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ANALYSIS OF WINTERING CHARACTERISTICS OF THE SPECIES *COCCINELLA SEPTEMPUNCTATA* L. (COCCINELLIDAE, COLEPTERA) IN SOME AREAS OF KASHKADARYA REGION OF THE REPUBLIC OF UZBEKISTAN.

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Abstract: This article lists the wintering areas of *Coccinella septempunctata* L. Where it winters and in what condition it is also found. Analysis of the wintering properties of coccinellids allows them to be protected. In addition, the wintering characteristics of the most common species were analyzed during our study. Our research was conducted in the districts of Guzor, Kitob, Kasbi, Mirishkor.

Keywords: Coccinellinae, inventory, specific species, *Coccinella septempunctata* Adonia variegata, *Chilocorus bipustulatus*

Introduction

In agrobiocenoses, insect species migrate to specific wintering zones during the winter diapause. The winter zone serves as a reservation area for these species [4].

Therefore, the study of the characteristics of the wintering process of insect species, especially entomophagous species in agrocenoses, is important in terms of their inventory, protection. The purpose of this study was to study the wintering properties of coccinellid species

The study of the composition, number dynamics and other bioecological characteristics of insect species, especially entomophagous species, in agrocenoses is important in terms of developing methods for their optimal use. Wintering properties of coccinellid species have been studied by some researchers [5, 4]. In particular, F.G. Dobrjansky divided coccinellid species into wintering zones - mountain and plain regions [5].

AI Kryltsov noted that the duration of migration of coccinellid species to the wintering zone in the highlands of Kyrgyzstan differs significantly [6]. Studies by G.I. Savoyskaya have shown that in the climatic conditions of Kazakhstan, coccinellid species overwinter in mountain and plain regions, including *Coccinella septempunctata* ~ 50

colonies, under rocks, as well as under perennial herbaceous / shrubby plantations. The *adalia bipunctata* species, on the other hand, has been reported to overwinter under the bark of spruce trees growing in the highlands. In addition, a certain number of coccinellid species have been observed to overwinter under the bark of trees growing in areas close to agrocenoses, as well as in cracks in the walls of buildings / structures [7].

Studies conducted by AK Mansurov in the territory of the Republic have shown that *Coccinella septempunctata* overwinters in the form of up to 30 colonies per 1 m² of plant residues in the immediate vicinity of agrocenoses, as well as 17-18 in 1 bush under tree bark [8].

Coccinella septempunctata winters in Tajikistan on the banks of rivers (Formation of Gissar mountain range) in small rocks, reed and wormwood beds, and partially under tree bark, forming 8-10 clusters [9]. *Coccinella septempunctata* type by VP Semyanov *Acer turkestanicum* Pax., *Amygdalus bucharica* Korch., *Juniperus zeravschanica* Com., Growing in the middle mountain region. under the bark of trees, *Ferula joeschkeana* Vatke., *Dianthus tetralapis* Nevski., *Centaurea squarrosa* Willd., *Nepeta podostachys* Benth., *N. fonsa* Kudr., *Prangos pabularia* Lindl., *Tanaecetum Newessianum* Winkl. such as

herbaceous and shrubby plants have been found to overwinter under beds [10].

Some researchers have identified wintering coccinellid species in the mountainous region, including the *Coccinella septempunctata* species, as monovolt, and wintering species in the plain region as polyvolt species [11].

It has also been noted by some researchers that coccinellid species form colonies of several tens of thousands of individuals in the wintering zone [Sillen-Tullberg and Leimar, 1988; 723-734-b.]. It is assumed that the probability of mass spread of parasites / diseases during the winter by forming a large number of colonies may increase [11].

Studies have shown that the *Coccinella septempunctata* overwinter in 2 forms - multiple and solitary, overwintering in more than 100 colony types (~ 200 / m²) under rocks, and the *Adonia variegata* overwinter in up to 8 species [4].

In the winter zone, *Coccinella septempunctata*, *Shilocorus bipustulatus* species are recorded to emerge when the weather is warm, and to hide under rocks in inconvenience weather / precipitation [4].

Studies have shown that in the laboratory, the *Coccinella septempunctata* species actively moves in the Petri dish in daylight during the winter months, forming clusters of 5 to 7 at night, becoming dormant [4].

Synharmonia conglobata, *Propylea quatuordecimpunctata*, *Adonia variegata*, *Adalia bipunctata*, *C. septempunctata* overwinter in more than 100 species per tree, as well as in irrigated agroecosystems and orchards. recorded.

In the climatic conditions of Tajikistan, the winter temperature is -25– 35 ° C, and the survival rate of coccinellid species in the winter zone is significantly higher. Wintering features of *Coccinella septempunctata*, *Synharmonia conglobata*, *Propylea quatuordecimpunctata*, *Adalia bipunctata*, *Adonia variegata*, *Shilocorus bipustulatus*,

Scymnus subvilosus species in different biotope in the territory of cotton agroecosystems were studied.

Coccinella septempunctata overwinters mainly in rocky-gravel biotopes at considerable distances from agroecosystems, some species (*Synharmonia conglobata*, *Propylea quatuordecimpunctata*, *Adalia bipunctata*, *Adonia variegata*) grow well in the vicinity of agroecosystems, including poplar trees, including pyramidal poplars. *Shilocorus bipustulatus*, a small number of *Brumus octosignatus*, *Scymnus subvilosus* species have been found to overwinter at the base of tree bark [4].

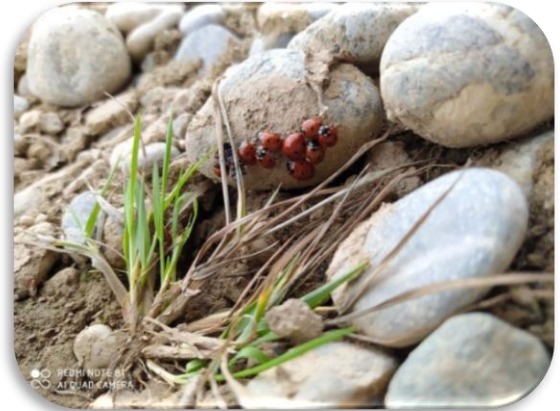
The old bark of the trees is a favorable ecological environment for the wintering of coccinellid species. The wintering characteristics of coccinellids, including *Coccinella septempunctata* L. (*Coccinellidae*, *Coleoptera*), have been analyzed by a number of researchers [11, 2]. The study analyzed the wintering zones of *Coccinella septempunctata* L. in the middle, upper mountainous region of Central Asia (altitude ~ 2,500-3,000 m above sea level). *Pinus eldarica*, *Juniperus virginiana*, *Platycladus orientalis* winters 14-46 times under the bark and shed leaves [2].

Savoyskaya G.I., Dobrjanskiy F.G. wintering zones of coccinellid species, including *Coccinella septempunctata* L., are classified into 2 types of altitude zones - i.e., plain and mountainous region [5, 7]. In our republic Mansurov A.K. Studies by *Coccinella septempunctata* L. have shown that in winters, up to 30 winters per 1 m² of vegetation cover and ~ 17-18 winters per tree canopy [8]. Studies have shown that the species *Coccinella septempunctata* L. winters under rocks, reeds, wormwood (8-10) on the banks of rivers in the Gissar mountain range and valley plains [9].

Coccinella septempunctata L. has also been reported to overwinter in the valleys of the Gissar mountain range under deciduous and deciduous vegetation under trees and shrubs [10].

In studies, the study of the species *Coccinella septempunctata* L. in the winter zone Khakimov F.R. was carried out using the method given by [2].

At the same time in Kasbi district of Kashkadarya region ~ 1,200-1400 m above sea level. In the early spring (20.II-5.III.2020) in the highland area, wintering coccinellid samples were collected and analyzed under rocks in an area of 50 m² in the wintering zone.



MATERIALS AND METHODS

Collection of insect species was performed using a standard method [1]. Collection of coccinellid (Coleoptera, Coccinellidae) species in the imago stage in the study area was carried out during January-February 2020-2021. The collected biomaterial was placed in standard laboratory solutions and a label with the place and date of storage was affixed.

RESULTS AND DISCUSSION

The transition to hibernation is a characteristic feature of coccinellid beetles. It is characteristic that most species of coccinellids have a large accumulation during the transition to such a diapause. Winter accumulation of coccinellids is divided into two types: hypothalamic and climatactic. In the hypothalamic accumulation, the coccinellids choose hilly, dry areas, while in the climatactic winter accumulation, they choose moist areas, including those associated with the bottom of forest canopies. However, subsequent studies have reported cases of wintering coccinellids under tree bark, on the soil surface, and in breeding years, even in residential homes.



Beneath the bark of the trunk, the following species were found: From the pine tree came the 11-spotted and pine-bark beetle. 188 m from the following coordinates, N 38 ° 55 ' 23.17 " , E 65 ° 24 ' 41.14" . But because the winter of 2021 came cold and settled on the surface of a pine tree, the coccinellids found were found dead. The average winter temperature was -20 C, and the coldest temperature was -170 C. The following coccinellides, found at 825 m, N 38 ° 55 ' 38 " , E 67 ° 24 ' 01" coordinate points, were found alive in 2-point, 4-point, 15-point and other species as they penetrated deeper into the bark of cherry, white poplar, apricot trees. In the trees, the herd was found alone at 20cm.

Picture-1. Wintering coccinellids under small pebbles.

In summary, the analysis of the literature shows that until our research, almost no scientific research on the biological and ecological properties of coccinellides in the conditions of Kashkadarya region. During our research, only 7-spotted beetles were found under small pebbles. Meeting coordinate 967 m, N 39 ° 06 ' 46 " , E 66 ° 55 ' 29" , from Kitab district. It was reported that there was a collision with a team every 10 meters 12 to 200 beetles were observed in each swarm.



Picture 2-. Wintering coccinellids under tree bark

Body weight ($M \pm m$) of *Coccinella septempunctata* L. in the winter zone during the growing season and early spring

Table

T/ r (№)	Experiment options	Time and place of the experiment	Average body weight of <i>Coccinella septempunctata</i> L. (mg)
1.	During the growing season in cotton agrobiocenoses	Dustmurodov Eshonqul farm of Nishan district of Kashkadarya region (15.VII.2020 y.)	$0,054 \pm 0,002$
2.	In the winter zone	Kasbi district of Kashkadarya region (20.II.2020)	$0,036 \pm 0,001$

The results obtained are consistent with the available literature data in general. In particular, the body weight of winter migrating coccinellids is 0.03-0.7 mg, while in the winter zone *Coccinella septempunctata* L. (Coccinellidae, Coleoptera) has a body weight of ~ 0.02-0.05 mg, of plants (*Tamarix ramosissima*, *Cercis griffithii* (*Capparis spinosa*)) has been reported to increase the risk of fungal diseases of the wintering colony at the base of the shed leaves.

It was also noted that the survival rate of coccinellide species in the winter zone is 92.7-99.9% [2].

Conclusion

1. In agrobiocenoses, insect species migrate to specific wintering zones during the winter diapause. The winter zone serves as a reservation area for these species.

2. In the climatic conditions of Kazakhstan, coccinellide species overwinter in mountainous and plain regions, including *Coccinella septempunctata* in the form of ~ 50 colonies, under rocks, as well as under perennial herbaceous / shrubby plantations.

3. In our republic Mansurov A.K. Studies by *Coccinella septempunctata* L. have shown that in winters, up to 30 winters per 1 m² of vegetation cover and ~ 17-18 winters per tree under tree bark

4. During our research, only 7-spotted beetles were found under small pebbles

5. *Coccinella septempunctata* L. (Coccinellidae, Coleoptera) in the winter zone has a body weight of ~ 0.02-0.05 mg, the body weight of plants (*Tamarix ramosissima*, *Cercis griffithii* (*Capparis spinosa*)) has a high risk of fungal diseases of the wintering colony under the shed leaves.

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