CONTROL POPULATION OF POPLAR RED BEETLE (*Melasoma populi* L., 1758) IN BLACK POPLAR PLANTATION TEACHING (*Populus nigra* L.) FROM COPSA MICA, SIBIU

CONTROLUL POPULAȚIEI GÂNDACULUI ROŞU AL PLOPULUI (*Melasoma populi L. 1758*) ÎN PLANTAȚIA DIDACTICĂ DE PLOP NEGRU (*Populus nigra L.)* DE LA COPŞA MICĂ, JUDEȚUL SIBIU

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Abstract: *This study was conducted at the plantation of Populus nigra teaching of Copsa Mica, Sibiu. To determine the species population control Melasoma populi L. (red beetle poplar) research began in the fall of 2010 when this species was found in poplar plantation. To have a thorough record as the number of copies we made systematic visits since September 2010 and until June of 2011. During the analysis and study of this species we obtained data and performed observations about Melasoma populi L. (poplar red beetle) in all phases of development.*

Key words*: Melasoma populi L., poplar red beetle, Populus nigra L., Copşa Mică.*

INTRODUCTION

Subject study plantation was established in 2009 with seedlings coming from Austria. Number of trees planted was 90 copies, and after 2009 to the present vegetation remaining 75 copies. The 15 samples that were dry were being attacked by pests or rodents (hare who fed their bark in winter). The plantation is located behind the animal fair out of Copsa Mica Medias in close proximity to the road (Fig.1).

Since autumn 2010 when I started comments on population trends in different stages of development, adult and larvae of different generations. Since last fall we were able to observe and egg stage on the back of poplar leaves and the bark tree.

Melasoma populi L. is widespread especially in beech groves and meadows where the vegetation temperature is lower and relatively higher temperature. Their normal habitat is in poplar and willow leaves (PANIN, S., SĂVULESCU, N., 1961).



Figure 1. Satellite location map of the collection area (adapted from http://maps.google.ro), (original photo)

In warmer regions of our country seems to exist a second generation incomplete. In this case the first generation occurs in the months April to June and the second generation in the months from July to April (TEODORESCU, I.,1985).

MATERIALS AND METHODS

The method of harvesting the species was the manual, by capturing the species in entomological jar with glass stopper. Specimens were then pierced and captured a collection of species formed on data collection. To follow during the hatching of larvae of one generation, we took leaves the clutch and I kept the eggs in the laboratory as obtaining data on the number of days during which they have traveled from the egg stage larva stage of first generation. For comments and inquiries are made to point out that eggs are deposited in the number of 20-80 pieces on the back leaf and hatched at intervals between 2 and 10 days depending on the female ponte depositing.

RESULTS AND DISCUTIONS

Egg color is varied from shades of orange to red (Fig.2). You must mention that I managed to capture and submit to the females in captivity ponte (Table 1). They have laid eggs on the bottomand they were kept for

making observations. As a novelty we managed to capture the IPM Scope electron microscopy even when the larvae have hatched from the eggs as they began to feed on the egg chorion and began to move the leaves in search of food. As an observation we were able to highlight their own time which was lasted six days as the first generation larvae hatching on September 21, 2010. At 8 am the egg came a single larva at 12 and 25 larvae were already hatched. Ambient temperature was 20^0 C.

Table 1

No. crt.	Data collection	Number of eggs	Temperature	Number of days to hatching	The number of larvae hatched
1	08.09.2010	42	18^0 C	7 days	33
2	20.04.2011	28	20^0 C	10 days	21
3	12.05.2011	52	26^0 C	3 days	39
4	18.05.2011	69	27^0 C	8 days	55
5	30.05.2011	80	27^0 C	2 days	63
6	06.05.2011	55	30^0 C	10 days	48



Figure 2. Eggs *Melasoma populi* L. (original photo)

Incubation of eggs takes between 10-20 days, and in conditions of captivity depending on ambient temperature. We have noticed that the temperature greatly influenced the crossing time of egg stage larvae of the first generation larva. The temperature that was higher than 20^0 C, during the hatching of eggs was lower (Fig.3.). The field trips we have seen both the environment and in a state of captivity larvae in various stages of

development (CODREANU, R., 1987). They first have weak legs used to crawl over the leaf surface. The mouthparts are well developed as broken and chewed very predatory larvae and feed on leaves of poplar is very damaging to the tree. The larvae feed on leaf parenchyma and noticed that they are located on their back (SĂVESCU, A., 1961). The strong attack phasemay consume between parenchyma leaving only the leaf veins. Besides poplar leave sand larvae feed on leaves of willow, ash so are hunger (Fig.4).

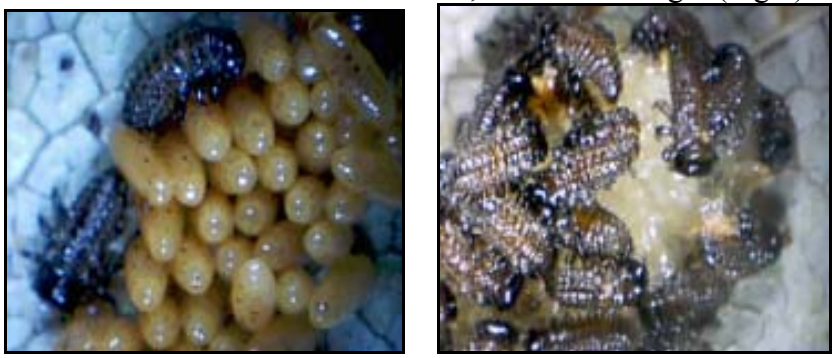


Fig.3 Larva *Melasoma populi* L. (original photo)

Following field trips during the 8 months I have made a total of 13 collections of biological material from black poplar plantation in Copsa Mica. The material was collected manually directly from the leaves of poplar. Adulte mergence was from April and I could see their changes at this stage lasted 2-3 weeks (15-25 days). Adults feed on themselves with leaves of poplar parenchyma for sexual maturation. After mating females of observations submitted clutch between 3-6 days in late April and early May on the underside of leaves in groups of 10-30 pieces.



Fig.4 How to attack and submission ponte (original photo)

The larvae are yellow with black head and thorax length of 10-12 mm. Adult size between 5-6 mm, with oval body. Pronotul head and black. (NATALI, V.F., 1954). Elitrele are bright red with a black spot at the base (Fig.5).



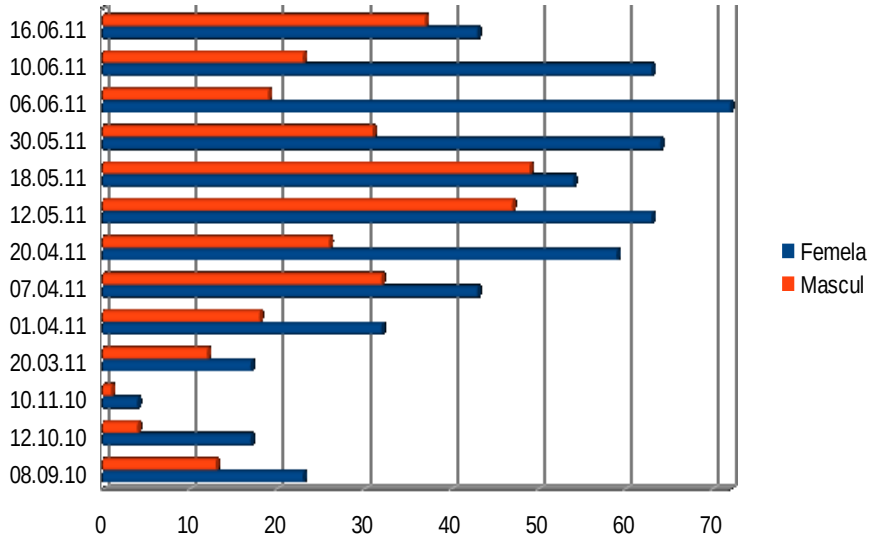
Fig. 5 Adult and larva *Melasoma populi* L. (original photo)

Table 2

Number of copies of the species *Melasoma populi* L. and sex ratio

No. crt.	Data collection	Time collection	Number of samples collected	Number of ♀	Number of ♂	The climate of the day
1	08.09.2010	$08:^{30}$	36	23	13	18^{0} C
2	12.10.2010	$10:^{30}$	21	17	4	17^{0} C
3	10.11.2010	$10:^{00}$	5	4	1	14^{0} C
4	20.03.2011	$11:^{00}$	29	17	12	18^{0} C
5	01.04.2011	$09:^{30}$	50	32	18	19^{0} C
6	07.04.2011	$10:^{00}$	75	43	32	18^{0} C
7	20.04.2011	$10:^{30}$	85	59	26	20^{0} C
8	12.05.2011	$13:^{20}$	110	63	47	26^{0} C
9	18.05.2011	$08:^{30}$	98	54	44	27^{0} C
10	30.05.2011	$13:^{50}$	95	64	31	27^{0} C
11	06.06.2011	$14:^{30}$	91	72	19	30^{0} C
12	10.06.2011	$12:^{30}$	86	63	23	29^{0} C
13	16.06.2011	$13:^{30}$	80	43	37	29^{0} C
TOTAL			**861**	**554**	**307**	$22{,}46^{0}$ C

Table 2 shows the species evolve *Melasoma populi* L. Depending on the collection date, we can observe that, since September îceputul species analyzed prepares to hibernate, some of the copies submitted to last longer clutch, therefore I managed to collect eggs *Melasoma populi* L. on 08.09.2010, which became larvae on 21.08.2010. *Melsoma populi* L. population, decreases due to collection of mature and rupture of poplar leaves that females have made clutch. The manual collection of individuals at regular intervals is there a numerical decrease in population. This method of collection can not be considered a method of combat, because the plantation population *Melasoma populi* L. is evolving (step number) by the large number of existing dams. I managed to know the type of the existing population in the plantation because of representation by gender (sex ratio),



because this shows that females dominate the population is bound to increase in number (TODORESCU, I., VĂDINEANU, A., 1999). It can be seen in Table 2 that most females were collected in July, and males in June. Conclusions and recommendations To get a more real and direct contact with the population of *Melasoma populi* L. for 8 months we made field trips, which is the total of 13 trips for collection of biological material directly from the trees. The method was manual harvesting by capturing

species in entomological jar with glass stopper, directly from the leaves of poplar and its bark. Specimens captured during the 13 field trips were 861 ± number, approximately 551 females and 307 males. The analysis of climatic conditions at each day of collection may point out that average daily temperature was 22.46 °. Because females were captured in greater numbers than males *Melasoma populi* L. we conclude that the population of is bound to increase in number (MOHAN, GH., ARDELEAN, A., 1993). The specimens captured were pierced and entomological species made up a collection, which includes data collection.

CONCLUSIONS

As an innovation in research, we have grown in laboratory conditions eggs laid on leaves in the wild, which then hatched larvae. We observed in groups of ponte deposit 20-80 eggs on the back of poplar leaves and on stems. Range in laboratory hatching of larvae was 2-10 days, the variation due to the interval since the date of ponte which was influenced by temperature conditions. In laboratory conditions we centralized over the period for submission posted a total of 326 eggs, of which 259 hatched larvae. In these conditions the percentage of hatching of 79.4%. As an absolute novelty in this research, we managed to shoot with electronic IPM Scole Microscop when eggs hatch. The observation started at 8 am, on 21.09.2010, the egg came first larvae were hatched at 12 and 25 larvae. High temperature affects the length of time hatching egg larvae. I noticed on this occasion as larvae feed on the egg chorion and then crawl from leaf surface to feed on its parenchyma. Larvae are hunger and attack poplar and willow beside and ash. We observed breeding in captivity of the larvae under laboratory conditions and found that they have 3 stages of molting, the time taking between 35-40 days. Adult size between 5-6 mm, the female is larger than the male, with oval body, head and pronotul black elitrele of crimson. Since this pest population is growing I recommend chemical treatments (TEODORESCU, I., 1990) based on Sumithion 50EC to protect trees in plantation. This substance consists of Fenitrothion against 50%, is part of Group III toxicity and mode of preparation that dissolves 10 ml to 1 L of water, the recommended dose of 0.51 l/ha. This contact and ingestion organo phosphorus insecticide used to combat red poplar beetle nervous system and causes paralysis and finally death of the insect.

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