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**FARG'ONA VODIYSI AGROEKOTIZIMLARI TANGACHAQANOTLI HASHAROTLARINING
(INSECTA, LEPIDOPTERA) TUR TARKIBI VA TAKSONOMIK TAHLILI****ВИДОВОЙ СОСТАВ И ТАКСОНОМИЧЕСКИЙ АНАЛИЗ ЧЕШУЕКРЫЛЫХ НАСЕКОМЫХ
(INSECTA, LEPIDOPTERA) АГРОЭКОСИСТЕМ ФЕРГАНСКОЙ ДОЛИНЫ****SPECIES COMPOSITION AND TAXONOMIC ANALYSIS OF LEPIDOPTERANS (INSECTA,
LEPIDOPTERA) OF AGROECOSYSTEMS OF THE FERGANA VALLEY****Shermatov Malikjon Raxmatjonovich** 

Farg'ona davlat universiteti, biologiya fanlari doktori, dotsent

Annotatsiya

Maqolada tangachaqanotli hasharotlar faunasining tur tarkibi va taksonomik tahlili yoritib berilgan. Tadqiqot ishlari 2012-2023 yillar davomida Farg'ona vodiysi agroekotizimlarida olib borilgan. Tangachaqanotli hasharotlar namunalarini Farg'ona, Andijon, Namangan viloyati hududlaridagi fermer hamda tomorqa xo'jaliklaridan yig'ilgan. Farg'ona vodiysi agroekotizimlaridan qishloq xo'jalik ekinlari bilan trofik aloqada bo'lgan tangachaqanotlilarning 15 ta katta oila, 25 oila 116 avlodga mansub 158 turi aniqlangan. Taksonomik birliklarning qiyosiy tahlillariga ko'ra, agroekotizimlarda Noctuidae oilasi vakillari yetakchilik qiladi. Jumladan, mazkur oilaga mansub 58 ta turlar lepidopterofaunaning 36,7% ni tashkil etadi. Turlar xilma-xilligiga muvofiq avlodlarning soni ham yuqori (36 ta) bo'lib, faunadagi ulushi 31% ga teng. Faunistik tadqiqotlar natijasida Farg'ona vodiysi agroekotizimlarida tangachaqanotli hasharotlar turkumining 12 ta oila 46 avlodiga mansub 55 ta turi ilk bor aniqlangan. Ular orasidan O'zbekiston hududida ilgari uchratilmagan 6 ta oilaning 18 ta avlodga mansub 19 ta turi respublikamiz entomofaunasi uchun ilk bor qayd etilgan turlar qatorida ro'yxatga kiritilgan. Shuningdek, Crambidae oilasiga mansub 2 ta tur Markaziy Osiyo entomofaunasida avval qayd etilmagan.

Аннотация

В этой статье освещены видовой состав и таксономического анализа фауны чешуекрылых насекомых. Работы по исследованию проводились в период с 2012 по 2023 гг. в агроэкосистемах Ферганской долины. Сбор проб чешуекрылых насекомых осуществлялся в фермерских и приусадебных участках на территориях Ферганской, Андижанской и Наманганской областей. Выявлено 158 видов, относящихся к 116 родам, 25 семействам и 15 надсемействам чешуекрылых насекомых, состоящих в трофической связи с сельскохозяйственными растениями из агроэкосистем Ферганской долины. В соответствии с сопоставительным анализом таксономических единиц, ведущее место в агроэкосистемах принадлежит представителям семейства Noctuidae отряда чешуекрылых насекомых. В частности, 58 видов относящихся к семействам составляют 36,7% всей лепидоптерофауны. Соответственно видовому разнообразию количество родов также многочисленно (36), а их доля в фауне равна 31%. В результате фаунистических исследований в агроэкосистемах Ферганской долины впервые выявлены 55 видов, относящихся к 46 родам 12 семейств отряда чешуекрылых насекомых. Среди них 19 видов, относящихся к 18 родам 6 семейств, ранее не встречавшиеся на территории Узбекистана, внесены в список впервые зарегистрированных в составе энтомофауны нашей республики. Вместе с тем, 2 вида из семейства Crambidae в составе энтомофауны Центральной Азии ранее не были отмечены.

Abstract

This article highlights the species composition and taxonomic analysis of the fauna of Lepidoptera insects. The research was carried out from 2012 to 2023 in the agroecosystems of the Fergana Valley. Samples of Lepidoptera insects were collected in farm and household plots in the Fergana, Andijan and Namangan regions. 158 species belonging to 116 genera, 25 families and 15 superfamilies of Lepidoptera insects were identified, which are in a trophic relationship with agricultural plants from the agroecosystems of the Fergana Valley. According to the comparative analysis of taxonomic units, the leading place in agroecosystems belongs to representatives of the Noctuidae family of the Lepidoptera order. In particular, 58 species belonging to families make up 36.7% of the total lepidopteran fauna. According to the species diversity, the number of genera is also numerous (36), and their share in the fauna is 31%. As a result of faunistic studies in the agroecosystems of the Fergana Valley, 55 species belonging to 46 genera of 12 families of the order of Lepidoptera insects were identified for the first time. Among them, 19 species belonging to 18 genera of 6 families, previously not found in the territory of Uzbekistan, are included in the list of those registered for the first time in the entomofauna of our republic. At the same time, 2 species from the Crambidae family in the entomofauna of Central Asia were not previously noted.

BIOLOGIYA

Kalit soʻzlar: Fargʻona vodiysi, agroekotizim, tangachaqaqnotli hasharotlar, tur tarkibi, taksonomik tahlil, oila, avlod, tur.

Ключевые слова: Ферганская долина, агроэкосистема, чешуекрылые насекомые, видовой состав, таксономический анализ, семейство, род, вид.

Key words: Fergana Valley, agroecosystem, lepidopteran insects, species composition, taxonomic analysis, family, genus, species.

KIRISH

Keyingi yillarda kuzatilayotgan global iqlim oʻzgarishlari va antropogen omillarning taʼsiri, shuningdek, mintaqa agrolandshaftlarida sodir boʻlayotgan tarkibiy yangilanishlar zararkunanda tangachaqaqnotlilar xilma-xilligining ortishiga hamda ayrim turlarning populyatsiya areallarini kengayishiga sabab boʻlmoqda [1]. Dunyo olimlarining iqlim oʻzgarishi oqibatlarini oʻrganish boʻyicha zararkunanda tangachaqaqnotlilar misolida oʻtkazgan tadqiqotlari natijalari, kelgusida fitofag hasharotlarni geografik mintaqalar boʻylab jadal tarqalishi va arealining kengayishini hamda hayot siklidagi oʻzgarishlar sababli, avlodlari sonining ortishini bashorat qilmoqda. Shundan kelib chiqib, Fargʻona vodiysi agroekotizimlari lepidoptero faunasini oʻrganish boʻyicha olib borgan tadqiqotlarimiz natijalari soxaga oid ilmiy dalillar koʻlamining ortishiga xissa qoʻshadi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Fargʻona vodiysining tangachaqaqnotli hasharotlari faunasi keng qamrovli tahlil etilmagan boʻlib, ularning oʻrganilishi asosan ayrim agrotsenozlar entomofaunasini tadqiq etish borasidagi ilmiy izlanishlar tarkibida, shuningdek, bir nechta turlar misolida olib borilgan. Xususan, respublikamizning mevali bogʻlar zararkunanda tangachaqaqnotlilarini oʻrganishga oid tadqiqotlarda (Yusupov, 2016) bir qator turlarni Fargʻona viloyati hududlarida uchrashi qayd etilgan [2]. Markaziy Fargʻonaning sabzavot-poliz ekinlari entomofaunasiga bagʻishlangan soʻnggi tadqiqotlarda (Zokirov, 2019) tangachaqaqnotli hasharotlarning mazkur hudud agrotsenozlarida tutgan oʻrni batafsil yoritib berilgan [3]. Alohida turlarni oʻrganishga qaratilgan tadqiqotlar tengsiz ipakchi (Xamdami-zada, 1972), tut odimchisi (Sultanov, 1985), tut parvonasini (Shermatov, 2010) oʻrganishga bagʻishlangan ishlar bilan chegaralangan. Shuningdek, Markaziy Osiyo mintaqasi va Oʻzbekiston hududi entomofaunasiga doir baʼzi ilmiy manbalarda tangachaqaqnotli hasharotlarni Fargʻona vodiysi hududlarida uchrashiga oid umumiy maʼlumotlar mavjud [4].

Tadqiqot ishlari 2012-2023-yillar davomida Fargʻona, Andijon va Namangan viloyatlari hududlaridagi mevali bogʻlar, moyli, ozuqa va texnik ekinlar, gʻalla va dukkakli don ekinlari hamda sabzavot-poliz ekinlari agrotsenozlarida olib borildi.

Agroekotizimlarda tangachaqaqnotli hasharotlarni kuzatish ishlari butun vegetatsiya davomida doimiy kuzatish nuqtalarida har 7-10 kunda, marshrutlar boʻyicha esa, oyiga 2-3 martadan amalga oshirildi.

Namunalarni qayta ishlash, kolleksiya tayyorlash va ularni saqlash jarayonida V.B.Golub (2012), M.I.Shapovalov (2021)lar tomonidan ishlab chiqilgan uslublar va tavsiyalardan foydalanildi [5; 6]. Turlarni klassik morfologik hamda genitaliya asosida identifikatsiya qilish Fargʻona davlat universitetining Zoologiya va umumiy biologiya kafedrasida laboratoriyasida amalga oshirildi. Molekulyar-genetik tahlillar Xitoyning Chengdu shahridagi Sichuan Normal University "Entomologiya" laboratoriyasi hamda "BGI Genomics Co., Ltd" laboratoriyasi olimlari bilan hamkorlikda oʻtkazildi.

NATIJA VA MUHOKAMA

Olib borilgan tadqiqotlar va faunistik tahlillar natijalari asosida, Fargʻona vodiysi agroekotizimlarida qishloq xoʻjalik ekinlari bilan trofik aloqada boʻlgan tangachaqaqnotli hasharotlar (Lepidoptera) turkumining 15 ta katta oilasiga mansub 25 oila 116 avlodini 158 turi uchrashligi qayd etildi. Taksonomik ketma-ketlik S.Yu.Sinyovning zamonaviy sistemasi (2019) asosida shakllantirildi [7].

Quyida ushbu hasharotlarning tur tarkibi sistematik ketma-ketlik boʻyicha keltirilgan:

NEPTICULOIDEA**Nepticulidae (Stainton, 1854) – kichik kuyalar oilasi***Stigmella* Schrank, 1802 **avlodi**

- 1.
- Stigmella maloidica*
- Puplesis, 1991
- Δ

INCURVARIOIDEA**Heliozelidae (Heinemann & Wocke, 1876) – metalsimon (yaltiroq) kuyalar oilasi***Holocacista* Walsingham & Durrant, 1909 **avlodi**

- 2.
- Holocacista rivillei*
- Stainton, 1855
- $\blacktriangle$

GRACILLARIOIDEA**Gracillariidae (Stainton, 1854) – o‘miz qanotli kuyalar oilasi***Phyllocnistis* Zeller, 1848 **avlodi**

- 3.
- Phyllocnistis citrella*
- Stainton, 1856
- Δ

YPONOMEUTOIDEA**Yponomeutidae (Stephens, 1829) – haqiqiy tog‘ oldi kuyalar oilasi***Yponomeuta* Latreille, 1796 **avlodi**

- 4.
- Yponomeuta malinellus*
- Zeller, 1838
- Δ

- 5.
- Y. padellus*
- Linnaeus, 1758
- Δ

Plutellidae (Guenée, 1845) – o‘roqsimon qanotli kuyalar oilasi*Plutella* Schrank, 1802 **avlodi**

- 6.
- Plutella xylostella*
- Linnaeus, 1758
- Δ

Lyonetiidae (Stainton, 1854) – tor qanotli kuyalar oilasi*Lyonetia* Hübner, 1825 **avlodi**

- 7.
- Lyonetia clerkella*
- Linnaeus, 1758
- Δ

Leucoptera Hübner, 1825 **avlodi**

- 8.
- Leucoptera malifoliella*
- Costa, 1836
- Δ

GELECHIOIDEA**Depressariidae (Meyrick, 1883) – yassi kuyalar oilasi***Depressaria* Haworth, 1811 **avlodi**

- 9.
- Depressaria depressana*
- Fabricius, 1775
- Δ

Coleophoridae (Bruand, 1850) – g‘ilofli kuyalar oilasi*Coleophora* Hübner, 1822 **avlodi**

- 10.
- Coleophora hemerobiella*
- Scopoli, 1763
- Δ

Gelechiidae (Stainton, 1854) – o‘yiq qanotli kuyalar oilasi*Platyedra* Meyrick, 1895 **avlodi**

- 11.
- Platyedra subcinerea*
- Haworth, 1828
- Δ

Phthorimaea Meyrick, 1902 **avlodi**

- 12.
- Phthorimaea operculella*
- Zeller, 1873
- Δ

Tuta Kieffer & Jorgensen, 1910 **avlodi**

- 13.
- Tuta absoluta*
- Meyrick, 1917
- Δ

Recurvaria Haworth, 1828 **avlodi**

- 14.
- Recurvaria nanella*
- Denis & Schiffermüller, 1775
- Δ

Schneidereria Weber, 1957 **avlodi**

- 15.
- Schneidereria pistaciella*
- Weber, 1957
- Δ

Anarsia Zeller, 1839 **avlodi**

- 16.
- Anarsia lineatella*
- Zeller, 1839
- Δ

CHOREUTOIDEA**Choreutidae (Stainton, 1858) – barg o‘rovchi kuyalar oilasi***Choreutis* Hübner, 1825 **avlodi**

- 17.
- Choreutis nemorana*
- Hübner, 1799
- Δ

TORTRICOIDEA**Tortricidae (Latreille, 1802) – barg o‘rovchilar oilasi***Sparganothis* Hübner, 1825 **avlodi**

- 18.
- Sparganothis pilleriana*
- Denis & Schiffermüller, 1775 *
- Δ

Archips Hübner, 1822 **avlodi**

- 19.
- Archips xylosteana*
- Linnaeus, 1758
- Δ

- 20.
- A. crataegana*
- Hübner, 1799
- Δ

- 21.
- A. rosana*
- Linnaeus, 1758 *
- Δ

Argyrotaenia Stephens, 1852 **avlodi**

- 22.
- Argyrotaenia ljungiana*
- Thunberg, 1797
- $\blacktriangle$

Pandemis Hubner, 1825 **avlodi**

- 23.
- Pandemis chondrillana*
- Herrich-Schäffer, 1860
- Δ

- 24.
- P. cerasana*
- Hübner, 1786 **
- Δ

Syndemis Hübner, 1825 **avlodi**

- 25.
- Syndemis musculana*
- Hübner, 1799
- $\blacktriangle$

Adoxophyes Meyrick, 1881 **avlodi**

- 26.
- Adoxophyes orana*
- Fischer von Röslerstamm, 1834
- Δ

Ancylis Hübner, 1825 **avlodi**

- 27.
- Ancylis achatana*
- Denis & Schiffermüller, 1775
- $\blacktriangle$

- 28.
- A. comptana*
- Frölich, 1828
- Δ

Lobesia Guenée, 1845 **avlodi**

- 29.
- Lobesia botrana*
- Denis & Schiffermüller, 1775
- Δ

Enarmonia Hübner, 1825 **avlodi**

- 30.
- Enarmonia formosana*
- Scopoli, 1763
- Δ

Spilonota Stephens, 1834 **avlodi**

- 31.
- Spilonota ocellana*
- Denis & Schiffermüller, 1775
- Δ

Notocelia Hübner, 1825 **avlodi**

- 32.
- Notocelia cynosbatella*
- Linnaeus, 1758
- $\blacktriangle$

Grapholita Treitschke, 1829 **avlodi**

- 33.
- Grapholita funebrana*
- Treitschke, 1835
- Δ

- 34.
- G. janthinana*
- Duponchel, 1843
- $\blacktriangle$

- 35.
- G. molesta*
- Busck, 1916
- Δ

Cydia Hübner, 1825 **avlodi**

- 36.
- Cydia pomonella*
- Linnaeus, 1758
- Δ

- 37.
- C. pyrivora*
- Danilevsky, 1947
- Δ

Acleris Hübner, 1825 **avlodi**

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38. *Acleris variegana* Denis & Shiffermüller, 1775 Δ

39. *A. holmiana* Linnaeus, 1758 ▲
Aethes Billberg, 1820 **avlodi**

40. *Aethes francillana* Fabricius, 1794 ** Δ
COSSOIDEA

Cossidae (Leach, 1815) – daraxt tanaxoʻrlari oilasi

Cossus Fabricius, 1793 **avlodi**

41. *Cossus cossus* Linnaeus, 1758 Δ

SESIOIDEA

Sesiidae (Boisduval, 1828) – oynachilar oilasi

Synanthedon Hübner, 1819 **avlodi**

42. *Synanthedon tipuliformis* Clerck, 1759 Δ

PYRALOIDEA

Pyralidae (Latreille, 1809) parvona kapalaklar oilasi

Oncocera Stephens, 1829 **avlodi**

43. *Oncocera semirubella* Scopoli, 1763 ** Δ

Euzophora Zeller, 1867 **avlodi**

44. *Euzophora punicaella* Moore, 1891 Δ

Ancylosis Zeller, 1839 **avlodi**

45. *Ancylosis hellenica* Staudinger, 1871 ** Δ

Homoeosoma Curtis, 1833 **avlodi**

46. *Homoeosoma nebulella* Denis & Schiffermüller, 1775 Δ

Coenochroa Ragonot, 1887 **avlodi**

47. *Coenochroa ablutella* Zeller, 1839 ** Δ

Nyctegretis Zeller, 1848 **avlodi**

48. *Nyctegretis lineana* Scopoli, 1786 ** Δ

Etiella Zeller, 1839 **avlodi**

49. *Etiella zinckenella* Treitschke, 1832 ** Δ

Crambidae (Latreille, 1810) – oʻtloq parvonalar oilasi

Euchromius Guenée, 1845 **avlodi**

50. *Euchromius ocella* Haworth, 1811 ** Δ

Evergestis Hübner, 1825 **avlodi**

51. *Evergestis frumentalis* Linnaeus, 1761 ** Δ

52. *E. desertalis* Hubner, 1813 *** Δ

53. *E. extimalis* Scopoli, 1763 ** Δ

Loxostege Hübner, 1825 **avlodi**

54. *Loxostege sticticalis* Linnaeus, 1761 * Δ

55. *L. leuconuralis* Hampson, 1908 ** Δ

Achyra Walker, 1849 **avlodi**

56. *Achyra nudalis* Hubner, 1796 Δ

Ostrinia Hübner, 1825 **avlodi**

57. *Ostrinia nubilalis* Hübner, 1796 Δ

58. *O. kasmirica* Moore, 1888 * Δ

59. *O. narynensis* Mutuura & Munroe, 1970

▲

Udea Guenée, 1845 **avlodi**

60. *Udea prunalis* Denis & Schiffermüller, 1775 Δ

61. *U. ferrugalis* Hübner, 1796 ** Δ
Glyphodes Guenée, 1854 **avlodi**

62. *Glyphodes pyloalis* Walker, 1859 Δ
Hellula Guenée, 1854 **avlodi**

63. *Hellula undalis* Fabricius, 1794 *** Δ
Nomophila Hübner, 1825 **avlodi**

64. *Nomophila noctuella* Denis & Schiffermüller, 1775 ** Δ

PAPILIONOIDEA

Pieridae (Swainson, 1820) – oqish kapalaklar oilasi

Aporia Hübner, 1819 **avlodi**

65. *Aporia crataegi* Linnaeus, 1758 Δ

Pieris Schrank, 1801 **avlodi**

66. *Pieris brassicae* Linnaeus, 1758 Δ

67. *P. rapae* Linnaeus, 1758 Δ

68. *P. napi* Linnaeus, 1758 * Δ

Pontia Fabricius, 1807 **avlodi**

69. *Pontia daplidice* Linnaeus, 1758 * Δ

Colias Fabricius, 1807 **avlodi**

70. *Colias erate* Esper, 1805 * Δ

Lycaenidae (Leach, 1815) – koʻk kapalaklar oilasi

Lampides Hübner, 1819 **avlodi**

71. *Lampides boeticus* Linnaeus, 1767 Δ

Celastrina Tutt, 1906 **avlodi**

72. *Celastrina argiolus* Linnaeus, 1758 Δ

Polyommatus Latreille, 1804 **avlodi**

73. *Polyommatus icarus napaea* Grun-Grshimailo, 1891 ** Δ

GEOMETROIDEA

Geometridae (Leach, 1815) – odimchi kapalaklar oilasi

Opisthograptis Hübner, 1823 **avlodi**

74. *Opisthograptis luteolata* Linnaeus, 1758 Δ

Biston Leach, 1815 **avlodi**

75. *Biston betularia* Linnaeus, 1758 Δ

Pterotocera Staudinger, 1882 **avlodi**

76. *Pterotocera armeniacae* Djakonov, 1949 Δ

Apocheima Hübner, 1825 **avlodi**

77. *Apocheima cinerarius* Erschoff, 1874 Δ

Abraxas Leach, 1815 **avlodi**

78. *Abraxas grossulariata* Linnaeus, 1758 ▲

Isturgia Hübner, 1823 **avlodi**

79. *Isturgia arenacearia* Denis & Schiffermüller, 1775 ** Δ

Phaioграмма Gumpfenberg, 1887 **avlodi**

80. *Phaioграмма etruscaria* Zeller, 1849 ** Δ

Operophtera Hübner, 1825 **avlodi**

81. *Operophtera brumata* Linnaeus, 1758 Δ
Scopula Schrank, 1802 **avlodi**
82. *Scopula ochraceata* Staudinger, 1901 ** Δ

LASIOCAMPOIDEA**Lasiocampidae (Harris, 1841) – ipakchi kapalaklar oilasi**

- Malacosoma* Hübner, 1820 **avlodi**
83. *Malacosoma neustria* Linnaeus, 1758 Δ
84. *M. parallela* Staudinger, 1887 ▲

BOMBYCOIDEA katta oilasi**Sphingidae (Latreille, 1802) – arvoh kapalaklar oilasi**

- Laothoe* Fabricius, 1807 **avlodi**
85. *Laothoe populi* Linnaeus, 1758 * Δ
Smerinthus Latreille, 1802 **avlodi**
86. *Smerinthus kindermannii* Lederer, 1857 * Δ

Hyles Hübner, 1819 **avlodi**

87. *Hyles livornica* Esper, 1780 * Δ
Theretra Hübner, 1819 **avlodi**
88. *Theretra alecto* Linnaeus, 1758 * Δ

NOCTUOIDEA**Lymantriidae (Hampson, 1893) – to'liqinqanotlilar oilasi**

- Lymantria* Hübner, 1819 **avlodi**
89. *Lymantria dispar* Linnaeus, 1758 Δ
Euproctis Hübner, 1819 **avlodi**
90. *Euproctis kargalika* Moore, 1878 * Δ

Arctiidae (Leach, 1815) – ayiqqlilar oilasi

- Phragmatobia* Stephens, 1828 **avlodi**
91. *Phragmatobia fuliginosa* Linnaeus, 1758 * Δ

Erebidae (Leach, 1815) – erebidlar oilasi

- Acantholipes* Lederer, 1857 **avlodi**
92. *Acantholipes regularis* Hübner, 1813 ▲
Dysgonia Hubner, 1823 **avlodi**
93. *Dysgonia algira* Linnaeus, 1767 * Δ
94. *D. rogenhoferi* Bohatsch, 1880 * Δ
95. *D. torrida* Guenée, 1852 ** Δ
Grammodes Guenée, 1852 **avlodi**
96. *Grammodes stolidia* Fabricius, 1775 ** Δ
Anumeta Walker, 1858 **avlodi**
97. *Anumeta fractistrigata* Alpheraky, 1882 * Δ

Nolidae (Bruand, 1847) – kichik ipakchilar oilasi

- Garella* Walker, 1863 **avlodi**
98. *Garella musculana* Erschoff, 1874 Δ
Nola Leach, 1815 **avlodi**
99. *Nola aerugula* Hübner, 1793 * Δ
Arcyophora Guenée, 1852 **avlodi**
100. *Arcyophora dentula* Lederer, 1869 * Δ

Noctuidae (Latreille, 1809) – tunlam kapalaklar oilasi

- Trichoplusia* McDunnough, 1944 **avlodi**
101. *Trichoplusia ni* Hubner, 1803 * Δ
Chrysodeixis Hübner, 1821 **avlodi**
102. *Chrysodeixis chalcites* Esper, 1789 * Δ
Macdunnoughia Kostrowicki, 1961 **avlodi**
103. *Macdunnoughia confusa* Stephens, 1850 * Δ
Diachrysia Hübner, 1821 **avlodi**
104. *Diachrysia chrysis* Linnaeus, 1758 Δ
Autographa Hübner, 1821 **avlodi**
105. *Autographa gamma* Linnaeus, 1758 Δ
Cornutiplusia Kostrowicki, 1961 **avlodi**
106. *Cornutiplusia circumflexa* Linnaeus, 1767 Δ
Plusia Ochsenheimer, 1816 **avlodi**
107. *Plusia festucae* Linnaeus, 1758 ▲
Acontia Ochsenheimer, 1816 **avlodi**
108. *Acontia trabealis* Scopoli, 1763 * Δ
Armada Staudinger, 1884 **avlodi**
109. *Armada panaceorum* Ménétriés, 1849 ▲
Acronicta Ochsenheimer, 1816 **avlodi**
110. *Acronicta psi* Linnaeus, 1758 * Δ
111. *A. rumicis* Linnaeus, 1758 * Δ
Tyta Billberg, 1820 **avlodi**
112. *Tyta luctuosa* Denis & Schiffermüller, 1775 * Δ
Cucullia Schrank, 1802 **avlodi**
113. *Cucullia biornata* Fischer de Waldheim 1840 ▲
114. *C. splendida* Stoll, 1782 ▲
Schinia Hübner, 1823 **avlodi**
115. *Schinia scutosa* Denis & Schiffermüller, 1775 Δ
Heliothis Ochsenheimer, 1816 **avlodi**
116. *Heliothis virescens* Hufnagel, 1766 Δ
117. *H. nubigera* Herrich-Schäffer, 1851 * Δ
118. *Heliothis peltigera* Denis & Schiffermüller, 1775 * Δ
119. *H. maritima* Graslin, 1855 * Δ
Helicoverpa Hardwick, 1965 **avlodi**
120. *Helicoverpa armigera* Hubner, 1808 Δ
Spodoptera Guenée, 1852 **avlodi**
121. *Spodoptera exigua* Hübner, 1808 Δ
Hydraecia Guenée, 1841 **avlodi**
122. *Hydraecia micacea* Esper, 1789 Δ
Amphipoea Billberg, 1820 **avlodi**
123. *Amphipoea fucosa* Freyer, 1830 ▲
Oria Hübner, 1821 **avlodi**
124. *Oria muscosa* Hübner, 1808 * Δ
Mesapamea Heinicke, 1959 **avlodi**
125. *Mesapamea secalis* Linnaeus, 1758 ▲

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- Apamea* Ochsenheimer, 1816 **avlodi**
 126. *Apamea sordens* Hufnagel, 1766 * Δ
 127. *A. anceps* Denis & Schiffermüller, 1775 * Δ
Sesamia Guenée, 1852 **avlodi**
 128. *Sesamia cretica* Lederer, 1857 Δ
Cosmia Ochsenheimer, 1816 **avlodi**
 129. *Cosmia pyralina* Denis & Schiffermüller, 1775 ▲
 130. *C. subtilis* Staudinger, 1888 Δ
 131. *C. trapezina* Linnaeus, 1758 * Δ
Pseudohadena Alphéraky, 1889 **avlodi**
 132. *Pseudohadena indigna* Christoph 1887 ▲
Anarta Ochsenheimer, 1816 **avlodi**
 133. *Anarta trifolii* Hufnagel, 1766 Δ
Cardepi Hampson, 1905 **avlodi**
 134. *Cardepi sociabilis* Graslin, 1850 Δ
Lacanobia Billberg, 1820 **avlodi**
 135. *Lacanobia oleracea* Linnaeus, 1758 Δ
 136. *L. suasa* Denis & Schiffermüller, 1775 Δ
Mamestra Ochsenheimer, 1816 **avlodi**
 137. *Mamestra brassicae* Linnaeus, 1758 Δ
Mythimna Ochsenheimer, 1816 **avlodi**
 138. *Mythimna vitellina* Hübner 1808 Δ
 139. *M. l-album* Linnaeus, 1767 Δ
 140. *M. unipuncta* Haworth, 1809 Δ
Leucania Ochsenheimer, 1816 **avlodi**
 141. *Leucania loreyi* Duponchel, 1827 Δ
 142. *L. zae* Duponchel, 1827 Δ
Euxoa Hübner, 1821 **avlodi**
 143. *Euxoa conspicua* Hübner, 1827 Δ
 144. *E. tritici* Linnaeus, 1761 Δ
 145. *E. temera* Hubner, 1808 ▲
146. *E. cursoria* Hufnagel, 1766) Δ
Dichagyris Lederer, 1857 **avlodi**
 147. *Dichagyris flammata* Denis & Schiffermüller, 1775 ▲
Agrotis Ochsenheimer, 1816 **avlodi**
 148. *A. crassa* Hübner, 1803 * Δ
 149. *A. exclamatoris* Linnaeus, 1758 Δ
 150. *A. ipsilon* Hufnagel, 1766 Δ
 151. *A. obesa* Boisduval, 1829 Δ
 152. *A. segetum* Denis & Schiffermüller, 1775 Δ
Noctua Linnaeus, 1758 **avlodi**
 153. *Noctua orbona* Hufnagel, 1766 Δ
 154. *N. pronuba* Linnaeus, 1758 Δ
Xestia Hübner, 1818 **avlodi**
 155. *Xestia c-nigrum* Linnaeus, 1758 Δ
 156. *X. xanthographa* Denis & Schiffermüller, 1775 Δ
 157. *X. baja* Denis & Schiffermüller, 1775 Δ
Hoplodrina Boursin, 1937 **avlodi**
 158. *Hoplodrina ambigua* Denis & Schiffermüller, 1775 * Δ

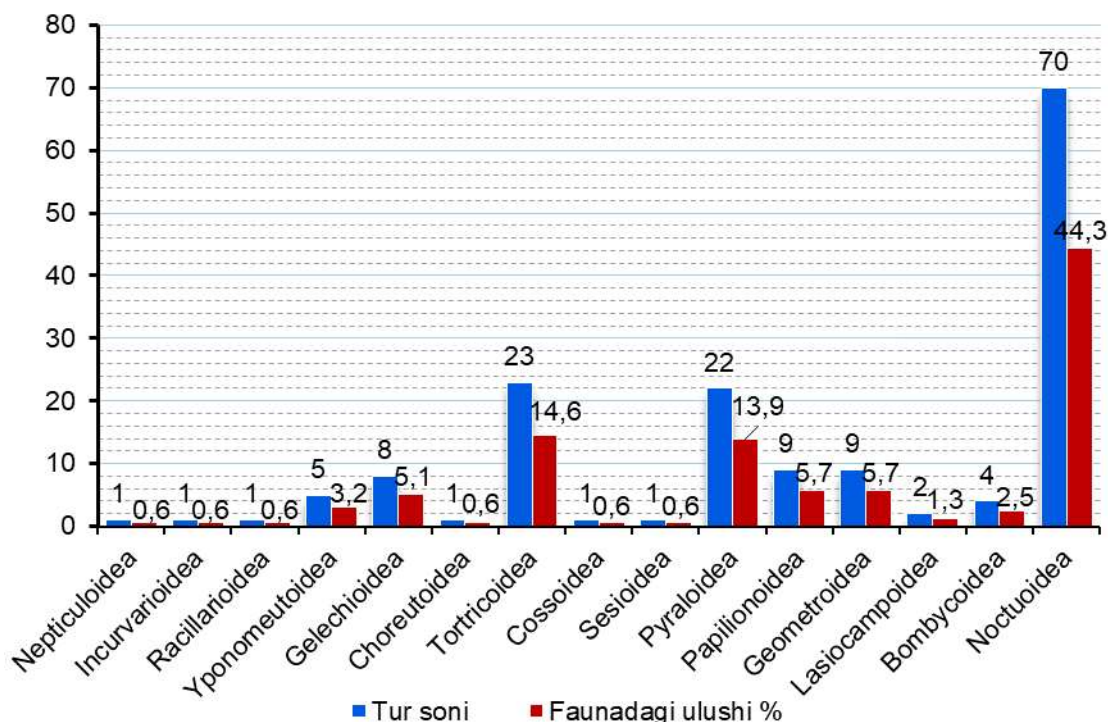
Izoh: Taksonomik ketma-ketlik
 S.Yu.Sinyovning zamonaviy sistemasi (2019) asosida shakllantirildi [42; 8-9-b.]. * - Farg'ona vodiysi entomofaunasida ilk bor uchratilgan turlar (34 ta); ** - O'zbekiston entomofaunasida ilk bor uchratilgan turlar (19 ta); *** - Markaziy Osiyo mintaqasida ilk bor uchratilgan turlar (2 ta), Δ-bevosita tadqiqotlarda uchratilgan turlar (137 ta), ▲-adabiyotlar asosida ro'yxatga kiritilgan turlar (21 ta).

Taksonomik tahlillarga ko'ra, Farg'ona vodiysi agroekotizimlarida tangachaqanotli hasharotlar turkumining Noctuoidea katta oilasi vakillari eng ko'p (70 ta) turga ega bo'lib, lepidopterofaunadagi ulushi (44,3%) jihatdan ham ustunlikka ega. Tortricidae (23 ta) va Pyralidae (22 ta) katta oilalarining bu boradagi ko'rsatkichlari mos ravishda 14,6% va 13,9% ga teng bo'lib, keyingi pog'onalarni egallaydi. Ushbu ko'rsatkichlar Geometroidea, Papilionoidea (9 tadan, 5,7%), Gelechioidea (8 ta, 5,1%), Yponomeutoidea (5 ta, 3,2%), Bombycoidea (4 ta, 2,5%), Lasiocampoidea (2 ta, 1,3%) katta oilalari ketma-ketligida pasayib boradi. Faunada eng kam ulushga (0,6%) ega bo'lgan Nepticuloidea, Incurvarioidea, Racillarioidea, Choreutoidea, Cossidae va Sesiidae katta oilalari monotipik bo'lib, 1 tadan turga ega (1-rasm).

Tangachaqanotli hasharotlarning oilalar bo'yicha taqsimlanishida ham Noctuidae oilasining vakillari yetakchilik qiladi. Jumladan, mazkur oilaga mansub 58 ta turlar lepidopterofaunaning 36,7% ni tashkil etadi. Turlar xilma-xilligiga muvofiq avlodlarning soni ham yuqori (36 ta) bo'lib, faunadagi ulushi 31% ga teng. Bu borada keyingi pog'onani Tortricidae oilasi vakillari egallaydi. Ushbu oilaning 15 ta avlodga mansub 23 ta turi agroekotizimlar oziqa zanjiridan o'rin egallagan bo'lib, faunadagi ulushi avlodlar bo'yicha 12,9% va tur soni bo'yicha 14,6% ga teng.

Crambidae, Geometridae, Pyralidae oilalarining vakillari ham nisbatan keng tarqalgan turlar sirasiga kiradi. Jumladan, Crambidae oilasining 9 ta avlodiga (7,8%) mansub 15 ta turi (9,5%), Geometridae oilasining 9 ta avlodiga (7,8%) mansub 9 ta turi (5,7%), Pyralidae oilasining 7 ta avlodiga (6%) mansub 7 ta turi (4,4%) mintaqa agroekotizimlarida qayd etildi. Erebidae, Pieridae,

Gelechiidae kabi oilalar 6 tadan turga ega bo'lib, lepidopterofaunadagi ulushlari mos holda 3,8% ga teng.



1-rasm. Tangachaqaqnotli hasharotlarni katta oilalar bo'yicha taqsimlanishi

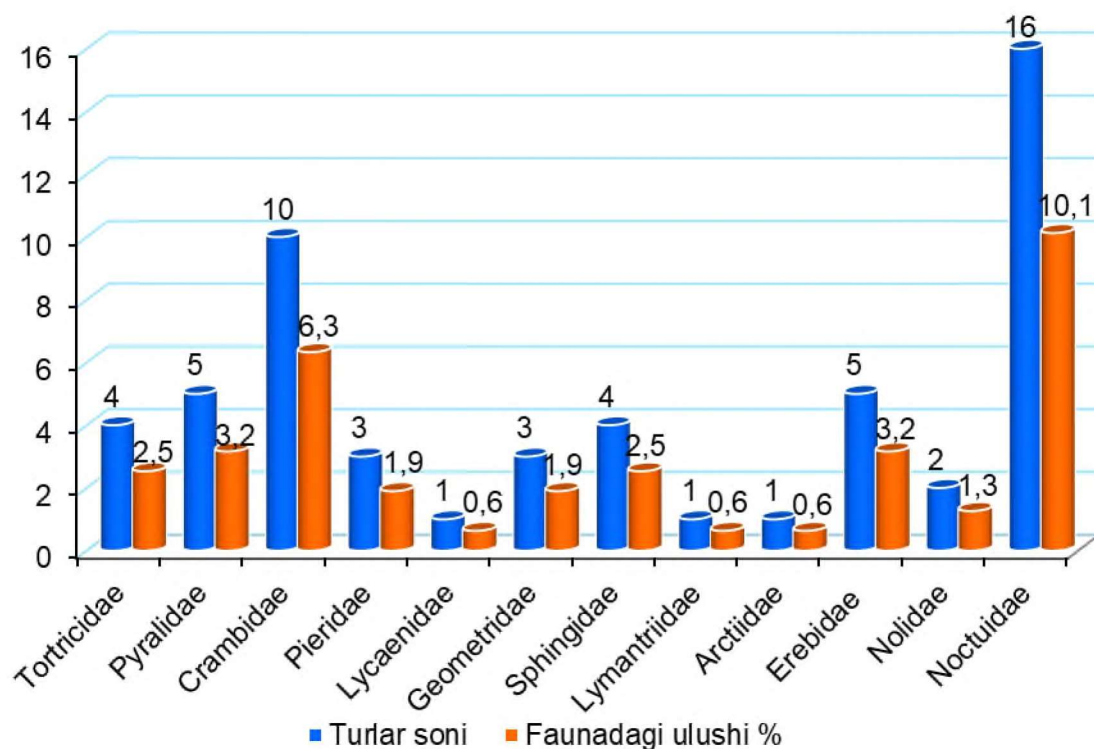
Faunistik tadqiqotlar natijasida Farg'ona vodiysi agroekotizimlarida tangachaqaqnotli hasharotlar turkumining madaniy o'simliklar bilan trofik aloqada bo'lgan 12 ta oilasini 46 avlodiga mansub 55 ta turi ilk bor uchratildi. Ushbu turlarning ulushi jami lepidopterofaunaga (158 taga) nisbatan 34,8% ni tashkil etadi. Turlarning oilalar kesimidagi taqsimoti va faunadagi ulushi tahlil etilganda, Noctuidae oilasidan 16 ta (10,1%), Crambidae oilasidan 10 ta (6,3%), Pyralidae, Erebidae oilalaridan 5 tadan (3,2% dan), Sphingidae, Tortricidae oilalaridan 4 tadan (2,5% dan), Pieridae, Geometridae oilalaridan 3 tadan (1,9% dan), Nolidae oilasidan 2 ta (1,3%), Arctiidae, Lymantriidae, Lycaenidae oilalaridan 1 tadan (0,6% dan) turlar uchraydi (2- rasm).

Faunistik tadqiqotlar, shu jumladan, yig'ilgan na'munalarning morfologik tahlillari hamda ilmiy adabiyotlarda keltirilgan ma'lumotlar asosida, O'zbekiston entomofaunasida tarqalgan hamda tadqiqot hududida ilgari uchratilmagan tangachaqaqnotli hasharotlarning 9 ta oila 29 ta avlodga mansub 34 ta turi Farg'ona vodiysi agroekotizimlarida ilk bor qayd etilgan turlar sifatida ro'yxatga olindi.

Shuningdek, O'zbekiston hududida ilgari uchratilmagan 6 ta oila (Tortricidae, Pyralidae, Crambidae, Lycaenidae, Geometridae, Erebidae)ning 18 ta avlodga mansub 19 ta turlari (*Pandemis cerasana*, *Aethes francillana*, *Oncocera semirubella*, *Etiella zinckenella*, *Coenochroa ablutella*, *Ancylosis hellenica*, *Nyctegretis lineana*, *Euchromius ocella*, *Evergestis frumentalis*, *E. extimalis*, *Udea ferrugalis*, *Loxostege leuconeuralis*, *Nomophila noctuella*, *Polyommatus icarus napaea*, *Phaiogramma etruscaria*, *Scopula ochraceata*, *Isturgia arenacearia*, *Grammodes stolda*, *Dysgonia torrida*) respublikamiz entomofaunasi uchun ilk bor qayd etilgan turlar qatorida ro'yxatga kiritildi.

Tadqiqot hududi agroekotizimlaridan yig'ilgan tangachaqaqnotli hasharotlarning Crambidae oilasiga mansub 2 ta turi (*Evergestis desertalis*, *Hellula undalis*) Markaziy Osiyo entomofaunasida avval qayd etilmagan.

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2-rasm. Farg'ona vodiysi agroekotizimlarida ilk bor uchratilgan tangachaqanotli hasharotlarning taksonomik tarkibi va faunadagi ulushi

XULOSA

Farg'ona vodiysi agroekotizimlarida tangachaqanotli hasharotlar turkumining 15 ta katta oilasiga mansub 25 oila 116 avlodini 158 turi qayd etildi. Tangachaqanotli hasharotlar orasida Noctuoidea katta oilasi vakillari eng ko'p 70 ta turga ega bo'lib, lepidopterofaunadagi ulushi 44,3% ni tashkil etadi. Oilalar bo'yicha ham Noctuidae oilasi yetakchilik qiladi (58 ta tur, ulushi 36,7%). Tangachaqanotli hasharotlarning 12 ta oila 46 avlodga mansub 55 ta turlari Farg'ona vodiysi agroekotizimlarida tadqiqot hududi uchun ilk marta aniqlandi. Ular orasida 19 ta tur O'zbekiston entomofaunasi uchun, 2 ta tur Markaziy Osiyo entomofaunasi uchun ilk bor qayd etildi.

ADABIYOTLAR RO'YXATI

1. Shermatov M.R., Mirzayeva Z., Sotvoldiyeva G. Global iqlim o'zgarishini zararkunanda tangachaqanotlilar (Insecta: Lepidoptera) populyatsiyalariga ta'siriga oid // "Ilm-zakovatimiz – senga, ona-Vatan!" mavzusidagi Respublika onlayn ilmiy-amaliy anjuman materiallari. –Farg'ona, 2022. –B. 8-9.
2. Юсупов. А.Х. Мевали боғлар тангачақанотлилари (Insecta, Lepidoptera) биоэкологияси ва уларнинг сонини бошқариш: Қ/х. фан. докт. ...дисс. автореф. –Тошкент, 2016. - 73 б.
3. Зокиров И.И. Марказий Фарғонанинг сабзавот-полиэкинлари ҳашаротлари фаунаси ва экологияси: Биол. фан. докт. (DSc) дисс.. – Тошкент, 2019. - 313 б.
4. Shermatov M.R. Farg'ona vodiysi agroekotizimlari tangachaqanotli hasharotlari (Insecta, Lepidoptera): Biol. fan. dokt. (DSc) diss.. – Toshkent, 2024. - 447 b.
5. Голуб В.Б., Цуриков М.Н., Прокин А.А. Коллекции насекомых: сбор, обработка и хранение материала. –М.: Товарищество научных изданий КМК, 2012. –339 с.
6. Шаповалов М.И. Энтомологическая коллекция: Учебное пособие. –Майкоп: изд-во АГУ, 2021. – 52 с.
7. Синёв С.Ю. Каталог чешуекрылых (Lepidoptera) России (Второе издание). – Санкт-Петербург: Зоологический институт РАН, 2019. - 448 с.