

EFECTUL INSECTICIDULUI NEEMAZAL-T/S ASUPRA VITALITĂȚII OMIZILOR DE *LYMANTRIA DISPAR* L.

THE EFFECT OF THE INSECTICIDE NEEMAZAL-T/S ON *LYMANTRIA DISPAR* L. CATERPILARS

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Abstract: The objective of field trial presented in this paper were to establish in what measure the *NeemAzal-T/S* (1% azadirachtin A) insecticide has effect on vitality of *Lymantria dispar* caterpillars, when it is applied as emulsion of 0.5%, 1%, 2% and 2% emulsion mixed with 0.1% raps oil or with 1% *Bacillus thuringiensis* var. *aizawai*. At three days of contact with treated leaf, caterpillars do not consumed with pleasure the food and at five days do not eat anymore. The total extinction appear after 13th days. The higher efficiency had the combination 2% NA+1%Bta.

Rezumat: Obiectivul acestui experiment de câmp prezentat în lucrarea de față a fost de a stabili în ce măsură insecticidul *NeemAzal-T/S* (1% azadirachtin A) are efect asupra vitalității omizilor de *Lymantria dispar*, când este aplicat ca emulsie de 0,5%, 1%, 2% și emulsie 2% în amestec cu ulei de rapiță 0,1% sau cu *Bacillus thuringiensis* var. *aizawai* 1%. La trei zile de contact cu frunzele tratate omizile nu mai consumă cu plăcere hrana, iar la cinci zile nu se mai hrănesc. Extincția totală apare după treisprezece zile. Eficacitatea cea mai ridicată o are combinația 2% NA+1%Bta.

Key words: *NeemAzal-T/S*, caterpillars, *Lymantria dispar*

Cuvinte cheie: *NeemAzal-T/S*, omizi, *Lymantria dispar*

INTRODUCTION

Lymantria dispar L. was and remains the most damaging defoliator of deciduous forests in Romania. The infested surfaces with *Lymantria dispar* were in principal in forests from Campia Romana of Muntenia and Oltenia (40%), from the zone of subcarpathic hills of Muntenia and Oltenia (16%), Dobrogea (14%), Moldova (4%), plateau and hills of Transilvania (2%), west plain of Transilvania (8%), Banat (16%). It is a poliphagus defoliator which attack oaks, hornbeam, willow, elm, acacia, fruit trees (SIMIONESCU *et al.*, 2000), maples, linden, beech, hawthorn, poplar, filbert, sometimes larch (ENE, 1971). The insect make periodical mass multiplication and defoliations which induce wood growth and fructification decreasing and causes the forest biocenosis disruptions (ZABEL *et al.*, 1999). If the affected trees do not have sufficient water after a prolonged period of dryness can appear trees drying. When the density of the eggs masses is very high (over 5 eggs masses/tree) the larva had made high defoliations even it has been applied treatments with *Bacillus thuringiensis* var. *kurstaki* and viruses (TURCANI, 2001).

From that reasons permanently is trying to find some efficient means and procedures to control this pest. Because of the pest prolificacy are preferred that means of protection which can make drastic reduction of population level in larva stage without affected utile insects and forest environment. Many products will not be accepted to be utilized, in this condition we have to look at alternatives which put the accent of natural extracts, selective and without impact on environment. This kind of product can be considered the insecticide *NeemAzal-T/S*, which has as active substance the complex azadirachtin.

MATERIALS AND METHOD

The researches were made in 2007, in the field conditions (Padurea Verde, Timisoara).

In the month April were harvest eggs masses from Paniova forest, Timis County, where the pest was in progradation (ICAS Timisoara) and putted in glass pot bounded at muzzle with plastic texture to do not permit the caterpillars to get out and permit normal ventilation. Immediately after the caterpillars gated out from eggs they was putted in growth boxes and feeding with fresh leafs of common oak, obtain on all trial at the same three. For the trial have been used caterpillars in 2nd age.

In each growth box has introduced one twigs with leafs of common oak, in boxes of water to hinder drying. The control was sprinkle with water and next variants with emulsions: emulsion of NeemAzal-T/S in concentration of 0,5%, emulsion of NeemAzal-T/S in concentration of 1%, emulsion of NeemAzal-T/S in concentration of 2%, emulsion of NeemAzal-T/S in concentration of 2% and raps oil 0,1 % for more adherent proprieties, emulsion of NeemAzal-T/S in concentration of 2% and *Bacillus thuringiensis* var. *aizawai* 1% (figure 1). On each twig with leafs were been introduce caterpillars in 2nd age (40 caterpillars/variant, 10 caterpillars/replication). Once of 48 hours was numbered alive caterpillars, in lethargy and death, from each variant.



Figure 1. The trial aspects

RESULTS AND DISCUSSION

The efficacy of treatment with NeemAzal depends in high measure of the moment of application, emulsion concentration, sensitivity of target insect and mode action of the product (KLEEBERG, HUMMEL, 2001). It is considered that the application of product NeemAzal in the moment in which the caterpillars are in 2nd age it found them, in natural condition, enough sensible and in majority get out of eggs.

At first contact with treated twigs (27.04.) the caterpillars was lively going faster in the interior of leafs where they begun to feed. After one day of contact with treated leafs the caterpillars manifest an easy repellent reaction at treated leafs but continue cu feeding.

Beginning with the third day of contact with treated leafs the „antifeedant” effect, specific to this product, become evident. At touching of some caterpillars, someone falling down and just a little part of them goes down easy on thread of silk. In 30.04. caterpillars

vitality begin to decreasing evidently (figure 2), more visible in the variant NA 2%+BT 1%.

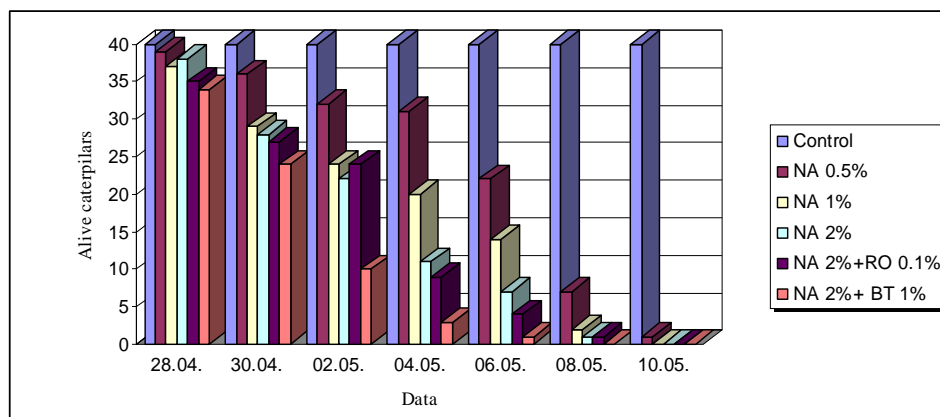


Figure 2. The vitality of *Lymantria dispar* caterpillars in the trial period

More pregnant differences, between the variant NA 2%+BT 1% and the rest of variants, has been underline beginning with 02.05.. In the fifth day of trial, caterpillars were in pregnant lethargy, do not feeding anymore and the mobility become lower.

After eight days from trial installation, the caterpillars from control variant moulted and entered in 3rd age, the vitality is good, and that sown us that the caterpillar's vitality from other treated variants is influenced in principal by the action of used insecticide. We mention that in this trial at control variant do not registered the mortality.

In the 9th day the increase of vitality is almost exponential in the rapport with concentrations and combinations used (figure 2).

The lust day of caterpillar's life was in the thirteenth from the trial installation, with exception of variant NA 0.5% where a caterpillar was alive. With all of that, in that case the efficiency of treatment in these variant was of 97.5 % this value being consider enough to consider trial closed.

CONCLUSIONS

The researches results regarding the effect of the insecticide NeemAzal-T/S on the vitality of *Lymantria dispar* caterpillars in 2007, using existent information from the specialty literature permit to establish next conclusions:

- after one day of contact with treated leafs appear a easier repellent reaction of caterpillars at them;
- after three days the caterpillars do not present feeding appetite, someone loosing the capacity to synthesize the silk thread;
- after five days they do not feeding, become lethargic, the mortality is higher;
- after nine days decreasing of vitality in almost exponential;
- total extinction appears after thirteenth days.

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