

## CONSIDERATIONS ON THE ENTOMOFAUNA IN SOME APPLE ORCHARDS

### CONSIDETAȚII ASUPRA ENTOMOFAUNEI DIN UNELE PLANTAȚII POMICOLE DE MĂR

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**Abstract.** *Observations were made at the SC Loturi Service SRL Delești, Vaslui in a fruit-growing orchard with intensive apple trees where a vegetal carpet is made especially of grasslands between the rows of trees. The plantation has been chosen to maintain the vegetal carpet that can influence the local ecosystem conditions, such as the physical, chemical and microbiological characteristics of the soil; biodiversity of useful entomofauna; reducing the level of attack of phytopathogenic agents and specific pests, and with multiple effects on the quantity and quality of fruit and ultimately on the profitability of apple crops. For the collection of the entomological we have been used Barber traps type soil of being six in number, arranged in a single row of fruit at a distance of 10 m between them. Samples were harvested constantly every 10-25 days. At each collection, the trap material was cleansed by plant debris, and the entomofauna collected was brought to the lab and then the useful and harmful species were identified.*

**Key words:** vegetal carpet, biodiversity, apple orchard

**Rezumat.** *Observațiile au fost realizate în cadrul fermei SC Loturi Service SRL Delești Vaslui într-o plantație pomicolă cultivată cu măr intensiv unde este amenajat un covor vegetal alcătuit în special din garminee între rândurile de pomi. În plantație s-a optat pentru întreținerea covorului vegetal ce poate influența condițiile locale de ecosistem, cum sunt cele referitoare la: însușirile fizice, chimice și microbiologice ale solului; biodiversitatea entomofaunei utile; reducerea nivelului de atac al agenților fitopatogeni și dăunătorilor specifici ș.a., cu efecte multiple asupra cantității și calității fructelor și în final asupra rentabilității culturii mărului. Pentru colectarea materialului entomologic au fost utilizate capcanele de sol de tip Barber ce au fost în număr de șase, dispuse pe un singur rând de pomi la o distanță de 10 m între ele. Recoltarea probelor s-a realizat constant la fiecare 10-25 zile. La fiecare colectare, materialul din capcane a fost curățat de resturile vegetale, iar entomofauna colectată a fost adusă în laborator și apoi au fost identificate speciile utile și dăunătoare.*

**Cuvinte cheie:** covor vegetal, biodiversitate, livada de măr

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## INTRODUCTION

The first scientific papers, concerning the study of insects generally appeared in XVII th century (Redi); in XVIII th century, were described numerous species of beetles by Fabricius, Latreille and in the XIX century (Reitter). In our country, the first works concerning the study of beetles refers to Banat and Transilvania regions (Bielz 1865), and the most representative one belongs to Seidlitz (Fauna Transylvanica -1891).

By scientifically value is the work of Fleck (1906), in which are described more than 2400 of species, chiefly in Muntenia and Dobrogea regions. The researches on the epigeous fauna developed continuously after 1920 in Romania, and after 1950 in Oltenia too, being published numerous works: Marcu (1927-1967) and Bobârnac (1955-1985) for Oltenia; Ienistea (1956-1976) for Dobrogea and Muntenia; Panin (1941-1965) for Romania (after Bobârnac B., 1994).

In this paper are presented some species of entomofauna that were identified in apple tree plantations.

## MATERIALS AND METHODES

Collected of the material was made with the Barber soil traps, from an apple tree orchard, from the region of Delesti, Vaslui district. The observations were made in 2017; the biological material have been gathered from May to September. Collected of the biological material have been done from 10 to 25 days period of time, (Varvara, Tâlmăciu) totally being effectuated a number of 6 collected, at the next data: the first collected on 18 May; the second collected, on 26 May; the third collected, on 15 July; the forth collected on 28 July; the fifth collected on 18 August; the sixth collected on 08 September. From the collected material were retained the Coleopterans species that were later determined and stocked (Reitter, 1908; Rogoianu and Perju, 1979; Panin, 1951; Chatened du Gaetan, 1990).

## RESULTS AND DISCUSSIONS

The first haverst was collected a number of 10 species with 52 samples. The species collected were: *Opatrum sabulosum* (40), *Calathus fuscipes*, *Panagaeus cruxmajor*, *Panagaeus bipustulatus*, *Amara aenea*, *Amara crenata*, *Calosoma denticole*, *Microlestes nigrita*, *Pseudophonus pubescens*, *Tachyura quadrisignata*.

The second harvest was collected a number of 9 species with 71 samples. These were: *Opatrum sabulosum* (58), *Carabus violaceus*, *Harpalus calceatus*, *Harpalus tardus*, *Cicindela solute*, *Pterostichus niger*, *Anisodactylus binotatus*, *Dermestes laniarius*, *Brachynus elegans*

The third haverst was collected a number of 7 species with 25 samples. The species collected were: *Amara aenea*, *Anisodactylus binotatus*, *Calosoma*

*denticole*, *Harpalus griseus*, *Otiorrhynchus niger*, *Cantharis livides* ab.*rufipes*, *Opatrum sabulosum*.

The fourth harvest were collected 19 samples belongings of 8 species. The species collected were: *Anisodactylus binotatus*, *Carabus violaceus*, *Panagaeus bipustulatus*, *Opatrum sabulosum*, *Coccinella 7 punctata*, *Otiorrhynchus raucus*, *Otiorrhynchus singularis*.

The five harvest were collected 4 species with 10 samples. The species collected were: *Anisodactylus binotatus*, *Lebia humeralis*, *Dermestes lanarius*, *Cantharis livides* ab.*rufipes*.

The six harvest were collected 18 samples belonging at 4 species. The species collected were: *Carabus violaceus*, *Harpalus aeneus*, *Harpalus calceatus*, *Coccinella 7 punctata*.

Table 1

**The date of samples harvesting, the collected species and the number of the individuals insects**

No.	Date	No.	Specie's name	Number of sample	Total
1	18.05.2017	1	<i>Opatrum sabulosum</i> L.	40	52
		2	<i>Calathus fuscipes</i> Goeze.	1	
		3	<i>Panagaeus cruxmajor</i> L.	1	
		4	<i>Panagaeus bipustulatus</i> Fabr.	2	
		5	<i>Amara aenea</i> De Geer.	2	
		6	<i>Amara crenata</i> Dejean	1	
		7	<i>Calosoma denticole</i> L.	1	
		8	<i>Microlestes nigrita</i> Wollaston	1	
		9	<i>Pseudophonus pubescens</i> Mull.	1	
		10	<i>Tachyura quadrisignata</i> F.	2	
2	26.05.2017	1	<i>Opatrum sabulosum</i> L.	58	71
		2	<i>Carabus violaceus</i> L.	1	
		3	<i>Harpalus calceatus</i> Duft.	4	
		4	<i>Harpalus tardus</i> Panz.	1	
		5	<i>Cicindela solute</i> L.	1	
		6	<i>Pterostichus niger</i> Schall.	2	
		7	<i>Anisodactylus binotatus</i> Fabr.	1	
		8	<i>Dermestes lanarius</i> Illig.	2	
		9	<i>Brachynus elegans</i> Chaudoir	1	
3	15.07.2017	1	<i>Amara aenea</i> De Geer.	4	25
		2	<i>Calosoma denticole</i> L.	1	

		3	<i>Anisodactylus binotatus</i> Fabr.	1	
		4	<i>Harpalus griseus</i> Panz.	1	
		5	<i>Otiorrhynchus niger</i> Fbr.	14	
		6	<i>Opatrum sabulosum</i> L.	2	
		7	<i>Cantharis livides ab.rufipes</i> Hrbst	2	
4	28.07.2017	1	<i>Anisodactylus binotatus</i> Fabr.	2	19
		2	<i>Carabus violaceus</i> L.	1	
		3	<i>Panagaeus bipustulatus</i> Fabr.	2	
		5	<i>Opatrum sabulosum</i> L.	2	
		6	<i>Coccinela 7 punctata</i> L.	8	
		7	<i>Otiorrhynchus raucus</i> Fbr.	2	
		8	<i>Otiorrhynchus singularis</i> L.	2	
5	18.08.2017	1	<i>Anisodactylus binotatus</i> Fabr.	1	10
		2	<i>Lebia humeralis</i> Dejean.	1	
		3	<i>Dermestes lanarius</i> Mlig.	2	
		4	<i>Cantharis livides ab.rufipes</i> Hrbst	6	
6	8.08.2017	1	<i>Carabus violaceus</i> L.	2	18
		2	<i>Harpalus aeneus</i> F.	1	
		3	<i>Harpalus calceatus</i> Duft.	1	
		4	<i>Coccinela 7 punctata</i> L.	14	

The families, genera and species of *Coleoptera* collected are presented in the table 2.

Studing this table we can observe the following:

- the were collected 154 samples from 5 families, 5 genus and 7 species;
- the mast represantives excluding the *Carabide* family was the *Tenebrionidae* family with *Opatrum sabulosum* specie with 102 total sample);
- family *Curculionidae* with 3 species and 18 samples;
- family *Cantharidae* with 8 samples, by a single species: *Cantharis livida ab.rufipes*.
- family *Dermestidae* with 4 samples, by a single species: *Dermestes lanarius*.

Table 2

**The structure of families, genera and species from  
*Coleoptera* collected and number**

No.	Family	Genus	Species	Number of samples	Total
1	<i>Tenebrionidae</i>	<i>Opatrum</i>	<i>Opatrum sabulosum</i> L.	102	102
2	<i>Coccinelidae</i>	<i>Coccinella</i>	<i>Coccinella 7 punctata</i> L.	22	22
3	<i>Curculionidae</i>	<i>Oriorrhynchus</i>	<i>Otiorrhynchus niger</i> Fbr.	14	18
			<i>Otiorrhynchus raucus</i> Fbr.	2	
			<i>Otiorrhynchus singularis</i> L.	2	
4	<i>Cantharidae</i>	<i>Cantharis</i>	<i>Cantharis livida ab.rufipes</i> Hrb.	8	8
5	<i>Dermestidae</i>	<i>Dermestes</i>	<i>Dermestes lanarius</i> Ilig.	4	4
<b>5 families</b>		<b>5 genus</b>	<b>7 species</b>	<b>154</b>	

## CONCLUSIONS

1. The soil traps of Barber type were used for collecting of the entomofauna which moves on the soil surface, out of which the coleoptera species were kept, these traps worked from May to September.

2. There were effected a number of 6 collections in the year 2017, after taking the collected material from the traps and simultaneously it was change or completed the solution of formol of 3-4% concentration.

3. It was collected in totality 154 samples of *Coleoptera* belonging to the following families: *Tenebrionidae*, *Cantharidae*, *Dermestidae*, *Curculionidae* and *Coccinelidae* (excluding the *Carabidae* family)

- The most representative was *Tenebrionidae* family was well represented relating to the number of samples collected (102 samples), having just one species, *Opatrum sabulosum*. The other families had a reduced number of species and samples. The family *Coccinellidae* with 22 samples, the *Curculionidae* with 18 samples; the family *Cantharidae* with 8 samples and the family *Dermestidae* with 4 samples, by a single species: *Dermestes lanarius*.

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