

**RESEARCH ON ENTOMOFAUNA FROM A POTATO CULTURE
IN THE CĂLĂRAȘI, DOLJ AREA**

Țucă Ovidiu Andrei^{1*}, Stan Cătălin¹, Ciupeanu Călugăru Eleonora Daniela¹,

¹University of Craiova, Faculty of Horticulture, Craiova

* Correspondence author. E-mail: ovidiu_tuca@hotmail.com

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ABSTRACT

This paper presents the results of the research on the potato entomofauna, in the Călărași, Dolj area. that the most numerous pests belong to the order Coleoptera (14 species), followed by Orthoptera (4 species), Heteroptera (3 species), Hymenoptera (2 species), Lepidoptera (2 species) and Dermaptera (1 species). Of the total species identified (26 species), it was found that 15 species are harmful, six species are beneficial and two species are indifferent.

INTRODUCTION

Potatoes are a good source of energy, minerals, proteins, fats and vitamins (Ekin 2011; Drewnowski and Rehm 2013; King and Slavin 2013). Besides, potatoes are not just an important food source (Andre et al. 2014). They are also increasingly serving as feedstock for industrial products (Izmirlioglu and Demirci 2015; Jagatee et al. 2015). Therefore, unlike most other crops, potatoes have an unusually high range of utilisation possibilities, which makes their production even more attractive.

Potato production has been expanded in recent times and *Solanum tuberosum* is now one of the five most important food crops (Oerke, 2006). Insect pests in agricultural systems are one of the major causes of damage to crop production and storage (Thomas, 1999).

Being a native plant of the "new world", and due to its food value, industrial and agricultural potato was considered one of the most valuable acquisitions to mankind. It is estimated that in the mountains of northern coastal Peru, the potato is grown IV-VI through centuries AD, and the highland plateaus of central, around the year 1000 AD (Cately T., 1988).

In Europe, the potato was first introduced in Spain (1565) using material from Peru. In new conditions spread quite quickly in culture, but only in 1573 represent trade item (Zamfirescu N. Velican V., 1964).

Recently, an estimated 37% of all crops are lost annually to pests (13% to insects, 12% to pathogens, and 12% to weeds) despite the use of pesticidal and non-chemical controls (Pimentel 2018). In potato, insect pests and diseases pose continuous threat to crop operations resulting in 40% yield losses (Beddington 2010). A wide range of insect pests damage potatoes; potato tuber moth (*Phthorimaea operculella* Z.) among lepidopterans and Colorado potato beetle (*Leptinotarsa decemlineata*, Say) among coleopterans is by far the most widespread and damaging insect pests of potato (Visser 2005; Rondon 2010).

MATERIAL AND METHODS

The study was conducted in 2020 during the months of April to September in a potato farm from Călărași (Dolj) area.

To determine the structure of the harmful and beneficial populations were made collection of material using various means and methods: directly by hand from plants or soil, soil surveys and soil surface collected with entomological net, visual inspection, collection with sticky traps for flying insects, analyzing samples with binocular magnifier glass directly in the field or laboratory (Stan et al. 2012).

In order to Determine the species there has been used the Panin's Identification Manual (1951) and Guide des coleopteres d' Europe (Gaetan du Chatenent, 1990.)

Collecting the biological material has been made every two weeks, after that the entomological material was analyzed, identified and taxonomic classified. For as little impact on the ecosystem we have preferred to capture images with the camera than to capture live specimens were subsequently removed from their natural environment.

RESULTS AND DISCUSSIONS

The studies were carried out during May and September 2020 in a potato farm in Călărași, Dolj County.

In 2020, the results regarding the structure of the entomofauna from a potato farm in the Călărași area, included the identification of 26 species belonging to the *Insecta* class.

The collected insects were systematically classified in 7 orders: *Orthoptera* 4 species, *Heteroptera* 3 species, *Hymenoptera* 2 species, *Coleoptera* 14 species, *Lepidoptera* 2 species, *Dermaptera* and *Homoptera* 1 species belonging to 18 families.

ORTHOPTERA, Family *Tettigoniidae*: *Tettigonia viridissima* L.; Family *Gryllidae* *Gryllus desertus* Pali.; Family. *Acrididae*: *Doclostaurus maroccanus* Thumb.

DERMAPTERA Leach., Family. *Forficulidae*: *Forficula auricularia* L.;

HYMENOPTERA Latr., Family. *Pentatomidae*: *Graphosoma lineatus* L., *Dolycoris baccarum* L. ; Family. *Coredidae*: *Coreus marginatus* L.;

COLEOPTERA Linné Family *Carabidae*: *Calosoma sycophanta* L.; Family *Elateridae*: *Agriotes lineatus* L., *Agriotes ustulatus* Schall.; Family *Coccinellidae*: *Coccinella 7 punctata* L., *Adalia bipunctata* L.; Family *Tenebrionidae*: *Opatrum sabulosum* L.; Family *Scarabeidae*: *Geotrupes spiniger* Marsh., *Oxythyrea funesta* Poda, *Polyphylla fullo* L., *Melolontha melolontha* L., *Anoxia orientalis* Kryn.; Family *Chrysomelidae*: *Leptinotarsa decemlineata* Say., *Chrysomela menthastri* L., *Cassida nebulosa* L.,

HYMENOPTERA Linné. Family *Scoliidae*: *Scolia flavifrons* Fabr.; Family *Apidae*: *Bombus terrestris* L.;

LEPIDOPTERA Linné. Family *Gelechiidae* *Phthorimea operculella* (Zeller); Family *Nymphalidae* *Vanessa atalanta*.

Table 1

Potato entomofauna from a culture in the Călărași, Dolj area

Nr.	Species	Family	Order
1.	<i>Tettigonia viridissima</i> L.	<i>Tettigoniidae</i>	<i>Orthoptera</i>
2.	<i>Gryllus desertus</i> Pali.	<i>Gryllidae</i>	
3.	<i>Doclostaurus maroccanus</i> Thumb.	<i>Acrididae</i>	
4.	<i>Gryllotalpa gryllotalpa</i> L.	<i>Gryllotalpidae</i>	

5.	<i>Forficula auricularia</i> L.	<i>Forficulidae</i>	<i>Dermaptera</i>
6.	<i>Dolycoris baccarum</i> L.	<i>Pentatomidae</i>	<i>Heteroptera</i>
7.	<i>Graphosoma lineatus</i> L.		
8.	<i>Carabus cancellatus</i> Illiger	<i>Carabidae</i>	<i>Coleoptera</i>
9.	<i>Calosoma sycophanta</i> L.		
10.	<i>Amara crenata</i> Dejean		
11.	<i>Coccinella 7 punctata</i> L.		
12.	<i>Adalia bipunctata</i> L.	<i>Coccinellidae</i>	
13.	<i>Agriotes lineatus</i> L.	<i>Elateridae</i>	
14.	<i>Agriotes ustulatus</i> Schall.		
15.	<i>Opatrum sabulosum</i> L.	<i>Tenebrionidae</i>	
16.	<i>Geotrupes spiniger</i> Marsh.	<i>Geotrupidae</i>	
17.	<i>Polyphylla fullo</i> L.	<i>Scarabeidae</i>	
18.	<i>Melolontha melolontha</i> L.		
19.	<i>Leptinotarsa decemlineata</i> Say.	<i>Chrysomelidae</i>	
20.	<i>Chrysomela menthastri</i> L.		
21.	<i>Cassida nebulosa</i> L.		
22.	<i>Macrosiphum euphorbiae</i> Th.	<i>Aphididae</i>	<i>Homoptera</i>
23.	<i>Scolia flavifrons</i> Fabr.	<i>Scoliidae</i>	<i>Hymenoptera</i>
24.	<i>Bombus terrestris</i> L.	<i>Apidae</i>	
25.	<i>Vanessa atalanta</i> L.	<i>Nymphalidae</i>	<i>Lepidoptera</i>
26.	<i>Phthorimaea operculella</i> Zeller	<i>Gelechiidae</i>	

CONCLUSIONS

From the analysis of recorded data, it results that the most species belong to the order *Coleoptera* (14 species), followed by *Orthoptera* (4 species), *Heteroptera* (3 species), *Hymenoptera* (2 species), *Lepidoptera* (2 species) and *Dermaptera* (1 species).

According to our data, of the total species identified (26 species), it was found that 15 species are harmful, five species are beneficial and three species are indifferent. Regarding the beneficial species four of them belong to *Coleoptera* order, a single one belong to *Hymenoptera* order.

The most representative families has been *Carabidae* and *Chrysomelidae* each with 3 species, followed by *Pentatomidae*, *Coccinellidae* and *Elateridae* with 2 species.

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