

ORIGINAL PAPERS

THE STUDY OF BOTANICAL INSECTICIDE EFFICIENCY IN CONTROL OF CABBAGE PESTS

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Keywords: *natural insecticide, cabbage aphides, larve, Noctuidae, crop and cultivarcabbage*

INTRODUCTION

The cabbage crops are a special ecosystem of complex interrelationships between plants, animals and cultural operation (Baicu and Savescu, 1986). The damage of pests in cabbage crops increased in last years (Calin, 2004). Natural means are a primary interest for organic growers as control measures against vegetable pests. There are a series of promising data for the practical use of botanical insecticides in control of cabbage pests (Manger, 2000, Meadow et al., 2000, Hellesaar et al., 2000, Almie, 2000). We tested a formular of botanical insecticides, which is based on an extract of neem and seed kernels.

MATERIALS AND METHODS

During June - October 2006 and 2007, cabbage experiments were performed in Vegetable Research-Development Station Bacau - Romania, in order to evaluate the effect of natural insecticide NeemAzal-T/S - 0,5%, 75 Neem Oil - 0,5 %, Diatect 13,58%, Diatect, 0,3 %, Entomax - 0,15 %, Entomx – 0,1 % on cabbage aphids and *Noctuidae* larva.

The observations were made before the application 3, 5 and 7 days after application. Observations were made as:

- all adult and non-adult stages (larvae + pupae) of cabbage aphides were counted on 50 randomly chosen leaves per plot;
- 100 larvae of *Noctuidae* 1 - 2 instar (L2) per plant.

We used for to determine the efficiency of NeemAzal-T/S against pests, in % of mortality.

Assessments were also made on fito - toxicity, crop development and visible residues.

Treatment technique: spraying till run-of 600 l/ha in cabbage. Crop and cultivar: cabbage, Gloria variety. Soil type: alluvial medium advanced; Plot size: 5 m x 1,4 m (40 plants per plot).

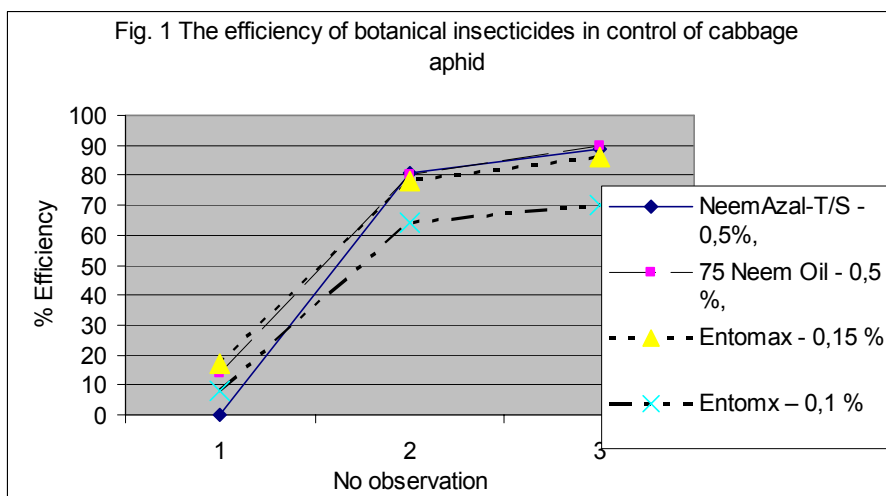
RESULTS AND DISCUSSION

The efficacy of sprayed botanical insecticide against vegetable pests is showed in Table 1.

Table 1. The efficiency of botanical insecticides against cabbage pests

The variants	Efficiency after no days			Observations
	3	5	7	
1	2	3	4	5
Aphides				
1 - NeemAzal-T/S - 0,5%,	15,4	81,2	89,8	10 % from aphides were above leaves
2 - 75 Neem Oil - 0,5 %,	14,3	80,9	90,1	
The variants	Efficiency after no days			Observations
	3	5	7	
1	2	3	4	5
3 - Entomax - 0,15 %	17,2	78,3	85,9	
4 - Entomx – 0,1 %	8,1	64,2	70,1	
5 – Untreated	-	-	-	
Larva of Noctuidae				
1 - NeemAzal-T/S - 0,5%,	18,3	84,6	91,2	30% from cabbage plants were in rosette stage
2 - 75 Neem Oil - 0,5 %,	16,4	83,8	90,1	
3 - Entomax - 0,15 %	17,1	80,2	87,2	
4 - Entomx – 0,1 %	9,2	71,4	80,6	
5 – Untreated	-	-	-	

The variants: V1 - NeemAzal-T/S - 0,5%, V2 - 75 Neem Oil - 0,5 %, V3 - Entomax - 0,15 % had a good efficiency in control of aphids (*Brevicoryne brassicae* L.) Fig. 1



A high population density of cabbage aphides was determined at the last Jun.

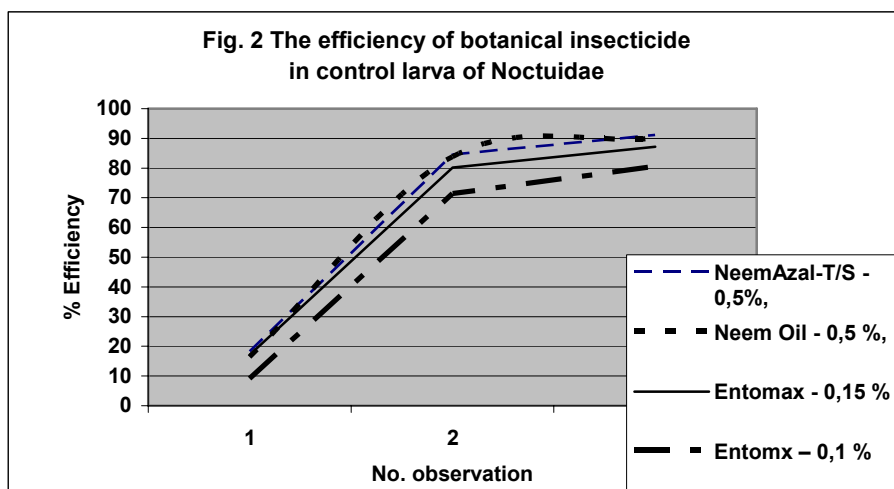
Can we see that the aphids decreased strongly after 5 and 7 days after treatment of 75 Neem Oil - 0,5 %, NeaamAzal-T/S - 0.5% and Entomax 0.15%.

The efficiency of 75 Neem Oil - 0,5 % was 90.1%.

The efficiency of NeemAzal-T/S - 0.5 % was 89.8 %.

The insecticide effect of Entomax 0.15% was 85,9% against cabbage aphid. The surviving pests were very small in 75 Neem Oil 0.5% and NeemAzal-T/S 0.5% and they caused minimal damage.

The variants: V1 - NeemAzal-T/S - 0,5%, V2 - 75 Neem Oil - 0,5 %, V3 - Entomax - 0,15 % had a good efficiency in control larva of Noctuidae (Fig. 2).



The larva decreased after 5 and 7 days after treatment of 75 Neem Oil - 0,5 %, NeaamAzal-T/S - 0.5% and Entomax 0.15%. The efficiency of 75 Neem Oil - 0,5 % was 90.1%. The efficiency of NeemAzal-T/S - 0.5 % was 91.2 %. The insecticide effect of Entomax 0.15% was 87.2%.

CONCLUSIONS

During June - October 2006 and 2007, cabbage experiments were performed in Vegetable Research-Development Station Bacau - Romania, in order to valuate the effect of natural insecticide

NeemAzal-T/S - 0,5%, 75 Neem Oil - 0,5 %, Diatlect 13,58%, Diatlect, 0,3 %, Entomax - 0,15 %, Entomx - 0,1 % on cabbage aphids and *Noctuidae* larva.

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ABSTRACT

During 2003 - 2006, vegetable field experiments were performed in Vegetable Research and Development Station Bacau - Romania, in order to evaluate the effect of natural insecticide: NeemAzal-T/S - 0,5%, 75 Neem Oil - 0,5 %, Diatect 13,58%, Diatect, 0,3 %, Entomax - 0,15 %, Entomx - 0,1 % on cabbage aphids and *Noctuidae* larva.

The treatments were compared with untreated. NeemAzal-T/S - 0,5%, 75 Neem Oil - 0,5 %, Entomax - 0,15 %, showed the very good efficacy, above 85.92 %, after 7 days of treatments for these cabbage pests.

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