RESEARCH ON THE STRUCTURE AND DYNAMICS OF ENTOMOFAUNA IN APPLE ORCHARDS IN THE TIMIS COUNTY

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Abstract: *In our country, based on data provided by Rogojanu Victor and Perju Theodosius (1979), and also by Cornelia Tănasă-Catalina Ungureanu, Constantin Filipescu (2006), the main apple pests belong to the class Insecta, orders: Homoptera, Coleoptera, Lepidoptera, Heteroptera, Hymenoptera etc. and some species belonging to the class Arachnida, order Acari. The purpose of these studies was to identify harmful entomofauna to several apple orchards in Timis County.The knowledge of the structure and dynamics of entomofauna to apple is a very important element in establishing the foundations/bases of biological, ecological and economic forecast pest spread and development, for planning an effective plant protection in the context of environmental protection. Monitoring the entomofauna in apple orchards from Sag-Padureni and Lovrin, Timis County, was made between 2010 - 2011, the regular collection of plant/vegetal material (leaves, branches, fruits) and frappage to determine homopteres and mites, shake the tilt in the opening phenophase of floral buds, and use rub trap to determine harmful beetles by gathering with standard net or gluey traps to capture lepidopteran species. Determination and material conservation were made due to the usual methodology and the determinations were made using the current bibliography. Sampling was randomized on medium 30 trees, from May to September of each year. Following the research on harmful entomofauna composition on apple orchards under the conditions from Sag-Padureni, Timis County, it results that homopteres and heteropterys had the largest share.From apple pests, were dominant Eriosoma lanigerum. Hausm., Aphis trees Geer., Psylla mali and Hoplocampa testudinata Klug. As a result of the monitoring of the apple trees in orchard from Lovrin stood out as the dominant species of the orders Homoptera and Lepidoptera. These orders were representative by species such as Eriosoma lanigerum Hausm., Quadraspidiotus perniciosus Comst. and Laspeyresia pomonella L.*

Key words: *harmful entomofauna, apple, dynamic*

INTRODUCTION

One of the most important branches of agriculture is fruit. It has an important aesthetic and social health. By 1980 sought to change the culture systems, from classical forms with a small number of trees per hectare intensive and semi-intensive plantings. Nowadays great emphasis on getting crops meet the increasing requirement of consumers. Fruit production in the coming years, should increase both quantitatively and qualitatively. Getting these productions is of course subject to many factors, and maintenance of plantations in good condition.

The number of animal pests, and weeds in orchards phytopathogenic agents is relatively high. Entomofauna on fruit trees and combating pest surveys were conducted both abroad and in our country. Currently, when it comes to protecting the environment, using integrated control method proves to be imperative. Therefore, the purpose must be known as accurately as species composition entomofauna fruit trees, their dynamics, population dynamics useful and harmful for chemical treatments to make the best time, aiming to achieve maximum efficiency by using the effective pesticides.

MATERIAL AND METHODS

Research on the structure were achieved by entomofauna regular collection using standard fillets in SAG-Pădureni plantation and Lovrin, Timis County, from 2011 to 2012. Sampling was done between May and September using regular manual collection methods of plant material (leaves, twigs, fruits) and frapaj to determine Homoptera and mites, by shaking the opening tilt in phenophase bud trap using the to determine harmful beetles by gathering with standard net or traps to capture species of Lepidoptera. They were randomized harvesting on medium containing 30 trees and determinations were made using the current bibliography. (figure.1, Figure 2).

Fig. 1. Monitorizing the apple trees from the orchard from Sag, 2011

Fig.2. Collecting the species of wolly aplle aphid (*Eriosoma lanigerum* Hausm.)

RESULTS AND DISCUSSIONS

Following research shows that in terms of memberships in different orders entomofauna apple, 44-90% of the population belong to the order Homoptera followed by Chrisomelidae . Family composition indicated in the orchards studied a clear predominance of family Aphididae, ranging from 27-65% followed by Crhysomelidae 9-17% 4-8% coccinelidae. (table 1).

Of harmful species in terms of 2010-2011 the most frequent and important was *Eriosoma lanigerum* Hausm.

In 2010, the apple orchard SAG Coleoptera species predominated (40%), followed by the order Homoptera (28%) of the order Hymenoptera and Lepidoptera species were reduced in number. (Figure 3).

According to the data shown in Figure 4. It can easily be seen that in 2011, was an abundance of species in the order Homoptera (62%), followed by the order Coleoptera (30%). Other insect orders were found in small numbers. (table 2).

Table 1

Structure of apple entomofauna in orchard from Sag, 2010

Order	Family	Species	Number
16.IX.2010			
Coleoptera	Coccinelidae		2
	Crysomelidae		3
Lepidoptera	Limantridae	*Lymantria dispar*	1
17.IX.2010			
Coleoptera	Crysomelidae	*Halticiae*	3
21.IX.2010			
Homoptera	Aphididae	*Aphis pomi*	10
23.IX.2010			
Lepidoptera	Aretruidae	*Arctialapa*	1
Planipernia	Chrisopidae		7
Coleoptera	Curculionidae	*Phyllobius*	1
29.IX.2010			
Planipernia	Chrisopidae	*Chrisopis*	1
Coleoptera	Coccinelidae		4
Himenoptera	Propyleonidae		1

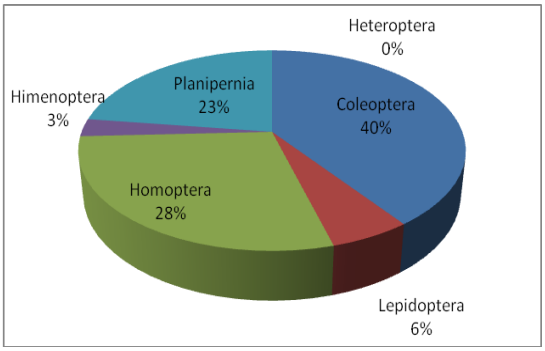

Figure 3. Composition in orders of apple entomofauna in 2010

Table 2

Structure of apple entomofauna in 2011, in the Şag orchard

Order	Family	Species	Number
16.VI.2011			
Coleoptera	Coccinelidae	*Adalia bipunctata*	1
		Propilea	1
		Cyneghetis	1
		Epilachna	1
Homoptera	Aphididae	*Aphis pomi*	16
Heteroptera	Miridae		7
17.VI.2011			
Homoptera	Aphididae	*Aphis pomi*	20
Coleoptera	Coccinelidae	*Adalia bipunctata*	1
		Coccinella	1
Lepidoptera	Tortricidae		1
20.VI.2011			
Coleoptera	Curculionidae	*Apions*	1
	Chrisomelidae	*Philotrata atra*	10
	Alte coleoptere		8
22.VI.2011			
Coleoptera	Chrisomelidae		7
	Coccinelidae		1
Homoptera	Aphididae	*Aphis pomi*	18
24.VI.2011			
Homoptera	Aphididae	*Aphis pomi*	11
	Cicadidae		1
	Geometridae		1

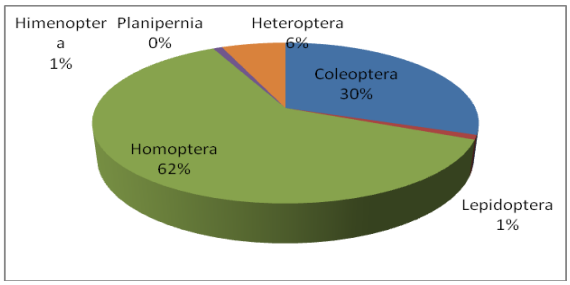

Figure 4. Composition in orders of apple entomofauna in 2011

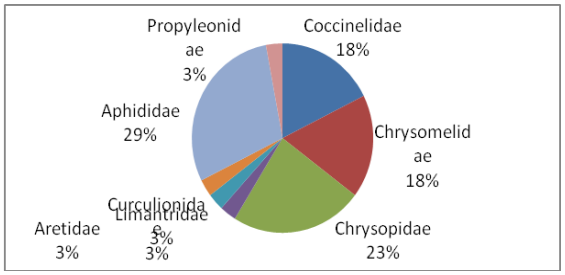

Figure 5. Composition in families of apple entomofauna in 2010

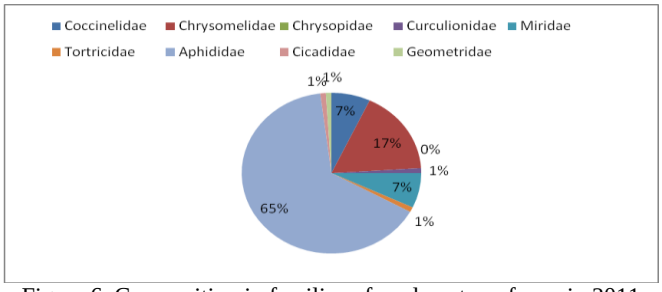

Figure 6. Composition in families of apple entomofauna in 2011

Analyzing insect species found in the apple orchard and order them families, it was noted that in 2010 the families Aphididae predominated (29%), Chrisopidae (23%) and coccinelidae (18%) and Chrysomelidae (18%). (Figure 5).

In 2011, the number of species of the family Aphididae was (65%) and Tortricidae (17%). Insects, namely the family coccinelidae were fewer (7%) compared to the previous year fell by 11% due to intensive treatments performed in 2011. (Figure 6).

The plantation of Lovrin orders Homoptera and Lepidoptera were dominant, as shown in Table 3, species *Eriosoma lanigerum*, *Quadraspidiotus perniciosus* and *Laspeyresia pomonella* were identified in the largest number.

Table 3

Structure of entomofauna apple in 2011, Lovrin orchard

Ordinul	**Familia**	**Specia**	**Numărul**
17.VI.2011			
Coleoptera	Coccinelidae	*Adalia bipunctata*	0
		Propilea	0
		Cyneghetis	1
		Epilachna	1
Homoptera	Aphididae	*Eriosoma lanigerum*	12
	Aphididae	*Quadraspidiotus perniciosus*	20
Lepidoptera	Tortricidae	*Laspeyresia pomonella*	9
18.VI.2011			
Homoptera	Aphididae	*Aphis pomi*	15
Coleoptera	Coccinelidae	*Adalia bipunctata*	0
		Coccinella	1
Lepidoptera	Tortricidae	*Laspeyresia pomonella*	10
21.VI.2011			
Coleoptera	Curculionidae	*Apions*	1
	Chrisomelidae	*Philotrata atra*	9
	Alte coleoptere		7
23.VI.2011			
Coleoptera	Chrisomelidae		5
	Coccinelidae		1
Homoptera	Aphididae	*Eriosoma lanigerum*	22
	Aphididae	*Quadraspidiotus perniciosus*	25
25.VI.2011			
Homoptera	Aphididae	*Aphis pomi*	15
Lepidoptera	Tortricidae	*Laspeyresia pomonella*	

CONCLUSIONS

Following research on the composition of harmful entomofauna apple orchard apple under the SAG-Pădureni, Timis County, Homoptera and beetles that had and have the largest share.

- The 2010 Homoptera represented 28% and 40% beetles, while in 2011 is 62% of the entomofauna Homoptera and beetles 30%. The remaining 6% is the order of the Heteroptera, and 1% Lepidoptera.
- Regarding family composition it indicates a clear dominance of family Aphididae which has a share of 29% in 2010 and 65% in 2011.
- Of the apple pest, the dominant species were *Eriosoma lanigerum*, Operophtera and frost.
- Other harmful species were *Laspeyresia pomonella* in apple, Aphis trees *Dentatus Crataegi*.
- Regarding the relationship between harmful and useful species is found a gap for insect pests.

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