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COLLEMBOLAS OF AGROTSENOSES IN THE NORTH UZBEKISTAN

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Abstract:

As a result of studying the amount and species composition of collembolas in 0-30 cm layers of soils of wheat and cotton agrocenoses in Shovot district Khorezm region, which is located in the north of Uzbekistan, it was found that there there are 14 species of collembolas belong to 5 families and 13 genera.

Keywords: collembola, agrocenosis, soil, seasonal dynamics.

Collembolas are one of the oldest insects in the world, and much attention is being paid to studying their role in the exchange substances in nature, the assessment of soil condition, and the process of soil formation. In many countries around the world, a number of scientific studies are being conducted to determine the role of collembolas in assessing soil condition, studying their characteristics as an intermediate host, determining their participation in the exchange of residual substances in the soil [4; 5; 6]. Accordingly, the identification of the fauna of collembolas in the soil layers of the agrocenoses of northern Uzbekistan and the assessment of their ecological and taxonomic composition have great scientific and practical importance as a leading direction of fundamental entomology.

1.MATERIAL AND METHOD.

During the years of 2019-2020 research materials were collected from soil layers of cotton and wheat agrocenoses in Erboev Bahodir, Yakhshimurodov Ulugbek, Eshjanov Odilbek, Bodomzor-Obod farms of Shovot district of Khorezm region. All 120 samples were collected from 0-10 cm, 10-20 cm, 20-30 cm depth in an amount of 1 dm3. Soil samples were collected from planned points of field, were packed in bags and marked with label paper. The date of sampling, the name of the place and agrocenoses, soil layer and other information were recorded on the label paper. Stationary methods were used to study the route and seasonal dynamics in sampling to study the species composition and ecology of collembolas from the above regions [1; 2; 3].

The generally accepted apparat which is called ,,Berleze-Tulgren apparatus" was used to separate collembolas from soil samples [7, 8, 9].

This apparatus consists of the following parts (devices): a tripod, a large funnel, a sieve, a glass jar. First, a funnel is installed on the stand, then a sieve is placed on top of the funnel and a soil sample is filled into it. At the bottom of the funnel, a glass container is placed and a fixing liquid (alcohol) is poured into it. The essence of the operation of this device is that as a result of drying of soil samples placed in a sieve on the funnel from the top to the bottom, even small animals in the soil move from the top to the bottom. Then the fixative falls into a container which is filled with 70-80% ethyl alcohol. The small arthropods that fall into the collecting vessel are placed in a Petri dish and viewed and collected under a binocular microscope [7; 8; 9].

1 to 20 specimens of collembolas were observed from 120 soil samples, in some collembolas were not observed. An average of 10 specimen collembolas were collected from each of the soil samples. 1,200 specimen collembolas were separated from all soil samples obtained. (Table 1).

Table 1
Areas where soil samples were taken and the number of samples

Cenoses	**Farms of Shovot district in Khorezm region**			
	Erboev Baxodir	**Yaxshimurodov Ulugbek**	**Eshjanov Odilbek**	**Bodomzor - Obod**
Wheat	15	15	15	15
Cotton	15	15	15	15
Total:	30	30	30	30
	120			

2.RESULTS AND THEIR ANALYSIS.

Wheat and cotton agrocenoses of Shovot district of Khorezm region cover 30 cm of soil layers. A total of 14 species, 13 generation (Willemia, Xenylla, Hypogastrura, Haloxenylla, Metaphorura, Ongulonychiurus, Lophognathella, Supraphorura, Onychiurus, Axenyllodes, Adbiloba, Pseudachorutes, Archisotoma), 5 family (Xil (Willemia, Xenylla,

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Hypogastrura, Lephognathella, Supraphorura); Hypogastrura tullbergi, Xenylla affiniformis, Xenylla maritima), (Onychiuridae family Metaphorura affinis, Ongulonychiurus colpus, Lophognathella choreutes, Supraphorura furcifera, Onychiurus taimyrica), (Odontellidae Xenyllodes Bayer), (Neanuridae Achorutes Sokolow, Pseudachorutes subcrassus), (Isotomidae family Isotop besselsi) and 2 subtypes of collembolas (Poduromorpha, Entomobryomorpha) (Table 2).

Table 2
Species composition of collembolas in soil layers of wheat and cotton agrocenoses

№	Types	Shovot district of Khorezm region					
		Wheat agrocenosis			Cotton agrocenosis		
		10 sm	20 sm	30 sm	10 sm	20 sm	30 sm
1.	Family: Hypogastruridae *Willemia denisi*	+	+	+	-	-	-
2.	*Xenylla schillei*	+	+	+	+	+	+
3.	*Hypogastrura tullbergi*	+	+	-	+	+	-
4.	*Xenylla affiniformis*.	-	+	+	-	-	-
5.	*Xenylla maritima*	+	+	+	+	+	+
6.	Family:Onychiuridae *Metaphorura affinis*	+	+	+	+	+	+
7.	*Ongulonychiurus colpus*	+	+	+	+	+	+
8.	*Lophognathella choreutes*	-	+	+	-	-	-
9.	*Supraphorura furcifera*	+	+	-	-	-	-
10.	*Onychiurus taimyrica*	+	+	-	+	+	-
11.	Family:Odontellidae *Xenyllodes bayeri*	+	+	+	+	+	+
12.	Family:Neanuridae *Achorutes sokolowi*	-	+	+	-	-	-
13.	*Pseudachorutes subcrassus*	+	+	-	-	-	-
14.	Family:Isotomidae *Isotoma besselsi*	-	+	+	-	+	+

Wheat fields located in Shovot district of Khorezm region have 6 species of collembolas (Willemia denisi, Xenylla affiniformis, Lophognathella choreutes, Supraphorura furcifera, Achorutes sokolowi, Pseudachorutes subcrassus)which live in only wheat agrotsenoses. Moreover, it is observed that there there are 8 species of collembolas (tachyra hyacinths, wheat agrotsenla Metaphorura affinis, Ongulonychiurus colpus, Onychiurus taimyrica, Xenyllodes bayeri, Isotoma besselsi) which live in wheat and cotton fields.

3.CONCLUSION.

Thus, wheat and cotton agrocenoses of Shovot district of Khorezm region, which is the north of Uzbekistan, cover 30 cm of soil layers. According to our observation, it was found that the amount of collembolas in the middle (10-20 cm) layer of the soil was higher. Wheat and cotton fields located in Shovot district of Khorezm region have 14 types of wheat fields (100%) from wheat fields belonging to 14 species (100%); 8 types of wheat and cotton fields (57%).

Collembolas belonging to the family Poduromorpha subfamily Hypogastruridae were found in the soil layers of wheat and cotton fields in Shovot district of Khorezm region.

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