

ISSN 2063-5346



# TAXONOMY AND AREA OF DISTRIBUTION OF THE MAJOR PESTS OF FRUIT GARDENS

Zukhra Yuldashevna Akhmedova<sup>1</sup>, Zumrad Abdukhakimovna Ganieva<sup>2</sup>, Vokhidjon Nosirovich Akhmedov<sup>3</sup>, Jurabek Nodirjonovich Yakhyoev<sup>4</sup>, Navruz Sobir ugli Ortikov<sup>5</sup>, Sardor Kuchkorali ugli Kimyonazarov<sup>6</sup>, Bobur Ashirovich Khamidov<sup>7</sup>

---

Article History: Received: 01.02.2023

Revised: 07.03.2023

Accepted: 10.04.2023

---

## Abstract

During our observations in the orchards of the Tashkent region, we found 4 species of aphids, 2 species of false scale insects, 4 species of scale insects, 1 species of fruit fly, 1 species of mealybug, 2 species of weevils, 2 species of bedbug, 3 species of codling moth and 3 species of ticks. As a result of research, from the Aphididae family: *Aphis pomi* (De Geer, 1773), *Eriosoma lanigerum* (Hausemann, 1802), *Acyrtosiphon malvae* subsp. *Malvae* (Mosley, 1841) and *Pterochloroides persicae* (Cholodkovsky, 1898); From the Coccidae family: *Sphaerolecanium prunastri* (Boyer de Fonscolombe, 1834) and *Parthenolecanium corni* (Bouché, 1844); From the Diaspididae family: *Lepidosaphes ulmi* (Linnaeus, 1758), *Diaspidiotus perniciosus* (Comstock, 1881), *Diaspidiotus prunorum* (Laing, 1931) and *Parlatoria oleae* (Colvée, 1880); From the Drosophilidae family: *Drosophila melanogaster* (Meigen, 1830); From the Pseudococcidae family: *Pseudococcus comstocki* (Kuwana, 1902); From the Tenthredinidae family: *Caliroa cerasi* (Linnaeus, 1758) and *Hoplocampa testudinea* (Klug, 1816); From the Tingidae family: *Stephanitis oschanini* (Vasiliev, 1935) and *Stephanitis pyri* (Fabricius, 1775); From the Tortricidae family: *Cydia pomonella* (Linnaeus, 1758), *Grapholita molesta* (Busck, 1916) and *Grapholita funebrana* (Treitschke, 1835) and from the Tetranychidae family: *Eotetranychus pruni* (Oudemans, 1931), *Tetranychus urticae* (Koch, 1836) and *Panonychus ulmi* (Koch, 1836) was found.

**Key words:** Garden, population, bioecology, range, taxonomy, damage, coordinates.

---

<sup>1</sup>Head of Laboratory, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: zoology@academy.uz

<sup>2</sup>Senior Researcher, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: zoologiya\_zumrad@mail.ru

<sup>3</sup>Junior Researcher, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: zoology@academy.uz

<sup>4</sup>Junior Researcher, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: [dr.jurabek.net@gmail.com](mailto:dr.jurabek.net@gmail.com)

<sup>5</sup>Junior Researcher, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: zoology@academy.uz

<sup>6</sup> Doctoral Student, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: zoology@academy.uz

<sup>7</sup>Independent Researcher, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, e-mail: zoology@academy.uz

**DOI:10.31838/ecb/2023.12.s1-B.189**

## INTRODUCTION.

Based on tasks such as ensuring food security for the population of our country, gaining a place in the world market, it is necessary to use modern science-based technologies and tools in the cultivation of crops. An additional 25,000-30,000 hectares of parks are being created every year. But in the process of cultivation, a number of problems arise, reducing the quality and size of the crop. Due to harmful organisms, it is observed that the quality and size of the crop decreases by 15-20% in intensive gardens, and by 25-30% in local gardens.

In order to eliminate the shortcomings in this regard, first of all, it is necessary to study the species composition, bioecology and damage levels of harmful organisms that cause damage to agricultural crops, as well as the dynamics of development in the biocenosis, to reveal the laws of natural management, and on the basis of this, to develop practical recommendations for combating them.

Nevertheless, the parasites of plant pests in biocenosis, their development, parasite-host relations, mutual relations, and the sudden increase of pests have not been thoroughly studied. In the development of biological control measures against sucking pests in agricultural crops, research work has not been carried out on the identification of predatory mites, their systematic analysis, reproduction and use in controlling the amount of phytophages in agrobiocenosis.

## RESEARCH MATERIALS AND METHODS.

Researches were carried out at the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, Laboratory of theoretical bases of entomophage ecology and biomethods, Tashkent region. Permanent field observations of the

biological and ecological characteristics of the identified species were conducted in Tashkent region, and practical laboratory observations were conducted at the Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, the Laboratory of Entomophage Ecology and Theoretical Bases of Biomethods, and the results were comparatively analyzed.

**RESEARCH RESULTS AND THEIR DISCUSSION.** In order to prepare a list of the main pests of fruit orchards of Tashkent region, biomaterials were collected from fruit orchards in the farms of Akkurgan, Chinoz, Okhangaron, Urta Chirchik, Kibray, Tashkent, Zangiota, Piskent and Yangiyul districts of Tashkent region. In the conditions of the Tashkent region, the species of dangerous pests of plum, cherry, peach, plum and apricot trees from fruit trees were recorded, and their biology and damage-causing properties were fully analyzed.

In order to effectively use plant protection measures in orchards, it is important to know the species composition and dominant species of pests, their bioecological characteristics and the degree of damage. In 2022, observations were made on fruit trees in the horticulturally developed districts of Tashkent region. During our directional observations, we studied the species composition and distribution area of fruit eaters belonging to the Tortricidae family, a group of dangerous pests that cause significant damage in our orchards.

During our observations in fruit orchards of Tashkent region, we found 4 types of aphids, 2 types of aphids, 4 types of beetles, 1 type of fruit fly, 1 type of mealybug, 2 types of weevils, 2 types of weevils, and 3 types of fruit eaters. and it was found that mites belonging to 3 species were distributed (diagram 1).

**Diagram 1**

**Types of pests that are relatively common in orchards in Tashkent region (2022)**



Regarding the study of the species composition of the main pests of orchards in the regions of Tashkent region:

Kibray district 41°25'13"N 69°25'56"E, 41°23'50"N 69°28'51"E, 41°23'36"N 69°27'10"E, 41°23 '19.8"N 69°25'05.2"E, 41°23'19.8"N 69°25'05.2"E, 41°23'36.9"N 69°27'13.9"E;

YukoriChirchik District 41°10'10"N 69°18'24"E, 41°12'13.9"N 69°18'37.1"E, 41°12'18.7"N 69°17'49.6"E, 41°12 '22.3"N 69°17'56.7"E;

Yangiyul district 41°11'00.0"N 69°04'58.8"E;

UrtaChichichik District 41°13'24"N 69°23'39"E;

Okhangaron district 40°56'04"N 69°35'13"E, 40°56'04"N 69°35'13"E;

Tashkent district 41°25'37"N 69°19'28"E;

Piskent District 41°00'42"N 69°20'50"E, 41°00'42"N 69°20'50"E, 41°00'42"N 69°20'50"E In order to conduct observations, a service trip was organized and field research was carried out. Field

research was conducted during the 2022 season.

In order to determine the main dominant species and their taxonomy, 22 species of pests were identified and 5 of them were returned as dominant species (table 1).

**Table 1**

**Taxonomy of relatively common pests in fruit orchards in Tashkent region (2022)**

Class	Order	Family	Genus	Species
Insecta	Hemiptera	Aphididae	<i>Aphis</i>	<i>Aphis pomi</i>
			<i>Eriosoma</i>	<i>Eriosoma lanigerum</i>
			<i>Acyrtosiphon</i>	<i>Acyrtosiphon malvae</i>
			<i>Pterochloroides</i>	<i>Pterochloroides persicae</i>
		Coccidae	<i>Sphaerolecanium</i>	<i>Sphaerolecanium prunastri</i>
			<i>Parthenolecanium</i>	<i>Parthenolecanium corni</i>
		Diaspididae	<i>Lepidosaphes</i>	<i>Lepidosaphes ulmi</i>
			<i>Diaspidiotus</i>	<i>Diaspidiotus perniciosus</i>
				<i>Diaspidiotus prunorum</i>
		<i>Parlatoria</i>	<i>Parlatoria oleae</i>	
	Pseudococcidae	<i>Pseudococcus</i>	<i>Pseudococcus comstocki</i>	
	Diptera	Drosophilidae	<i>Drosophila</i>	<i>Drosophila melanogaster</i>
	Hymenoptera	Tenthredinidae	<i>Caliroa</i>	<i>Caliroa cerasi</i>
			<i>Hoplocampa</i>	<i>Hoplocampa testudinea</i>
	Lepidoptera	Tingidae	<i>Stephanitis</i>	<i>Stephanitis oschanini</i>
				<i>Stephanitis pyri</i>
		Tortricidae	<i>Cydia</i>	<i>Cydia pomonella</i>
<i>Grapholita</i>			<i>Grapholita molesta</i>	
	<i>Grapholita funebrana</i>			
Arachnida	Trombidiformes	Tetranychidae	<i>Eotetranychus</i>	<i>Eotetranychus pruni</i>
			<i>Tetranychus</i>	<i>Tetranychus urticae</i>
			<i>Panonychus</i>	<i>Panonychus ulmi</i>



Class: Insecta;  
 Order: Hemiptera;  
 Family: Aphididae;  
 Genus: *Aphis*.  
 Species: *Aphis pomi*



*Aphis pomi* (De Geer, 1773)

All districts of Tashkent region: in Qibray district (41°25'13"N 69°25'56"E), (41°23'36.9"N 69°27'13.9"E); in the Middle Chirk district (41°12'22.3"N 69°17'56.7"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Yukorichichichik district (41°13'24"N 69°23'39"E); in Okhangaron district (40°56'04"N 69°35'13"E); in Tashkent district (41°25'37"N 69°19'28"E); It was recorded in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Aphididae;  
 Genus: *Eriosoma*.  
 Species: *Eriosoma lanigerum*



*Eriosoma lanigerum* (Haus., 1802)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E) (41°23'36.9"N 69°27'13.9"E); in the Middle Chirk district (41°12'22.3"N 69°17'56.7"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Yukorichichichik district (41°13'24"N 69°23'39"E); It was recorded in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Aphididae;  
 Genus: *Myzus*.  
 Species: *Myzus antirrhinii*



*Acyrtosiphon malvae* subsp. *Malvae* (Mosley, 1841)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'19.8"N 69°25'05.2"E); in Urtachirchik district (41°10'10"N 69°18'24"E); It was recorded in the coordinates of Okhangaron district (40°56'04"N 69°35'13"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Aphididae;  
 Genus: *Pterochloroides*.  
 Species: *Pterochloroides persicae*



*Pterochloroides persicae* (Cholodkovsky, 1898)

district of Tashkent region in Qibray (41°23'36.9"N 69°27'13.9"E); in Urtachirchik district (41°10'10"N 69°18'24"E); It was recorded in the coordinates of Okhangaron district (40°56'04"N 69°35'13"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Coccidae;  
 Genus: *Sphaerolecanium*.  
 Species: *Sphaerolecanium prunastri*



*Sphaerolecanium prunastri* (Boyer de Fonscolombe, 1834)

district of Tashkent region in Yangiyul (41°11'00.0"N 69°04'58.8"E); in Urtachirchik district (41°10'10"N 69°18'24"E); It was recorded in the coordinates of Okhangaron district (40°56'04"N 69°35'13"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Coccidae;  
 Genus: *Parthenolecanium*.  
 Species: *Parthenolecanium corni*



*Parthenolecanium corni* (Bouché, 1844)

district of Tashkent region in Qibray (41°23'19.8"N 69°25'05.2"E), (41°23'36.9"N 69°27'13.9"E); in Urtachirchik district (41°10'10"N 69°18'24"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Okhangaron district (40°56'04"N 69°35'13"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Diaspididae;  
 Genus: *Lepidosaphes*.  
 Species: *Lepidosaphes ulmi*



*Lepidosaphes ulmi* (Lin., 1758)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'19.8"N 69°25'05.2"E); in Urtachirchik district (41°10'10"N 69°18'24"E); It was recorded in the coordinates of Okhangaron district (40°56'04"N 69°35'13"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Diaspididae;  
 Genus: *Diaspidiotus*.  
 Species: *Diaspidiotus perniciosus*



*Diaspidiotus perniciosus* (Coms., 1881)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'50"N 69°28'51"E), (41°23'36"N 69°27' 10"E), (41°23'36.9"N 69°27'13.9"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

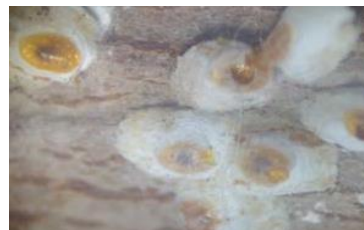
Class: Insecta;  
 Order: Hemiptera;  
 Family: Diaspididae;  
 Genus: *Diaspidiotus*.  
 Species: *Diaspidiotus prunorum*



*Diaspidiotus prunorum* (Laing, 1931)

district of Tashkent region in Qibray (41°23'50"N 69°28'51"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Diaspididae;  
 Genus: *Parlatoria*.  
 Species: *Parlatoria oleae*



*Parlatoria oleae* (Colvée, 1880)

district of Tashkent region in Qibray (41°23'19.8"N 69°25'05.2"E), (41°23'36.9"N 69°27'13.9"E); in Urtachirchik district (41°10'10"N 69°18'24"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Okhangaron district (40°56'04"N 69°35'13"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Diptera;  
 Family: Drosophilidae;  
 Genus: *Drosophila*.  
 Species: *Drosophila melanogaster*



*Drosophila melanogaster* (Meigen, 1830)

It was recorded at the coordinates of Tashkent district of Tashkent region (41°25'37"N 69°19'28"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Pseudococcidae;  
 Genus: *Pseudococcus*.  
 Species: *Pseudococcus comstocki*



*Pseudococcus comstocki* (Kuwana, 1902)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'50"N 69°28'51"E), (41°23'36"N 69°27' 10"E), (41°23'36.9"N 69°27'13.9"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hymenoptera;  
 Family: Tenthredinidae;  
 Genus: *Stephanitis*.  
 Species: *Stephanitis oschanini*



*Caliroa cerasi* (Linnaeus, 1758)

district of Tashkent region in Urtachirchik (41°10'10"N 69°18'24"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Okhangaron district (40°56'04"N 69°35'13"E); It was recorded in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hymenoptera;  
 Family: Tenthredinidae;  
 Genus: *Stephanitis*.  
 Species: *Stephanitis pyri*



*Hoplocampa testudinea* (Klug, 1816)

district of Tashkent region in Urtachirchik (41°10'10"N 69°18'24"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); It was recorded in the coordinates of Okhangaron district (40°56'04"N 69°35'13"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Tingidae;  
 Genus: *Stephanitis*.  
 Species: *Stephanitis oschanini*



*Stephanitis oschanini* (Vasiliev, 1935)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'50"N 69°28'51"E), (41°23'36"N 69°27' 10"E), (41°23'36.9"N 69°27'13.9"E); It was recorded in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Hemiptera;  
 Family: Tingidae;  
 Genus: *Stephanitis*.  
 Species: *Stephanitis pyri*



*Stephanitis pyri* (Fabricius, 1775)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'50"N 69°28'51"E), (41°23'36"N 69°27' 10"E), (41°23'36.9"N 69°27'13.9"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).



Class: Insecta;  
 Order: Lepidoptera;  
 Family: Tortricidae;  
 Genus: *Cydia*.

Species: *Cydia pomonella*



*Cydia pomonella* (Linnaeus, 1758)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'36"N 69°27'10"E), (41°23'19.8"N 69°25' 05.2"E), (41°23'36.9"N 69°27'13.9"E); In Urtachirchik district (41°10'10"N 69°18'24"E), (41°12'13.9"N 69°18'37.1"E), (41°12'18.7"N 69°17'49.6" E), (41°12'22.3"N 69°17'56.7"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Yukorichichichik district (41°13'24"N 69°23'39"E); in Okhangaron district (40°56'04"N 69°35'13"E); in Tashkent district (41°25'37"N 69°19'28"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Insecta;  
 Order: Lepidoptera;  
 Family: Tortricidae;  
 Genus: *Grapholita*.

Species: *Grapholita molesta*



*Grapholita molesta* (Busck, 1916)

It was recorded at the coordinate (40°56'04"N 69°35'13"E) in Okhangaron district, Tashkent region.

Class: Insecta;  
 Order: Lepidoptera;  
 Family: Tortricidae;  
 Genus: *Grapholita*.

Species: *Grapholita funebrana*



*Grapholita funebrana* (Treitschke, 1835)

district of Tashkent region In Urtachirchik (41°10'10"N 69°18'24"E), (41°12'13.9"N 69°18'37.1"E), (41°12'18.7"N 69°17' 49.6"E), (41°12'22.3"N 69°17'56.7"E); in Okhangaron district (40°56'04"N 69°35'13"E); in Tashkent district (41°25'37"N 69°19'28"E); It was recorded in Piskent district (41°00'42"N 69°20'50"E).

Class: Arachnida;  
 Order: Prostigmata;  
 Family: Tetranychidae;  
 Genus: *Eotetranychus*.

Species: *Eotetranychus pruni*



*Eotetranychus pruni* (Oudemans, 1931)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'36"N 69°27'10"E), (41°23'36.9"N 69°27' 13.9"E); In Urtachirchik district (41°10'10"N 69°18'24"E), (41°12'13.9"N 69°18'37.1"E), (41°12'18.7"N 69°17'49.6" E), (41°12'22.3"N 69°17'56.7"E); in

Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Yukorichichichik district (41°13'24"N 69°23'39"E); in Okhangaron district (40°56'04"N 69°35'13"E); in Tashkent district (41°25'37"N 69°19'28"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Arachnida;

Order: Prostigmata;

Family: Tetranychidae;

Genus: *Tetranychus*.

Species: *Tetranychus urticae*



*Tetranychus urticae* (Koch, 1836)

district of Tashkent region in Qibray (41°25'13"N 69°25'56"E), (41°23'36.9"N 69°27'13.9"E); In Urtachirchik district (41°10'10"N 69°18'24"E), (41°12'13.9"N 69°18'37.1"E), (41°12'18.7"N 69°17'49.6" E), (41°12'22.3"N 69°17'56.7"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Yukorichichichik district (41°13'24"N 69°23'39"E); in Okhangaron district (40°56'04"N 69°35'13"E); in Tashkent district (41°25'37"N 69°19'28"E); It was registered in Piskent district (41°00'42"N 69°20'50"E).

Class: Arachnida;

Order: Prostigmata;

Family: Tetranychidae;

Genus: *Tetranychus*.

Species: *Tetranychus urticae*



*Panonychus ulmi* (Koch, 1836)

district of Tashkent region in Qibray (41°23'36.9"N 69°27'13.9"E); In Urtachirchik district (41°10'10"N 69°18'24"E), (41°12'13.9"N 69°18'37.1"E), (41°12'18.7"N 69°17'49.6" E), (41°12'22.3"N 69°17'56.7"E); in Yangiyul district (41°11'00.0"N 69°04'58.8"E); in Yukorichichichik district (41°13'24"N 69°23'39"E); in Okhangaron district (40°56'04"N 69°35'13"E); in Tashkent district (41°25'37"N 69°19'28"E); It was recorded in Piskent district (41°00'42"N 69°20'50"E).

**CONCLUSION.** As a result of research, from the Aphididae family: *Aphis pomi* (De Geer, 1773), *Eriosoma lanigerum* (Häusermann, 1802), *Acyrtosiphon malvae* subsp. *Malvae* (Mosley, 1841) and *Pterochloroides persicae* (Cholodkovsky, 1898); From the Coccidae family: *Sphaerolecanium prunastri* (Boyer de Fonscolombe, 1834) and *Parthenolecanium corni* (Bouché, 1844); From the Diaspididae family: *Lepidosaphes ulmi* (Linnaeus, 1758), *Diaspidiotus perniciosus* (Comstock, 1881), *Diaspidiotus prunorum* (Laing, 1931) and *Parlatoria oleae* (Colvée, 1880); From the Drosophilidae family: *Drosophila*

*melanogaster* (Meigen, 1830); From the Pseudococcidae family: *Pseudococcus comstocki* (Kuwana, 1902); From the Tenthredinidae family: *Caliroa cerasi* (Linnaeus, 1758) and *Hoplocampa testudinea* (Klug, 1816); From the Tingidae family: *Stephanitis oschanini* (Vasiliev, 1935) and *Stephanitis pyri* (Fabricius, 1775); From the Tortricidae family: *Cydia pomonella* (Linnaeus, 1758), *Grapholita molesta* (Busck, 1916) and *Grapholita funebrana* (Treitschke, 1835) and from the Tetranychidae family: *Eotetranychus pruni* (Oudemans, 1931), *Tetranychus urticae* (Koch, 1836) and *Panonychus ulmi* (Koch, 1836) was found.

**LIST OF REFERENCES:**

1. Kimsanbayev X.X., Murodov B.E., Ortikov U.D., Yakhyoyev J.N. Extension and harmfulness of californian shield in apple orchards // JOURNAL OF AGRO PROCESSING. 2020 | Pages: 104-112.
2. Murodov B.E., Ortikov U.D., Yakhyoyev J.N. Bioecology of californian shield (*Quadraspidiotus perniciosus* Comst) in Uzbekistan / Proceedings of International Multidisciplinary Scientific Conference on Innovative Technology. Organized by Novateur Publications, India. May 25th, – 2020. – P. 104-107.
3. Murodov B.E., Yakhyoyev J.N. [Quarantine Pests Of Internal Quarantine Of The Republic Of Uzbekistan](#) // Education and science in Russia and abroad. 2017 | Pages: 32-36.
4. Yakhyoyev J.N., Kimsanbayev Kh.Kh. Bioecology And Species Of Diaspididae In Fruit Gardens // The American Journal of Agriculture and Biomedical Engineering. With impact factor 5.312. USA. November 30, 2020 | Pages: 104-112.
5. Yakhyoyev J.N., Kimsanbayev Kh.Kh., Murodov B.E., Sulaymonov B.A. [Bioecology And Phenological Development Of The Californian Shield \(\*Quadraspidiotus Perniciosus\* Comst.\) In Uzbekistan](#) // The American Journal of Agriculture and Biomedical Engineering. With impact factor 5.312. USA. August 02, 2020 | Pages: 124-131.
6. Yakhyoyev J., Kimsanbayev Kh., Murodov B., Akmedova Z. [Taxonomy and bioecology of Hemiptera Diaspididae in fruit and landscape trees](#) // E3S Web of Conferences. 244. – P. 02039.
7. Yakhyoyev J., Kimsanbayev Kh., Murodov B., Akmedova Z. [Level Of Distribution Of Hemiptera: Diaspididae In The Northeast Region Of Uzbekistan](#) // European Journal of Agricultural and Rural Education. 2021/3/30. – P. 6-10.
8. Yakhyoyev J., Akmedova Z., Kimsanbayev Kh. [Taxonomy, Dynamics Of Development And Damage Of Diaspididae In Seed Fruit Orchards](#) // The American Journal of Agriculture and Biomedical Engineering, 4(02), 5–11.
9. Yakhyoyev J.N., Kimsanbayev K.K., Murodov B.E., Sulaymonov B.A. [Phenological Development Of The Californian Shield \(\*Quadraspidiotus Perniciosus\* Comst.\) In Uzbekistan](#) // The American Journal of Agriculture and Biomedical Engineering. With impact factor 5.312. USA. 2020 | Pages: 104-112.
10. [Shaymanov M.Sh., Murodov B.E., Yakhyoyev J.N. Pest Risk Analysis In Comstock Mealybug \(\*Pseudococcus Comstocki\*\) In Pomegranate And Dates](#) // The American Journal of Agriculture and Biomedical Engineering, 4(02), 12–16.
11. Бондаренко Н.В., Глушченко А.Ф. Практикум по общей энтомологии. – Л.: Агропромиздат, 1985. – 352 с.
12. Лукин Е.И. Зоология. – М.: «Высшая школа», 1981. – 400 с.
13. Муродов С.А. Умумий энтомология курси. – Тошкент: «Меҳнат», 1986. – 271 б.
14. Муродов Б.Э., Сулаймонов О.А., Яхёев Ж.Н. Калифорнийская щитовка на яблоне // Образование и наука в России и за рубежом. – 2018. – № 12 (47). – С. 118-122.
15. Муродов Б.Э., Ортиков У.Д., Яхёев Ж.Н. Биоэкология и развития калифорнийской щитовки (*Quadraspidiotus perniciosus* Comst.) в Узбекистане // Евразийский Союз Ученых (ЕСУ). – 2020. – 5 (74). – С. 39-40.
16. Олимжонов Р.А. Энтомология. – Тошкент: «Ўқитувчи», 1977.– 275 б.
17. Росс Г., Росс Ч., Росс Д. Энтомология. – М.: «Мир», 1985. – 570 с. (инглиз тилидан таржима).