularly Aldicarb which may be sufficient to keep *H. indicus* and *T. goffarti* population below economic threshold.

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Key words: Nematicides, *Helicotylenchus indicus*,

Tylenchorhynchus goffarti, Yield, Population.

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