

NEW CONTRIBUTIONS TO THE KNOWLEDGE OF THE MORPHOLOGY, ECOLOGY AND DAMAGE CAUSED BY MINING MOTH CHESTNUT (*CAMERARIA ORHIDELLA* DESCHKA & DIMIC) IN THE HUSI - VASLUI AREAL CONDITIONS FROM EASTERN OF ROMANIA

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ABSTRACT

*During the research were made observations about morphology, ecology and damage the chestnut trees in the Husi-Vaslui area by chestnut leaves mining moth (*Cameraria orhidella* Deschka&Dimic).*

The harmful specie is a Lepidoptera that belongs to the Gracillariidae family, who presented a low degree of resistance to unkind ecological conditions, but still developed three generations per year which caused heavy damages in the crow of the chestnut trees by consuming the palisade tissue, producing mines on the upper face of the leaves.

INTRODUCTION

That insects constitute the most numerous and diverse group of organisms on Earth, certainly not by chance. As proof, the insects have kept this dominance for more than 400 million years, witnessing the apogee and dinosaur extinction, surviving at least four major cataclysms that occurred during the evolution of the planet and have continued to exist despite sustained efforts of four to eradicate mankind. This was possibly due to some characteristic "success" of insects.

Insects are arthropods presenting body segments grouped into three main regions: head, thorax and abdomen, each of these regions are different appendices characteristic of the three pairs of jointed legs, in the thorax.

MATERIAL AND METHODS

In the 2012-2016 period were made observations on mining moth chestnut *Camerariaohridella* DeschkaDimic, in parks and zone alignments with chestnut Huși - Vaslui county. Phytosanitary offices, through forecasting and warning network, pursue biology of this pest and issue warnings combat. For its observations each year are purchased pheromone traps atra-CAM at the Institute of Chemistry "RalucaRipan" Cluj.

Researches on the biology of the mining moth chestnut by phytosanitary Office from Vaslui have started since 2006 when he joined the forecasting and warning program by recommending the phytosanitary treatments to combat.

These observations consisted of the systematic recording of data on the occurrence and flying insect oviposition, covering the larval stage, the transformation in pupated and replay each generation cycle.

RESULTS AND DISCUSSIONS

Many insects, through their parasitic life, even interested in the economic aspects of current research in the context of increasing demands for products "bio" suggests that chemical control is not the best option. On the other hand, directives and legislation, many species are protected for their conservation is important both their knowledge as such, and the habitats in which they live. I shall address issues relating to insect morphology, ecology, and the mode of attack in laboratory activities will notice those presented in the biological samples.

The adults have a previous wings 3-5 mm. The rest were about 5 mm long. The background wings are metallic orange, transverse obvious stripes. The hind wings are narrow and frayed. The legs are lighter, with darker transverse stripes. The exact determination adult is made by determining genitalia. The egg is very low (0.2 to 0.3 mm), lenticular.

The larva (Figure 1) is 0.5 to 5 mm long, is flattened, the abdominal segments protruding with triangular head (probably 5 stages). The stern is 3-5 mm long, is brown in a white cocoon form, in the mine.

The species show up to 5 generations / year, depending on climatic conditions (in our country up to 3 generations / year) every generation, some of pupae remaining extended diapause. Wintering pupa occurs in fallen leaves on the ground. In spring, the adults remaining on the ground and are easy to spot in the early morning on the trunks of trees where mating takes place. The females attract males using a pheromone mating and shortly after oviposition occurs.

For oviposition, the females fly on the leaves immediately after mating, laying eggs only the upper epidermis, near the lateral ribs. A female produces an average of 20-40 eggs. After 1-3 Week takes place hatch and young larvae penetrate the leaf and begin to consume palisade tissue. At the end of larval development, împuparea often occurs in a white cocoon inside the mine. Subsequently, stern pierces the skin to facilitate the cocoon and the butterfly out.

Larvae produce me on top of the leaves of Aesculus sp. (Aesculus hippocastanum is the preferred species in Europe, A. x flesh, A. Pavia). It was also reported on Acer pseudoplatanus. Mines are presented to the top in the form of red spots or small that expand as the larva grows, typically up to 5 cm long.

Considerations on the impact of mines Cameraria ohridella species can merge and occupy the entire area of a folio (Figure 2). The leaves turn brown and fall prematurely (from July). Mines Cameraria products may be mistaken for fungus products Guinard aesculi necrosis (Peck.), But the mines are less visible on the underside of leaves and are slightly protruding.

On a leaf can identify up to 700 mine, belonging to different generations of insects. The first generation usually attacks the bottom of the crown and the second and third generation attack and upper parts of the crown. The long term effect of repeated defoliation is not yet known. This is likely to affect the fructification of trees. If trees defoliated very strong (almost entirely), I noticed in August, producing a second flowering.



Fig no. 1. Eggs and larvae



Fig.no. 2. Larva



Fig. no. 3. Pupae

Larva (fig. 2) is 0.5 to 5 mm long, is flattened, the abdominal segments protruding triangular head yellowish first 4 ages.

Larva V5 before transforming into pupae little change color, becoming dark, then builds a whitish cocoon in the mine where the transformation will take place in the stern.

Pupa (fig. 3) is 3-5 mm long, in the early stages of training is reddish brown, then towards the end of the stage becomes brown - blackish.

Species show up to 5 generations / year, depending on climate conditions (in our country up to 3 generations / year) every generation, some of pupae remaining extended diapause. Wintering pupa occurs in fallen leaves on the ground. In spring, the adults leave the remaining leaves on the ground and are easy to spot in the early morning on the trunks of trees where mating takes place. Females attract males using a pheromone mating and shortly after oviposition occurs.

For oviposition, the females fly on the leaves immediately after mating, laying eggs only the upper epidermis, near the lateral ribs.

A female produces an average of 20-40 eggs. After 1-3 week takes place hatch and young larvae penetrate the leaf and begin to consume palisade tissue.

At the end of larval development, before transforming into pupae often occurs in a white cocoon inside the mine. Subsequently, stern pierces the skin to facilitate the cocoon and the butterfly out.

Larvae produce mine on top of the leaves of *Aesculus* sp. (*Aesculus hippocastanum* is the preferred species in Europe, A. x flesh, A. Pavia).

It was also reported on *Acer pseudoplatanus*. The mines are presented to the top in the form of red spots or small that expand as the larva grows, typically up to 5 cm long. The leaves turn brown and fall prematurely (from July). The mines *Cameraria* products may be mistaken for fungus products *Guinard aesculi* necrosis (Peck.) Stew. but the mines are less visible on the underside of leaves and are slightly protruding. On a leaf can identify up to 700 mine, belonging to different generations of insects. The first generation usually attacks the bottom of the crown and the second and third generation attack and upper parts of the crown. The long term effect of repeated defoliation is not yet known. This is likely to affect the fructification of trees. If trees defoliated very strong (almost entirely), I noticed in August, producing a second flowering.

Methods for combating the *Cameraria ohridella* insect .

They were applied with different experimental methods of fighting on this species. Foliar sprays with Dimilin (diflubenzuron) led to a significant reduction method can be used but injuries limited cities, ecological reasons. In order to avoid inconveniences in the foliar sprays, was tested the possibility of applying endoterapeutice methods, the administration of insecticides by injection into the tree trunk. In this product has been used Confidor (imidacloprid) insecticide that acts by ingestion, but repeated treatments caused pressure necrosis crust and currently is testing the possibility of applying the substance to the ground.

The synthetic pheromones are currently used to monitor populations, their combat effectiveness is still questionable. One can not say that the mass capture of males in pheromone traps is possible to reduce the population to a level at which harm insect products to be tolerable. In addition, it can not rely on natural enemies of insect activity, although they were identified over 40 species of parasitoids family *Chalcidoidea*.

As a particularly effective method of controlling, in the case of attacks is not very large, is applied to the dropped leaves should destroy the cocoons *Cameraria* wintering. Removal and destruction of infested leaves, autumn can lead to major reductions in injuries next year. Despite the population increase during the summer (because generations 2nd and 3rd), this method proves to be useful by delaying until late summer to produce harm very strong, this allows trees to produce and to accumulate enough reserve substances.

CONCLUSIONS

1. The adults of *Cameraria ohridella* species have the previous wings 3-5 mm. The rest were about 5 mm long.
2. In the background of wings are orange metallic, transverse stripes obvious. The hind wings are narrow and fringed.
3. The legs are lighter, with darker transverse stripes.
4. The egg is very low (0.2 to 0.3 mm) lenticular.
5. The larva is 0.5 to 5 mm long, is flattened, the abdominal segments protruding triangular head
6. The stern is 3-5 mm long, is brown to white in a cocoon form, in the mine.
7. The species show up to 5 generations / year, depending on climatic conditions (in our country up to 3 generations / year).
8. Mines are presented to the top in the form of red spots or small that expand as the larva grows, typically up to 5 cm long.
9. On a leaf can identify up to 700 minee, belonging to different generations of insects.

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