

OBSERVATIONS REGARDING THE STRUCTURE AND DYNAMICS OF THE EXISTING EPIGEUS ENTOMOFAUNA IN THE APPLE FRUIT TREE PLANTATIONS

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Abstract

Observations on epigeus entomofauna were made during 2019 in a apple fruit tree plantation owned by SC Loturi Service SRL, Delesti, Vaslui County. The harvesting of the biological material was done with soil traps type Barber and with the beeting method, from May to August inclusive. The collected material was cleaned from plant debris and then prepared for identification at order of insects, and in the coleoptera species these were determined to species level. The analysis of the collected material shows that the specimens collected belong to the *Hexapoda* class. Most of the specimens collected belong to the *Insecta* class. The most common species were: *Dermestes lanarius*, *Anysodactylus binotatus*, *Harpalus distinguendus*, *Cantharis fusca*, *Tachyusa coarctata*, *Otiorhynchus pinastri*, *Amara aenea* and *Microlestes minutulus*.

Key words: epigeous; apple orchards; dynamics

Among the most important insect families belonging to both the useful and harmful entomofauna Arthropods are animals to which appear the articulated legs. They belong to several classes, namely: *Crustacea*, *Arachnida*, *Miriapoda* and *Insecta*.

The *Crustacea* class (crustaceans) are the arthropods that have the hard skin, covered with a crust. Most of them are aquatic species, but there are also harmful species that live on land. These belong to the order of *Isopoda* and the prefall of the *Armadillidium vulgare* species.

Among the arthropods, the most numerous specimens belong to the Class *Insecta* (*Hexapoda*) (Radu G.V., 1967).

In the *Arahnida* class are both harmful and useful species. The harmful species belong to the *Acari* order, and the useful species belong to the order of *Aranea* (spiders) (Boguleanu G. *et al*, 1980).

In this paper are brought some contributions to the knowledge of these groups of animals in different orchards.

MATERIAL AND METHOD

The collection of arthropods was made with the soil traps type Barber in the year 2019 on

the following dates: 15.05, 30.05, 30.06 and 15.07.

The species of epigeous entomofauna were collected with the help of the soil traps type Barber using the formalin solution with 3-4%. (figure 1) (Talmaciu M., 2011) The biological materials from the trap were collected every 7-10 days. At each harverst, the Formalin solution was completed or replaced, if necessary. The collected material was brought in the laboratory where we separated the species and determinated them.

In the apple orchards of SC Loturi Service SRL in the year of research there were placed a number of 42 Barber soil traps. Depending on the number of collections on year, and depending on the climatic conditions and the state of the traps, in 2019, we are realized 4 harvesting of the biological material.

RESULTS AND DISCUSSIONS

At the first harvest from 15.05.2019 were collected 161 specimens, belonging to a number of 9 taxons (table 1).

Most belong to the insect class at the following orders: *Hymenoptera* with most specimens, 48, *Coleoptera* with 41 specimens and *Diptera* with 31 specimens.

In the 2nd harvest dated 30.05.2019, the specimens of arthropods belonging to 10 taxons were collected (table 2). The greatest

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representation had a hyenopters with 173 specimens, arachnids with 39 specimens,

heteropters with 36 specimens and coleopters with 35 specimens.



Figure. 1. The collection and determination of the collected material

Table 1

Situation of collections on 15.05.2019

No.	Name of taxon	Samples						Total
		1	2	3	4	5	6	
1	Diptere	-	4	-	19	2	7	32
2	Himenoptere	10	-	1	32	-	5	48
3	Coleoptere	8	5	5	12	3	8	41
4	Miriapode		1	-	5	-	-	6
5	Arahnide	3	1	-	13	-	-	17
6	Heteroptere	5	-	-	-	-	5	10
7	Homptere	2	-	-	-	-	-	2
8	Lepidoptere	1	-	1	1	-	1	4
9	Ortoptere	-	-	-	1	-	-	1
TOTAL								161

Table 2

Situation of collections on 30.05.2019

No.	Name of taxon	Samples						Total
		1	2	3	4	5	6	
1	Coleoptere	9	6	10	-	8	2	35
2	Heteroptere	6	5	17	-	-	8	36
3	Diptere	13	-	-	-	13	3	29
4	Himenoptere	18	45	53	-	22	35	173
5	Dermaptere	2	-	-	-	-	-	2
6	Crisopide	1	-	-	-	-	-	1
7	Arahnide	13	5	8	-	5	8	39
8	Miriapode	2	-	1	-	-	2	5
9	Lepidoptere	2	-	-	-	2	2	6
10	Homoptere	3	-	3	-	-	3	9
Total								335

At the 3rd harvest of 15.06.2019, 171 specimens of arthropods were collected belonging to the following taxon groups (table 3): *Coleoptera*, *Heteroptera*, *Hymenoptera*, *Diptera*, *Miriapoda*, *Colembola* and *Arachnida*. The most well represented were himenopters with a number

of 49 specimens, followed by coleopters with 46 specimens.

At the 4th Harvest of 30.06.2019 were collected 55 specimens of arthropods belonging to 7 taxons (table 4). It was best to represent the order of *Hymenoptera* with 15 specimens collected.

Table 3

Situation of collections on 15.06.2019

No.	Name of taxon	Samples						Total
		1	2	3	4	5	6	
1	Coleoptere	19	-	-	6	-	18	43
2	Heteroptere	15	-	-	10	-	1	26
3	Himenoptere	28	-	-	14	-	7	49
4	Diptere	3	-	-	8	-	6	17
5	Homoptere	5	-	-	-	-	2	7
6	Miriapode	3	-	-	-	-	-	3
7	Colembole	17	-	-	-	-	-	17
8	Arahnide	-	-	-	5	-	4	9
Total								171

Table 4

Situation of collections on 30.06.2018

No.	Name of taxon	Samples						Total
		1	2	3	4	5	6	
1	Heteroptere	5	-	-	-	-	6	11
2	Cicade	2	-	-	-	-	-	2
3	Arahnide	3	-	-	-	-	-	3
4	Himenoptere	10	-	-	-	5	-	15
5	Lepidoptere	1	-	-	-	-	1	1
6	Coleoptere	11	-	-	-	-	3	14
7	Diptere	-	-	-	-	2	7	9
Total								55

At the 5th Harvest of 15.07.2019, only 72 specimens were collected (table 5). The largest

number of specimens had the himenopters with 27 specimens and the coleopters with 17specimens.

Table 5

Situation of collections on 15.07.2018

No.	Name of taxon	Samples						Total
		1	2	3	4	5	6	
1	Dermaptere	1	-	-	-	-	-	1
2	Homoptere	2	3	-	-	-	1	5
3	Heteroptere	4	7	-	-	-	5	16
4	Diptere	8	4	-	-	-	2	14
5	Himenoptere	2	2	-	-	-	23	27
6	Coleoptere	1	11	-	-	-	5	17
7	Arahnide	-	4	-	-	-	-	7
8	Lepidoptere	-	-	-	-	-	1	1
Total								72

During the observation in 2019, a total of 795 specimens belonging to collected arthropods fauna (table 6). Most specimens belonged to the Insecta class and to the following groups:

Hymenoptera (308 specimens), *Coleoptera* (167 specimens), *Heteroptera* (99 specimens) and *Diptera* with 98 specimens.

Table 6

Situation of collections on 2019

No.	Name of taxon	Samples						Total
		1	2	3	4	5	6	
1	Diptere	24	8	-	26	15	25	98
2	Himenoptere	68	47	54	46	22	75	308
3	Coleoptere	37	50	15	18	15	36	171
4	Miriapode	5	1	1	5	-	-	12

5	Arahnide	16	10	8	18	5	15	72
6	Heteroptere	35	12	17	10	-	25	99
7	Homoptere	9	3	3	-	-	6	18
8	Lepidoptere	4	-	1	1	2	5	13
9	Ortoptere	-	-	-	1	-	-	1
10	Dermaptere	3	-	-	-	-	-	3
TOTAL								795

CONCLUSIONS

1. The most numerous arthropods that were collected belong to the insect class. The most numerous insect groups belong to *Hymenoptera* and *Diptera*.

2. In total, 795 specimens of arthropods belonging to a number of 10 taxons were collected

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