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RESEARCHES REGARDING THE ENTOMOFAUNA OF COLEOPTERAS (*COLEOPTERA*) FROM SOME CROPS OF N-E MOLDAVIA

CERCETĂRI PRIVIND ENTOMOFAUNA DE COLEOPTERE (*COLEOPTERA*) DIN UNELE CULTURI AGRICOLE DIN N-E MOLDOVEI

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Abstract. *The purpose of these research is to identify the useful entomofauna from the agricultural crops which have been taken for the study: maize and cabbage. The researches were carried out in the Adamachi station which belongs to "Ion Ionescu de la Brad" University of Iasi, Romania. The biological material was sampled by means of the Barber soil traps from 3rd of June until 13th of September 2016. In total, 15 samples were made for every crop. The traps were placed every five in a row. To prevent the maceration of insects, a conservative liquid was used (water+ washing powder) in proportion of 16%. After finishing the experiments, the insects were bringing to the laboratory of Entomology in order to be counted and determined. From the Coleoptera order, the most dominant species are:-within the crop of maize: Amara aenea (Carabidae)-5 samples; Coccinella septempunctata (Coccinellidae)-15 samples;-within the crop of cabbage: Brachinus crepitans (Carabidae)-9 samples.*

Key words: Carabidae, Coccinellidae, samples

Rezumat. *Scopul acestei lucrări științifice este acela de a identifica entomofauna utilă din culturile agricole care au fost luate spre studiu: porumb și varză. Cercetările au fost efectuate în staționarul Adamachi, care aparține Universității de Științe Agricole și Medicină Veterinară "Ion Ionescu de la Brad" din Iași, România. Materialul biologic a fost colectat cu ajutorul capcanelor de sol tip Barber din data de 03.06.2016 până la data de 13.09.2016. În total, au fost efectuate 15 recoltări. Au fost amplasate câte 6 capcane pe rând. Pentru a preveni macerația insectelor, a fost folosit un lichid conservant, constând în apă și detergent, în proporție de 16%. După finalizarea experimentelor, insectele au fost aduse în laborator, acolo unde au fost inventariate și determinate. Din ordinul Coleoptera, speciile dominante sunt: în cadrul culturii de porumb: Amara communis (Carabidae); Coccinella septempunctata (Coccinellidae)-15 exemplare; în cadrul culturii de varză: Brachinus crepitans (Carabidae)-9 samples.*

Cuvinte cheie: Carabidae, Coccinellidae, exemplare

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INTRODUCTION

One of the orders with the most predators that have a major importance in the reduction of pests is the *Coleoptera* order. This order has about 250000 species, a lot of these being very dangerous for the agricultural crops. The most important predators from this order belong to the following families: *Cicindelidae*, *Carabidae*, *Cantharidae* and *Coccinellidae*.

Coccinellidae family has species of round or oval species, almost hemispherical, with spots on the wings with color spots and contrasting patterns. The most species of *Coccinellidae* are beneficial predators which prefer the aphids as main feed.

According to the author (Foltz, 2002), there are more than 5000 species all around the world. The most representative species of the *Coccinellidae* family are: *Coccinella 7-punctata*, *Adalia variegata*, *Chilocorus bipustulatus*, *Adalia bipunctata*.

MATERIAL AND METHOD

In order to carry out the researches, the insects were collected from one station: Adamachi from Iasi county, belonging to "Ion Ionescu de la Brad" University, by using the method of Barber soil traps. The experiments have taken place between June and September of 2016. The traps were placed within three crops: maize, cabbage and apple trees, each five in a row. As a conservative liquid, water and washing powder have been used, in order to prevent the maceration of insects. There were 15 samples in total, the first one took place on 3rd of June, and the last one on 13rd of September.

RESULTS AND DISCUSSIONS

The samples of the biological material were carried out at the following dates: 03.06, 07.06, 13.06, 20.06, 30.06., 05.07., 09.07, 14.07, 20.07, 25.07, 01.08, 07.08, 14.08, 07.09, 13.09 of 2016.

In the crop of maize (tab. 1), the situation is as follows:

03.06: there were 5 samples identified, 1 belonging to *Curculionidae* family: *Magdalis ruficornis* and 8 belonging to *Coccinellidae* family: *Coccinella 7-punctata*.

07.06: there was 1 sample identified, belonging to *Carabidae* family: *Carabus granulatus*.

13.06: there were 6 samples identified, 1 belonging to *Carabidae* family: *Anisodactylus binotatus* and 3 belonging to *Coccinellidae* family: *Coccinella 7-punctata*, *Harmonia axyridis* (two samples);

20.06: no samples were identified;

30.06: no samples were identified;

05.07: no samples were identified;

09.07: there were 7 samples identified, 1 belonging to *Carabidae* family: *Pterostichus melanarius* and 6 belonging to *Coccinellidae* family: *Coccinella septempunctata*.

14.07: there were 3 samples identified, belonging to *Carabidae* family: *Amara communis*.

20.07: there were 4 samples identified, all of them belonging to *Carabidae* family: *Anisodactylus signatus* (two samples), *Anisodactylus poeciloides* (two samples).

25.07: there were 2 samples identified, belonging to *Carabidae* family: *Amara aenea* (one sample), *Carabus nemoralis* (one sample).

01.08: there were 3 samples identified, all of them belonging to *Carabidae* family: *Amara communis* (two samples), *Pterostichus analis* (one sample).

07.08: there were 6 samples identified, all of them belong to *Carabidae* family: *Carabus obsoletus* (two samples), *Carabus nemoralis* (two samples), *Carabus violaceus* (two samples).

14.08: there were 8 samples identified, all of them belonging to *Carabidae* family: *Carabus obovatus* (three samples), *Brachinus crepitans* (two samples); *Amara aenea* (three samples).

07.09: there was 1 sample identified, belonging to *Carabidae* family: *Carabus nemoralis*.

13.09: there were 4 samples identified, all of them belonging to *Carabidae* family: *Brachinus crepitans* (two samples), *Anisodactylus signatus* (two samples).

In the crop of cabbage (table 2), the situation is as follows:

03.06: there were 2 samples identified, all of them belonging to *Carabidae* family: *Carabus nemoralis* (one sample), *Amara familiaris* (one sample).

07.06: no samples were identified;

13.06: there were 3 samples identified, 1 belonging to *Elateridae* family (*Agriotes lineatus*), one belonging to *Scarabaeidae* family: *Melolontha melolontha* and, one belonging to *Coccinellidae* family: *Coccinella septempunctata*.

20.06: no samples were identified;

30.06: there were 4 samples identified, 2 belonging to *Scarabaeidae* family: *Melolontha melolontha* and 2 belonging to *Elateridae* family: *Agriotes lineatus*.

05.07: there were 3 samples identified, one belonging to *Coccinellidae* family: *Coccinella septempunctata* and 2 belonging to *Carabidae* family: *Carabus nemoralis* (one sample), *Pterostichus cupreus* (one sample).

09.07: there were 7 samples identified, 2 belonging to *Scarabaeidae* family: *Melolontha melolontha*, 2 belonging to *Elateridae* family: *Agriotes lineatus* and 3 belonging to *Carabidae* family: *Carabus nemoralis*.

14.07: there were 3 sample identified, all of them belonging to *Carabidae* family: *Carabus coriaceus*.

20.07: there were 4 samples identified, 1 belonging to *Scarabaeidae* family: *Melolontha melolontha* and 3 belonging to *Carabidae* family: *Anisodactylus verticalis* (two samples), *Pterostichus cupreus* (one sample).

25.07: there were 3 samples identified, 2 belonging to *Carabidae* family: *Pterostichus adoxus* and 1 belonging to *Curculionidae* family: *Otiorrhynchus niger*.

Table 1

Entomofauna of Coleopteras (Coleoptera) sampled within the crop of maize by means of the Barber soil traps in the Adamachi station from 3rd of June to 13rd of September of 2016

No.	Family	Species	Number of samples	Total samples
1	Carabidae	<i>Amara communis</i>	5	34
2		<i>Amara aenea</i>	4	
3		<i>Anisodactylus binotatus</i>	1	
4		<i>Anisodactylus signatus</i>	4	
5		<i>Anisodactylus poeciloides</i>	2	
6		<i>Brachinus crepitans</i>	4	
7		<i>Carabus granulatus</i>	1	
8		<i>Carabus nemoralis</i>	4	
9		<i>Carabus obsoletus</i>	2	
10		<i>Carabus violaceus</i>	2	
11		<i>Carabus obovatus</i>	3	
12		<i>Pterostichus melanarius</i>	1	
13		<i>Pterostichus analis</i>	1	
14	Coccinellidae	<i>Coccinella 7-punctata</i>	15	17
15		<i>Harmonia axyridis</i>	2	
16	Curculionidae	<i>Magdalis ruficornis</i>	1	1
Total Entomofauna of Coleopteras				52

01.08: there were 2 samples identified, all of them belonging to *Carabidae* family: *Brachinus crepitans*.

07.08: there were 6 samples identified, all of them belong to *Carabidae* family: *Carabus violaceus* (two samples), *Brachinus crepitans* (three samples), *Amara aenea* (one sample).

14.08: there were 2 samples identified, all of them belonging to *Carabidae* family: *Brachinus crepitans*.

07.09: there were 2 samples identified, all of them belonging to *Carabidae* family: *Pterostichus cupreus*.

13.09: there were 3 samples identified, all of them belonging to *Carabidae* family: *Brachinus crepitans* (two samples), *Carabus nemoralis* (one sample).

Table 2

Entomofauna of Coleopteras (Coleoptera) sampled within the crop of cabbage by means of Barber soil traps in the Adamachi station from 3rd of June to 13rd of September of 2016

No.	Family	Species	Number of samples	Total samples
1	<i>Carabidae</i>	<i>Amara aenea</i>	1	30
2		<i>Amara familiaris</i>	1	
3		<i>Anisodactylus verticalis</i>	2	
4		<i>Brachinus crepitans</i>	9	
5		<i>Carabus nemoralis</i>	6	
6		<i>Carabus coriaceus</i>	3	
7		<i>Carabus violaceus</i>	2	
8		<i>Pterostichus cupreus</i>	4	
9		<i>Pterostichus adoxus</i>	2	
10	<i>Scarabaeidae</i>	<i>Melolontha melolontha</i>	6	6
11	<i>Elateridae</i>	<i>Agriotes lineatus</i>	5	5
12	<i>Coccinellidae</i>	<i>Coccinella 7-punctata</i>	2	2
13	<i>Curculionidae</i>	<i>Otiorhynchus niger</i>	1	1
Total entomofauna of coleopteras				44

CONCLUSIONS

1. It can be concluded that, during the year of research 2016, within the crop of maize, from the total of 52 samples, the most significant number of samples belongs to *Carabidae* family (34), followed by *Coccinellidae* family (17) and *Curculionidae* (only 1 sample).
2. The most dominant species of *Carabidae* family is: *Amara communis* (5 samples) and the leastest are: *Anisodactylus binotatus*, *Carabus granulatus*, *Pterostichus melanarius* and *Pterostichus analis* (each 1 sample). The most dominant species of *Coccinellidae* family is: *Coccinella 7-punctata* (15 samples collected).
3. Within the crop of cabbage, from the total of 44 samples, the most significant number of samples belongs to *Carabidae* family (30), followed by *Scarabaeidae* family (6), *Elateridae* (5), *Coccinellidae* (2) and *Curculionidae* (only one sample).

4. The most dominant species of *Carabidae* family is: *Brachinus crepitans* (9 samples) and the leastest are: *Amara aenea* and *Amara familiaris* (each 1 sample). *Coccinellidae* family has 2 samples collected.

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