

RESEARCHES REGARDING THE ENTOMOFAUNA OF COCCINELLIDAE (COLEOPTERA-COCCINELLIDAE) FROM THE MAIZE CROP FROM THE NORTH-EAST PART OF MOLDAVIA

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ABSTRACT

The purpose of this research is that to identify the useful entomofauna of Coccinellidae (Coleoptera-Coccinellidae) within the maize crop that has been taken into this study. The researches were carried out within Adamachi station which belongs to University of Applied Sciences of Iasi, Romania. The biological material was sampled by the mean of Barber soil traps from June 3rd of 2017 until July 9th. In total, 7 samples were made. Five traps were placed in a row. In order to prevent the maceration of insects, a conservative liquid was used: water+washing powder in a proportion of 16%. After finishing the experiments within the field, the insects were brought into the Laboratory of Entomology, in order to be counted and identified. From the Coccinellidae family, the most dominant species were: *Coccinella septempunctata* (63 samples); *Adalia bipunctata* (28 samples) and *Propylaea quatordecimpunctata* (25 samples).

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*, *Adonia variegata*, *Chilocorus bipustulatus*, *Adalia bipunctata*.

MATERIAL AND METHOD

In order to carry out the researches, the insects were sampled from one station (Adamachi) from Iasi county, which belongs to University of Applied Sciences of Iasi, Romania, by using the Barber soil traps method. The experiments took place from June to July of 2017. The traps were placed within maize crop, five in a row. As a conservative

liquid, water and washing powder has been used. There were 7 samples carried out in total, the first one being at 3rd of June and the last one being at July 9th of 2017.

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..

The situation looks as follows: (**table 1**).

03.06: there were 49 samples identified which belong to *Coleoptera* order, families: *Coccinellidae* (27) and *Carabidae* (22);

07.06: there were 42 samples identified which belong to *Coleoptera* order, families: *Coccinellidae* (22) and *Carabidae* (20);

13.06: there were 47 samples identified belonging to *Coleoptera* order, families: *Carabidae* (32) and *Coccinellidae* (15);

20.06: there were 45 samples from *Coleoptera* order, belonging to the following families: *Carabidae* (33) and *Coccinellidae* (12);

30.06: there were 39 samples identified from *Coleoptera* order,

belonging to the families: *Scarabaeidae* (9), *Carabidae* (8) and *Coccinellidae* (22);

05.07: there were 36 samples identified from *Coleoptera* order, belonging to the following families: *Carabidae* (14), *Scarabaeidae* (4) and *Coccinellidae* (18);

09.07: there were 43 samples identified which belong to *Coleoptera* order, belonging to the families: *Coccinellidae* (19), *Dermestidae* (10), *Scarabaeidae* (8) and *Carabidae* (6).

The situation regarding the families on that belongs the *Coleopteras* sampled from the maize crop looks as follows: (**table 2**).

Results regarding the *Coccinellidae* structure (*Coleoptera-Coccinellidae*) sampled within maize crop looks thus (**table 3**).

The species of *Coccinellidae* represent a percent of 44.85% of total number of *Coleopteras* (301) (**table 4**).

CONCLUSIONS

- The coccinellids species have been sampled at each of all 7 samples, with a total of 135 samples and representing 44.85% from the total number of *Coleopteras* (301);

- It was identified a number of 7 species, the most abundant species being *Coccinella septempunctata* (63 samples), followed by *Adalia bipunctata* (28 samples) and *Propylaea quatordecimpunctata* (25 samples).

- *Carabidae* species have been sampled, also, at each of all 7 samples, with a total of 135 samples;

- *Scarabaeidae* species have been sampled at three of all 7 samples, with a total of 21 samples;

- *Dermestidae* species have been sampled at one of all 7 samples, with a total of 10 samples.

BIBLIOGRAPHY

1. Andriev Sorina, Octavia, 2004-*Cercetări privind cunoașterea Coccinellidelor (Insecta-Coleoptera-Coccinellidae) din România din punct de vedere sistematic, biologic, ecologic,*

biogeografic și etologic: Teza de doctorat, Universitatea „Al.I.Cuza”, Iași, 294;

2. Arion, G., 1912- *Raport asupra insectelor dăunătoare din familia Coccidelor*. Buletin Agricol.;

3. Baicu T., 1977- *Elaborarea măsurilor de combatere integrată*. Probl. Prot. Plant.V.3; 203-221;

4. Baicu, T., Săvescu, A., 1978- *Combaterea integrată în protecția plantelor*- Editura Ceres, București;

5. Baicu T., 1992- *Perspective în combaterea biologică a bolilor și dăunătorilor plantelor agricole*, 72 p., Ed. Tehnica agricolă, București;

6. Banița Emilia, Serafim Rodica, Searpe Doina, 1997- *Evoluția populațiilor de coccinele (Coleoptera Coccinelidae) în culturile de câmp din centrul Olteniei*. Probl. de prot. Plant. XU (2);

7. Banița, E., Sterghiu, C., Luca E., Naidin, C., 1999. *Studiul păianjenilor prădători (Araneae) ai insectelor dăunătoare culturilor de cereale*. Analele Institutului de Cercetări pentru Cereale și Plante Tehnice Fundulea, LXVI: 285-294.

8. Bărbulescu, Al., 2001. *Rezultate obținute în anul 2000 în cadrul cercetărilor privind bolile și dăunătorii cerealelor privind bolile și dăunătorii cerealelor și unor plante tehnice și furajere. Probleme protecția plantelor*, XXIX(2): 123-178.

9. Boguleanu Gh., și colab., 1980- *Entomologie agricolă*. Ed. Didactică și Pedagogică București;

10. Chapman and Hall, New York, USA Driesche RG, Hoddle MS, Center T (2008)- *Control of pests and weeds by natural enemies: an introduction to biological control*. Wiley, New York;

11. Ciochia V., 1986- *Combaterea biologică a dăunătorilor, verigă esențială a protecției ecosistemelor*. Brașov

12. Ciochia, V, Boeriu, H., 1997- *Limitarea populațiilor de Homoptere și în special de afide prin metode biologice. Limitarea populațiilor de dăunători vegetali și animalii din culturile agricole prin mijloace biologice și biotehnice în vederea protejării mediului înconjurător*. Brașov, Ed Disz. Tipo,354-381;

13. Cozma V, Diaconu A., Grecu M., Tălmăciu M., Pareza Madalin, Vasiliu G., 2006- *Observații privind abundența și diversitatea coleopterelor din coronamentul unor livezi de mar cu management diferit de exploatare*. Lucr. șt., Seria Horticultura, Iași, I (49);1093-1096;

14. Tălmăciu M., Tălmăciu Nela, Georgescu T., 2003- *Observații privind structura și dinamica speciilor de carabide din plantațiile de pomi în condițiile S.D. Iași*. Lucr. Șt. seria Hort., vol I (46), p 683-688.

Table 1

Structure, abundance, dynamic of *Coleopteras* sampled within the maize crop-2017

Sample no.	Date	Species/Family	No of samples
I	03.06	<i>Coccinella septempunctata</i>	16
		<i>Adalia bipunctata</i>	11
		<i>Carabidae</i>	22
		TOTAL SAMPLES	49
II	07.06	<i>Coccinella septempunctata</i>	12
		<i>Propylaea quatordecimpunctata</i>	10
		<i>Carabidae</i>	20
		TOTAL SAMPLES	42
III	13.06	<i>Harmonia axyridis</i>	3
		<i>Propylaea quatordecimpunctata</i>	7
		<i>Adalia bipunctata</i>	5
		<i>Carabidae</i>	32
TOTAL SAMPLES	47		
IV	20.06	<i>Coccinella septempunctata</i>	3
		<i>Adalia bipunctata</i>	6
		<i>Harmonia axyridis</i>	3
		<i>Carabidae</i>	33
TOTAL SAMPLES	45		
V	30.06	<i>Coccinella var. 5-punctata</i>	4
		<i>Coccinella septempunctata</i>	9
		<i>Coccinella var. 6-punctata</i>	6
		<i>Adalia bipunctata</i>	3
		<i>Carabidae</i>	8
		<i>Scarabaeidae</i>	9
TOTAL SAMPLES	39		
VI	05.07	<i>Coccinella septempunctata</i>	12
		<i>Coccinella hieroglyphica</i>	3
		<i>Adalia bipunctata</i>	3
		<i>Carabidae</i>	14
		<i>Scarabaeidae</i>	4
TOTAL SAMPLES	36		
VII	09.07	<i>Coccinella septempunctata</i>	11
		<i>Propylaea quatordecimpunctata</i>	8
		<i>Dermestidae</i>	10
		<i>Scarabaeidae</i>	8
		<i>Carabidae</i>	6
TOTAL SAMPLES	43		

Table 2

Entomofauna of *Coleopteras* sampled by the mean of Barber traps-Adamachi-Maize crop

Family	Samples number							Total
	I	II	III	IV	V	VI	VII	
<i>Carabidae</i>	22	20	32	33	8	14	6	135
<i>Coccinellidae</i>	27	22	15	12	22	18	19	135
<i>Scarabaeidae</i>	-	-	-	-	9	4	8	21
<i>Dermestidae</i>	-	-	-	-	-	-	10	10
Total	49	42	47	45	39	36	43	301

Table 3

Structure of coccinelids sampled by the mean of Barber traps-Adamachi-Maize crop

Current number	Name of species	No. of samples
1.	<i>Coccinella septempunctata</i>	63
2.	<i>Adalia bipunctata</i>	28
3.	<i>Propylaea quatordecimpunctata</i>	25
4.	<i>Harmonia axyridis</i>	6
5.	<i>Coccinella var.6-punctata</i>	6
6.	<i>Coccinella var.5-punctata</i>	4
7.	<i>Coccinella hieroglyphica</i>	3
TOTAL =7 species		135

Table 4

Entomofauna of coccinelids on total harvests depending on the *Coleopteras* number-maize

Coccinellidae species	No. of samples	Total coccinellidae	Total Coleopteras	% of total Coleopteras	No of samples
<i>Coccinella septempunctata</i>	63	135	301	44.85%	7
<i>Adalia bipunctata</i>	28				
<i>Propylea quatordecimpunctata</i>	25				
<i>Harmonia axyridis</i>	6				
<i>Coccinella var 6 punctata</i>	6				
<i>Coccinella var 5 punctata</i>	4				
<i>Coccinella hieroglyphica</i>	3				
TOTAL=7 specii	135				