PARTIAL DATA REGARDING TO THE COLEOPTERA DIVERSITY FROM THE BIRD'S - FOOT TREFOIL (*LOTUS CORNICULATUS* L.) CULTURE AT S. D. TIMISOARA

DATE PARȚIALE PRIVIND DIVERSITATEA COLEOPTERELOR DIN CULTURA DE GHIZDEI (*LOTUS CORNICULATUS* L.) LA S. D. TIMIȘOARA

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Abstract: *This paper shows data that point out the composition in species belonging to Coleoptera order, quantitative ratios between them and also settle the major pests belonging to this order, presents in the Lotus corniculatus culture. In 2008 – 2009 period, researches caries out in an untrated culture in experimental field from S.D. Timişoara, showed the presence of many dangerous genus. The most important genus of those, were: Apion (36,25 – 44,77%); Sitona (13,62 – 15,41%); Tychius (8,75 – 14,84%); Meligethes (2,68 – 8,75%).*

Rezumat: *Lucrarea prezintă date care pun în evidență compoziția în specii a insectelor din ordinul Coleoptera, raporturile cantitative existente între acestea şi de asemenea stabileşte dăunătorii majori, care aparțin acestui ordin, prezenți în cultura de ghizdei. În perioada 2008 - 2009, cercetările realizate într-o cultură netratată, în câmpul experimental de la S.D. Timişoara, au evidențiat prezența mai multor genuri dăunătoare. Dintre acestea cele mai importante au fost: Apion (36,25 – 44,77%); Sitona (13,62 – 15,41%); Tychius (8,75 – 14,84%); Meligethes (2,68 – 8,75%).*

Keywords: *Lotus corniculatus, Coleoptera order, diversity, insects*
Cuvinte cheie: *Lotus corniculatus, coleoptere, diversitate, insecte*

INTRODUCTION

The *Lotus corniculatus* has a great capability of autoinsemination, even in the conditions of a depasturage of a long time. Concurrently, the rusticity assures great qualities to the *Lotus corniculatus,* comparative with the other leguminouses such as, the lack of meteorisations production during the consumption under green table shape (Zamfirescu, 1965).

Because it is a resistant forage plant in terms of climate, but very rich in nutritive substances, birdsfoot trefoil was grown on large areas around 1980 in our country, and the first Romanian sort of birdsfoot trefoil was found in that period, too (Dragomir, 2003).

The entomofauna knowledge of this crop plants represents one of the most important stage in realizing a integrated protection to obtain a production of superior quality and great quantity.

Due to the fact that little observations have been made concerning pests for this crop in our country (Perju, 1974); (Perju and Pălăgeşiu, 1977); (Perju, 1993), this paperwork intends to highlight the coleoptera species present within this crop, the quantitative reports between them, and also the evolution of the main insects harming the birdsfoot trefoil crop.

Thrugh realizing those objectives is fallowed the ensurance of an efficient protection of the *Lotus corniculatus* crop in obtaining a seed production of superior quality and a great quantity.

MATERIAL AND METHODS

In realizing the investigations the experimental field was placed at the Didactical Station Timisoara, in the period 2008 - 2009.

The experimental field for studying the coleoptera entomofauna, damaged for the *Lotus corniculatus*, was placed after the standard method of location of the experiences, in three repetitions every lot having a length of 25 m and a latitude of 4 m, the distance between the rows being of 0,25 m (figure 1). We took samples weekly with the help of the standard entomological net, during the period comprised between the third decade of April and the first decade of August; a sample represents the insects collected in 25 double mowings (Badea, 2005); (Badea, 2006 a, b). In figure 2 and 3 are presented images from the experimental fields in the two years of experience.

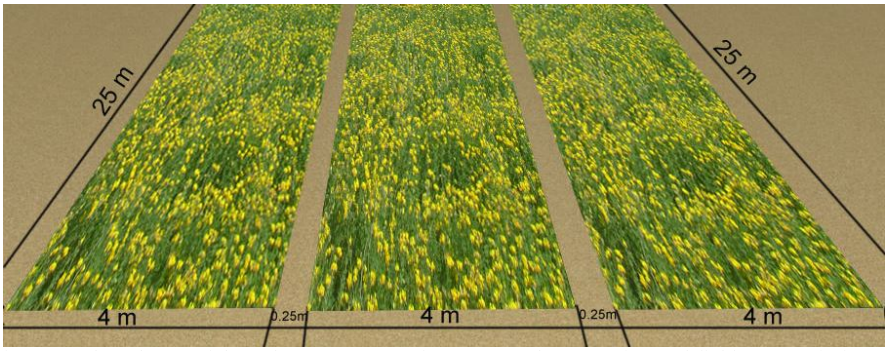

Figure 1. The scheme of the coleoptera entomofauna researches experimental field at S.D.Timişoara

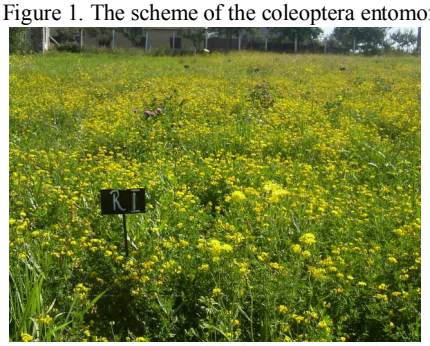

Figure 2. Experimental field at S. D. Timişoara 2008

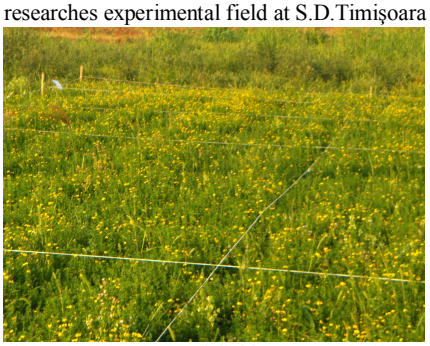

Figure 3. Experimental field at S. D. Timişoara 2009

The collected entomological material was prepared and determined with the help of a binocular magnifier and with books of specialty, in the Laboratory of Entomology within the Faculty of Agriculture (Chinery M., 2005); (Dierl W., 1988); (Tarbinskii S.P., Plavilscicov N.N., 1984).

RESULTS AND DISSCUSION

From the bird's - foot trefoil crop within S.D. Timişoara, during the two experimental years, we have collected the following coleoptera species, belonging to the families (table 1).

Table 1.

The coleoptera species collected from bird's - foot trefoil culture at S.D.Timişoara in 2008 – 2009 period

Ordinul	Familia	Specia
Coleoptera	*Elateridae*	*Agriotes lineatus* L.
	Cantharididae	*Cantharis fusca* L.
		Cantharis rustica Fall.
	Nitidulidae	*Meligethes aeneus* F.
	Coccinellidae	*Coccinella 5 – punctata* L.
		Coccinella 7 – punctata L.
		Coccinella 14 – pustulata L.
		Propylaea 14 – punctata L.
		Adalia 10 – punctata L.
		Psyllobora 22 – punctata L.
		Tytthaspis 17 – punctata
		Adalia 2 – punctata L.
		Subcoccinella 24 – punctata L.
		Larve coccinellide
	Crioceridae	*Oulema melanopa* L.
	Halticidae	*Phyllotreta atra* F.
		Phyllotreta nemorum L.
	Bruchidae	*Bruchus pisorum* L.
		Bruchus loti Payk.
	Apionidae	*Apion loti* Hal.
		Apion aestivum Germ.
		Apion apricans Hbst.
		Apion columbinum Germ.
		Apion tenue Kirby
		Apion ervi Kirby
		Nanophyes sp. Schönh.
	Hyperidae	*Hypera variabilis* Hbst.
		Hypera meles F.
	Tychiidae	*Tychius flavus* Beck.
	Otiorrhynchidae	*Otiorrhynchus ligustici* L.
	Curculionidae	*Sitona lineatus* L.
		Sitona crinitus Hbst.
		Sitona flavescens Marsh.
		Sitona humeralis Steph.
		*Lixus sp.*F.
	Byrrhidae	*Byrrhus pilula* L.

Through a percentage expression, we may notice the ditribution per families of the insect species which comprise the coleoptera entomofauna present in the bird's - foot trefoil crop, in 2008 (figure 1).

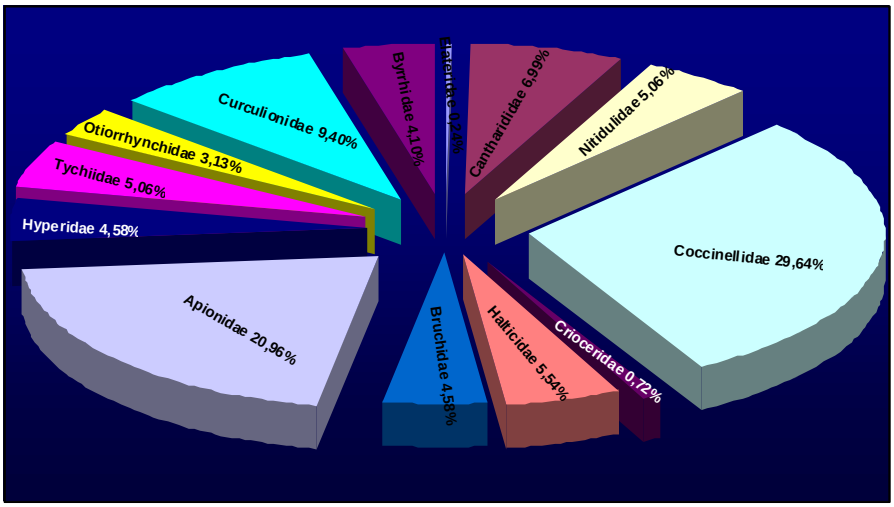

Figure 1. The structure per families of the Coleoptera insects in 2008, at S.D. Timişoara

The insects belonging to the order *Coleoptera*, met in the experimental field, are part of the families: *Elateridae, Cantharididae, Nitidulidae, Coccinellidae, Crioceridae, Halticidae, Bruchidae, Apionidae, Hyperidae, Tychiidae, Otiorrhynchidae, Curculionidae, Byrrhidae.*

In the figure, we may notice that the family *Coccinellidae* has the most representatives (29,64%), being followed by the family *Apionidae* (20,96%), *Curculionidae* (9,40%), the least representatives belonging to the family *Crioceridae* (0.72%) and *Elateridae* (0.24%).

In 2009, the *Coleoptera* entomofauna was structured as follows (figure 2).

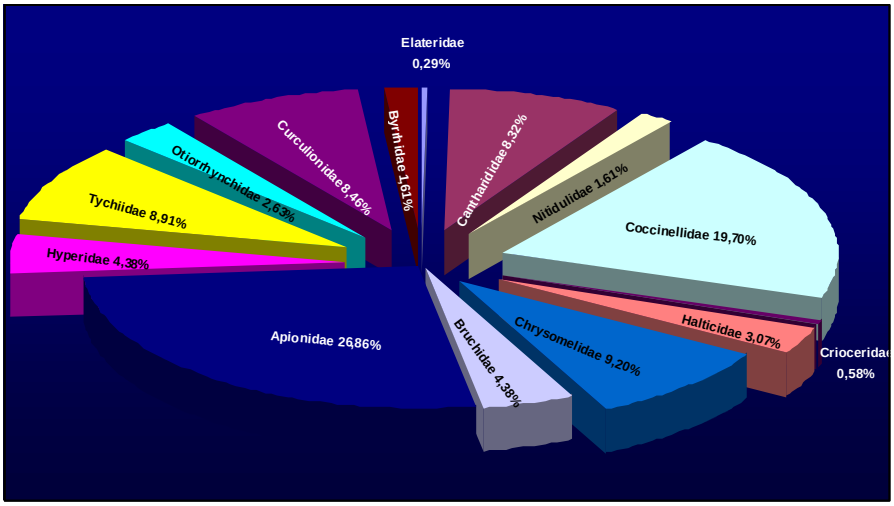

Figure 2. The structure per families of the Coleoptera insects in 2009, at the S.D. Timişoara

Order *Coleoptera* has a very big number of insects collected from the experimental field in 2009. So, the family *Apionidae* is on the first place, with the biggest number of representatives (26,86%), being followed by the family *Coccinellidae* (19,70%) on the second place, the family *Chrisomelidae* (9,20%) – third place, *Tychiidae* – fourth place, *Curculionidae* – fifth place, *Chantharididae* – sixth place. The last places, with the least representatives, are the families: *Byrrhidae, Nitidulidae* (1,61%), *Elateridae* (0,29%).

Due to the fact that the most important insects, harmful for the bird's - foot trefoil crop, belong to the order *Coleoptera*, we present the percentage report between these genera collected during the experimental year 2008.

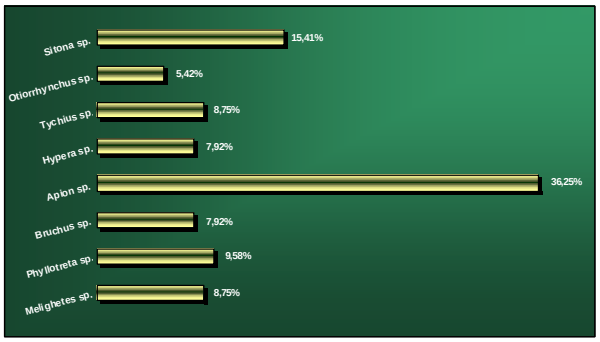

Figure 3. The genera structure of the major harming insects in the bird's - foot trefoil crop in 2008, at the S.D. Timişoara

In figure 3, we may notice that the first place, in 2008, with the most samples, is occupied by the genus *Apion* (36,25%), the second – *Sitona* (15,41%), followed by *Phyllotreta*, on the third place, *Tychius* and *Melighetes* – the fourth place and the last place is occupied by *Otiorrhynchus* (5,42%).

Due to the fact that the order *Coleoptera* has the most representatives that harm the bird's - foot trefoil crop collected from S.D.. Timişoara in 2009, we present the genera of the major harming insects for this crop in figure 4.

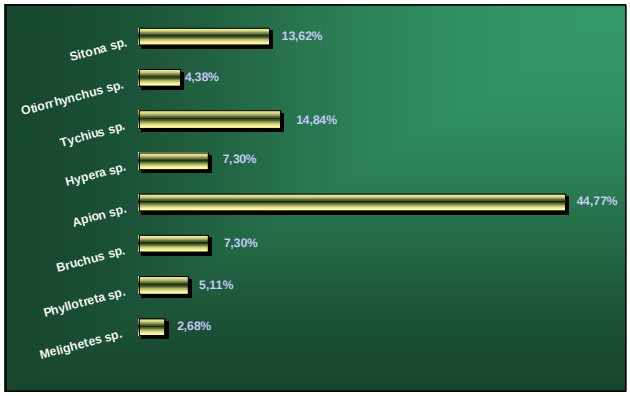

Figure 4. The genera structure of the major harming insects in the bird's - foot trefoil crop in 2009, at the S.D. Timişoara

We have noticed that the genus *Apion*, in 2009, had the most representatives among the major harming insects in this crop, namely 44,77%. The second place is occupied by *Tychius* (14,84%), followed by *Sitonas*, on the third place, *Hypera* and *Bruchus* – fourth place. Among the genera with the least representatives, we mention, in decreasing order, the last two places: *Otiorrhynchus* (4.78%) and *Melighetes* (2,68%).

CONCLUSIONS

1. The biodiversity of the *Coleoptera* species was very large, comprising insects belonging to 14 families: *Elateridae, Cantharididae, Chrysomelidae, Nitidulidae, Coccinellidae, Crioceridae, Halticidae, Bruchidae, Apionidae, Otiorrhynchidae, Hyperidae, Tychidae, Curculionidae, Byxrrhidae*.

2. The number of *Coleoptera* collected in 2009 was bigger compared to those collected in 2008.

3. The family with the most representatives in 2008 was *Coccinellidae*, while in 2009 the ruling family in terms of sample number was *Apionidae*.

4. The major harming insects for the birdsfoot trefoil belonged to the genera: *Apion, Meligethes, Tychius, Sitona, Phyllotreta, Hypera, Otiorrhynchus, Bruchus*.

5. In 2008, the genus with the most representatives was *Apion*.

6. We have noticed that the Genus *Apion* has presented the biggest number of representatives, harmful for this crop, in 2009, too.

7. In 2008, the number of harming insects specific to birdsfoot trefoil crop has increse compared to 2009.

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