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SPECIES COMPOSITION AND GEOGRAPHIC DISTRIBUTION OF WEEVIL BEETLES (COLEOPTERA: CURCULIONIDAE) IN THE AGROBIOCENOSE OF MEDIGACO

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Abstract
It is known that as a result of the rapid growth of the population of Uzbekistan; in order to satisfy the population's demand for food products, it is necessary to implement large-scale measures for the production of these products. This, in turn, requires the development of new lands, the development of science and technology. As a result of the development of new lands, the development of science and technology, the species composition of agrobiocenoses will change. Although representatives of the insect family have been studied in science, in the conditions of Fergana region, Curculionidae and their damage to food production have not been fully studied. Studying weevil beetles and developing measures to combat them is one of the urgent problems of today. In this article, the results of the study on the distribution of weevil beetles and their species composition in medigaco (alfalfa) agrobiocenosis in some districts of Fergana region (Tashloq, Buvayda and Beshariq) are reflected.

Keywords: Phytonomus variabilis Woll., 1854, monophagous, polyphagous, oligophagous, phytophagous.

INTRODUCTION

Medigaco (alfalfa) plant is considered a valuable leguminous crop and is of great importance in terms of food, agrotechnical, land reclamation and phytosanitary aspects. But due to the damage of medigaco by a large number of pests at different stages of development, not only its large yield is lost, but nutrients are also drastically reduced. According to V. N. Shegolev, about 200 pests have been recorded in medigaco, among which weevil beetles are important [2]

Determining the species composition of weevil beetles, monitoring and preventing their reproduction are important in protecting medigaco and other agricultural crops from weevil beetles.

This research work serves to a certain extent the implementation of the tasks defined in the Law of the Republic of Uzbekistan on September 6, 2019 "On the Protection of Agricultural Plants from Pests, Diseases and Weeds" [1]and the adopted State programs related to its implementation.

[1] Law of the Republic of Uzbekistan on September 6, 2019 "On the Protection of Agricultural Plants from Pests, Diseases and Weeds"

According to a number of researchers, more than 200 species of invertebrates live in medigaco [1, 2, 3, 4, 5,].

V.N. Plotnikov [6], M.A. Varlamov [7, 8], V.V. Yakhontov [9], R.A. Alimdjanov [10, 11, 12, 13, 14], V.Ya. Navisky [15], M.M. Ostanova [16, 17], in Tajikistan, A.I. Karpova [18, 19], N.N. Muminov [20], it is known that in almost all regions, the clover leaf weevil of the Curculionidae family or representatives such as phytonomus (Phytonomus variabilis Woll., 1854), nodule filths, severely damage medigaco.

Phytonomus (Phytonomus variabilis Woll., 1854), bioecological features of the beetle have been studied by many researchers. In particular, its seasonal dynamic number in alfalfa in different periods in some regions of Uzbekistan, for example, V.V. Yakhontov [9] in Bukhara and Tashkent, V.N. Polevshikova in the Tashkent region [15], R.A. Alimdjanov [10] and R. Jononova [23] in the conditions of the Karshi desert and studied by N.G.Shamuratova in the north of the Republic of Karakalpakstan.

Phytonomus (Phytonomus variabilis Woll., 1854) beetle is a serious pest of alfalfa. In Central Asia, the valuable first crop of alfalfa suffers from it every year. According to the literature, if one phytonomus larva is fed on each alfalfa stem, the alfalfa weight is reduced by 65% [19]. According to N.G.Shamuratova, the level of economic damage in alfalfa is 100% damaged when 2-3 phytonomus (Phytonomus variabilis Woll., 1854) larvae are observed on one stem. There are different opinions about the wintering place of beetles. According to V.V. Yakhontov's data, the majority of beetles winter in alfalfa fields [10], and R. Jononova's studies indicate that they overwinter outside alfalfa fields [21].

The results of studies on the biology, damage and control measures of Phytonomus (Phytonomus variabilis Woll., 1854) have important theoretical and practical significance [2, 9, 18, 21].

MATERIALS AND METHODS

In order to study the distribution of weevil beetles in alfalfa agrobiocenosis, Tashloq district Bo'ston (40°41'03"N 71°51'45"E), Bo'stonabad (40°33'51"N 71°46' 20"E), in the areas of Besarang (40°33'24"N 71°49'50"E) and Arabmazar (40°32'48"N 71°48'09"E); Buvayda (40°39'55"N 71°07'13"E; 40°39'54"N 71°05'35"E) and Beshariq (40°25'26"N 70°34'57"E; 40°26'11"N 70°34'33"E) researches were conducted in March-May (Fig. 1). Due to the high amount of precipitation in April-May, it was noted that the condition of the plants and the diversity of the fauna in it are high.

At the same time as field observations, damage to alfalfa (leaves, stems, flowers, pods, seeds) was regularly taken into account during the vegetation period and analyzed in laboratory conditions. Samples taken from one plot consisted of at least 100 stems, each of them was carefully observed and the amount of damage was recorded. Healthy and damaged inflorescences and crop elements (stems, flowers, pods) were counted on average in 100 stems in the samples of seedbeds. The level of phytophagous damage was estimated due to the comparison of the character of alfalfa yielding and the specific development period of this or that long nose. We took into account the amount of

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phytonomus (Phytonomus variabilis Woll., 1854) in early spring. The samples in the plot (10 of each) were placed in a checkerboard pattern, and the size of each one was 25 cm^2, the depth was 10-12 cm. In the samples, the soil was carefully taken and examined. When determining the species composition of the collected samples, the following scientific sources were analyzed and the classification of the species composition was achieved:

1.Books:

a) Razvitie entomologii v Uzbekistane" [9]
b) "Dolgonosikoobraznye zhestkokrylye (Coleoptera, Curculionoidea) Vyatsko-Kamskogo mezhdurech'ya: fauna, rasprostranenie, ekologiya" [23].
c) (Tip CHlenistonogie, klass Nasekomye) Seriya «ZHivotnye Kazahstana v fotografiyah» [25]

2. Scientific articles:

a) Peculiarities of some weevils (Colioptera: Curculionidae) of the Fergana Valley [24]
b) Weevils (Coleoptera, Curculionoidea) from plains of Western Siberia, Kazakhstan and Middle Asia. Part 1 [22].

2. International search databases:

a) Global Biodiversity Information Facility (date: 05.06.2024) [26]
b) Internetional Union for the Conservation of Nature – IUCN. (date: 05.06.2024) [27]

Figure 1.

Research areas.

RESULTS AND DISCUSSION

As a result of the conducted research, 16 species belonging to 4 genus and 1 family were recorded in alfalfa agrobiocenosis and their nutritional characteristics were analyzed.

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Table 1

Species name	**Distribution**		**Nutrition**	
	Medigaco	Weeds	Trophic specialization	Features
1	2	3	4	5
Family Curculionidae				
Apion facetum Gyllenhal, 1839	**		@	∇∋
Apion filirostre Kirby, 1808	***	***	#	∇
Apion flavifemoratum Herbst, 1797	**		$	∅
Apion seniculus Kirby, 1808	**	***	$	∅
Apion tenue Kirby, 1808	***	***	$	∇
Phytonomus variabilis Woll., 1854.	****	*	#	∇
Eusomus ovalum Germar 1824	**	***	@	∇
Sitona crinitus Herbst, 1795	**	***	@	≈
Sitona cylindricollis Fåhraeus, 1840	****	***	$	≈
Sitona flavescens Fabricius, 1787	***	***	$	∅
Sitona humeralis Steph	***	***	$	∇
Sitona inops Gyllenhal, 1832	***	**	$	∇
Sitona lineellus Bonsdorff, 1785	***	**	$	∇ ∅
Sitona longulus Gyllenhal, 1834	***		$	∇ ∅
Sitona sulcifrons Thunberg, 1798	**	*	$	∇ ∅

Note:
widespread - ****;
normal - ***;
rare- **;
the least common species - *;
monophages - #;
oligophages - $;
polyphages – @;
leaves, branches and stems of alfalfa – ∇;
alfalfa root - ; alfalfa pods, flowers and pods - ∅;
during the seedling period of alfalfa - ≈ .

Based on the collected data, it was determined that among phytophages in alfalfa agrobiocenosis, representatives of the Curculionidae family are distinguished from other families by their species composition and population density and are one of the dominant families.

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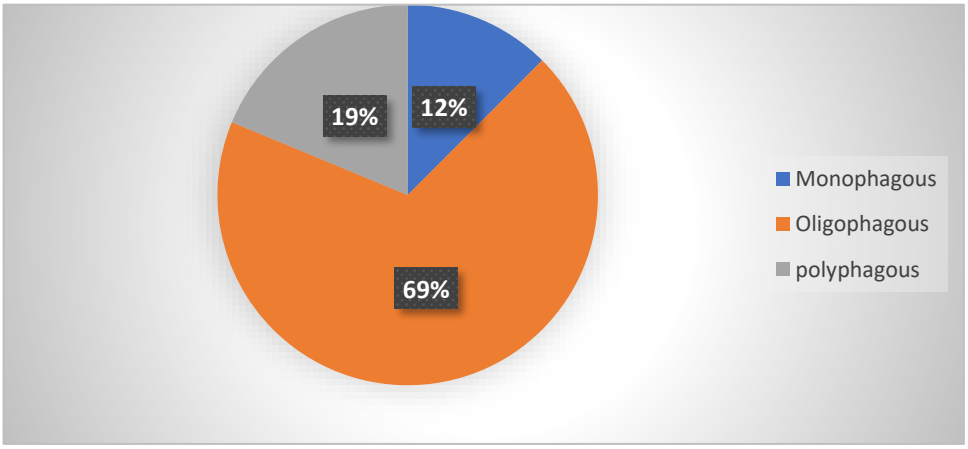

Diagram 1 Grouping of species recorded in alfalfa agrobiocenosis by trophic specialization

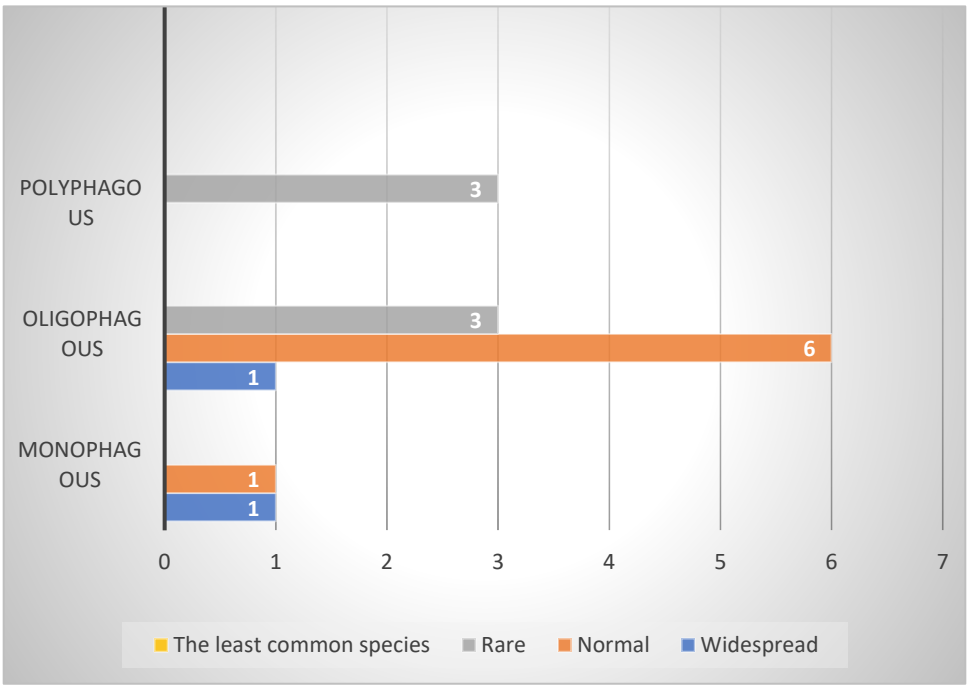

Diagram 2 Distribution indicators of species recorded in alfalfa agrobiocenosis

As a result of research on the distribution of weevil beetles in alfalfa agrobiocenosis, 4 genera and 16 species belonging to the family Curculionidae, belonging to a family, were recorded in Toshloq, Buvayda, Beshariq regions of Fergana region.

In general, weevil beetles cause serious damage to crops in pea storage facilities as well as damage to cultivated plants. Extensive research into the biology of these species can provide an opportunity to develop control methods.

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