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**FARG‘ONA SHAHRI DENDROFAG TANGACHAQANOTLILARINING
(INSECTA, LEPIDOPTERA) OZUQA SPEKTRI VA EKOLOGIK
GURUHLARI**

**ПИЩЕВОЙ СПЕКТР И ЭКОЛОГИЧЕСКИЕ ГРУППЫ
ЧЕШУЕКРЫЛЫХ - ДЕНДРОФАГОВ (INSECTA, LEPIDOPTERA)
ГОРОДА ФЕРГАНА**

**FOOD SPECTRUM AND ECOLOGICAL GROUPS OF
LEPIDOPTHER - DENDROPHAGES (INSECTA, LEPIDOPTERA) OF
THE CITY OF FERGANA**

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Annotatsiya

Maqolada Farg‘ona shahri dendrofag tangachaqanotlilarining 16 ta (53,3%) turlari polifag, 13 ta (43,3%) turlari oligofag, 1 ta (3,3%) tur esa, monofag ekanligi qayd etilgan. Dendrofag tangachaqanotlilarning 10 ta turi bahorgi-yozgi, 6 ta turi yozgi, 3 ta turi yozgi-kuzgi, 11 ta turi bahorgi-yozgi-kuzgi fenologik guruhga mansub ekanligi aniqlangan. Dendrofag tangachaqanotlilarning 15 ta (50%) turlari mezofil, 6 ta (20%) turlari evribiont, 9 ta (30%) turlari gemikserofil turlardan iborat.

Kalit so‘zlar: Farg‘ona shahri, tangachaqanotlilar, kapalak, dendrofag, urbanizatsiya, ozuqa spektri, fenologiya, polifag, mezofil.

Abstract

In the article, it is noted that 16 (53.3%) species of lepidopther - dendrophages of Fergana city are polyphagous, 13 (43.3%) species are oligophagous, and 1 (3.3%) species is monophagous. It was determined that 10 species of lepidopther - dendrophages belong to the spring-summer, 6 belong to the summer, 3 belong to the summer-autumn, and 11 belong to the spring-summer-autumn phenological groups. 15 (50%) species of lepidopther - dendrophages are mesophilic, 6 (20%) species are eurybionts, and 9 (30%) species are hemixerophilous species.

Key words: Fergana city, Lepidoptera, butterfly, dendrophagus, urbanization, food spectrum, phenology, polyphagous, mesophilic.

KIRISH. Farg'ona shahrining manzarali va mevali daraxtlari dendrofag tangachaqaqanotlilar uchun o'ziga xos yashash joyidir. Shuni alohida ta'lidlash lozim-ki, mazkur ekotizimlarda texnogen ifloslanishlarning yuqori ta'siri oqibatida ozuqa o'simliklarning fiziologik zaiflashishi, parazitlar va yirtqichlar bosimining pasayishi texnogen ta'sirlarga chidamli bo'lgan zararkunada turlar populyatsiyasining ko'payishiga yordam beradi. Shahardagi yashil maydonlarning "orolsimon" fazoviy tuzilishi natijasida populyatsiyalardagi individlarning hududlararo migratsiyasining qiyinligi, havoni ifloslantiruvchi moddalarning yashil maydonlarga ta'siri sababli ozuqa o'simliklari sifatining yomonlashishi va shahar sharoitlariga xos bo'lgan boshqa ta'sirlar dendrofag tangachaqaqanotlilar sonining kamayishiga va ayrim turlarning yo'q bo'lib ketishiga olib keladi.

Adabiyotlar tahlili. Xorijiy mamlakatlarda urbanizatsiyalashgan hududlarning dendrofag tangachaqaqanotli hasharotlarini o'rganishga qaratilgan tadqiqotlar Yaponiyaning markaziy qismidagi Tsukuba shahri istirohat bog'larida [15], Rossiyaning Sankt-Peterburg shahri istirohat bog'larida [8], Kanadaning Ontario shahridagi buzilayotgan eski mavzelar huududidagi istirohat bog'larda [13], Britaniya bog'larida [23], Katta Boston shahri [10] hamda Nyu-York shaharlaridagi istirohat bog'larida [14], Braziliyaning Kuritiba Parana shahridagi Botanika bog'i va Barreirinha istirohat bog'ida [9], Italiyaning urbanizatsiyalashgan hududlari istirohat bog'larida [11; 12; 17], Tokioning

izolyatsiyalangan yoki parchalangan shahar oʻrmonlarida [22], Pekin shahridagi (Xitoy) 10 ta shaharlarning istirohat bogʻlarida [16; 21], Fuchjou shahridagi toʻqqizta bogʻlarda [18] olib borilgan. Shuningdek, Ramírez va MacGregorlar shahar markazlarida tarqalgan kapalaklarning ekologik holatini aniqlash maqsadida, 37 ta mamlakat va 110 dan ortiq shaharlardan jami 173 ta tadqiqotlar, shu jumladan nashr etilgan maqolalar va tezislarni (1956-2015) jamlashgan. Yigʻilgan maʼlumotlarning tahlillariga koʻra, koʻpgina maqolalar (69%) ekologik mavzularga bagʻishlangan, 14% biologik muhofazaga va 17% ishlar turlar roʻyxatiga qaratilgan [19]. Umuman olganda, xorijiy mamalakatlarida olib borilgan tadqiqotlarning aksariyati shaharlardagi urbanizatsiya intensivligini kapalaklarning xilma-xilligiga taʼsirini oʻrganishga qaratilgan.

Oʻzbekiston entomofaunasiga bagʻishlangan bir qator ilmiy asarlarda ayrim tur dendrofag tangachaqanotlilar haqida maʼlumotlar keltirilgan. Jumladan, J.A.Azimov, D.A.Bekuzin, A.G.Davletshina, M.K.Kadirovalar hammaullifligidagi “Oʻzbekiston hasharotlari” nomli ilmiy asarda (1993) dendrofag tangachaqanotlilarning baʼzi turlari haqida maʼlumotlar berilgan [1].

V.V.Yaxontov (1962) [25], A.Yusupov (1998) [4], A.Sheraliyev (2001) [3], Sh.T.Xoʻjaev, E.A.Xolmurodov (2014) [24], M.X.Bekchanov (2019) [5], B.A.Sulaymonov, A.S Gʻozibekov (2020) [2], M.X.Bekchanova (2022) [7], X.Oʻ.Bekchanov (2023) [6], M.R.Shermatov (2010) [20] larning tadqiqotlari natijalarida ham denrofag tangachaqanotlilarning tabiiy landshaftlar hamda agrotsenozlarda tarqalgan turlari haqida maʼlumotlar uchraydi. Shunga qaramasdan, Oʻzbekistonda urbanizatsiyalashgan hududlarning dendrofag tangachaqanotli hasharotlarini oʻrganishga oid maqsadli tadqiqotlar olib borilmagan.

Material va tadqiqot uslublari. Namunalar Fargʻona shahrida joylashgan Ahmad al-Fargʻoniy nomidagi istirohat bogʻi, Islom Karimov nomidagi sanʼat saroyi hududi hamda Fargʻona davlat universiteti hududida oʻstirilayotgan manzarali daraxtlar va yashil maydonlardan yigʻildi. Kapalaklar asosan tunda sunʼiy yorugʻlik manbalari (gaz razryadli lampalar DRL 250, DRV 250)ga jalb

qilish orqali ushlandi. Yoritkichlar 2 m² xajmda bo'lgan, oq matodan tayyorlangan maxsus ekran oldida joylashtirildi. Ushbu matoga uchib kelgan kapalaklar maxsus idishlarga yig'ib olindi. Kunduzgi yoki kun davomida faol bo'lgan ba'zi turlar entomologik to'r yordamida ushlandi. Ertalab kapalaklarning ba'zi vakillari boshqa hasharotlar bilan birga ko'cha chiroqlari ostida to'planadi. Kechasi gullaydigan o'simliklarni ustida uchub yurgan kapalaklar entomologik to'r yordamida ushlandi.

Farg'ona shahrining istirohat bog'larida dendrofag tangachaqaqnotli hasharotlarning qurtlari oziqlanadigan 21 tur manzarali daraxtlar aniqlanib, ularning ro'yxati shakllantirildi hamda rivojlanish xususiyatlari va gullash fenologiyasiga oid ma'lumotlar to'plandi.

Olingan natijalar. Dendrofag tangachaqaqnotli hasharotlar qurtlarining ozuqa spektrini tahlil etish bo'yicha olib borgan tadqiqotlarimiz natijalari quyidagi jadvalda keltirilgan (1-jadval).

1-jadval

**Dendrofag tangachaqaqnotli hasharotlar qurtlarining
ozuqa spektri**

T/r	Lepidoptera tur nomi	Ozuqa o'simligining ilmiy nomlanishi	Ozuqa o'simligining maxalliy nomlanishi	Ozuqa ixtisosligi
1.	<i>Stigmella maloidica</i> Puplesis, 1991	<i>Cotoneaster integerrima</i>	Oddiy irg'ay	Oligofag
2.	<i>Yponomeuta padellus</i> Linnaeus, 1758	<i>Salix alba, Fraxinus excelgior, Salix babylonica, Quercus robur</i>	Oq tol, shumtol, majnuntol, eman	Oligofag
3.	<i>Lyonetia clerkella</i> Linnaeus, 1758	<i>Betula verrucosa, Castanae crenata, S.alba, F. excelgior, S.babylonica</i>	Qayin, soxta kashtan, oq tol, shumtol, majnuntol	Oligofag
4.	<i>Leucoptera malifoliella</i>	<i>Betula verrucosa, Castanae crenata</i>	Qayin, soxta kashtan	Oligofag

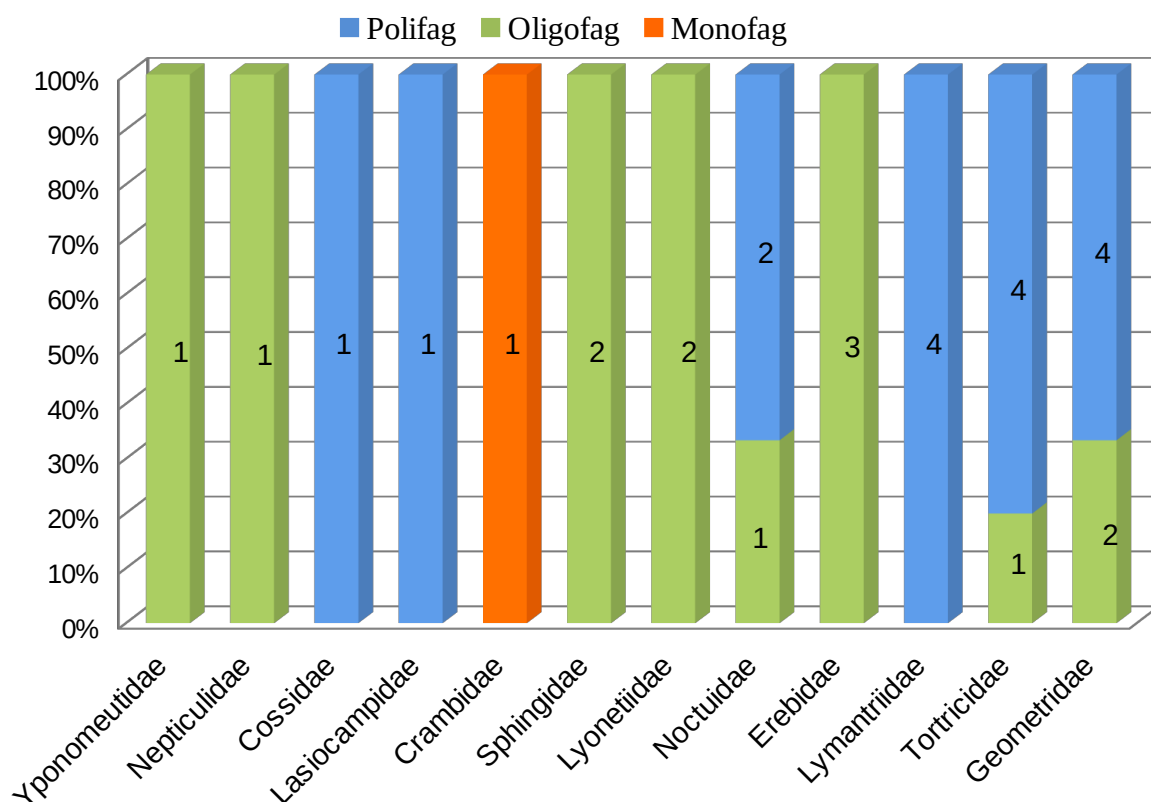
	Costa, 1836			
5.	<i>Acleris variegana</i> Denis & Shiffermuller, 1775	<i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Salix babylonica</i> , <i>Quercus robur</i>	Oq tol, shumtol, majnuntol, eman	Polifag
6.	<i>Pandemis chondrillana</i> Herrich-Schäffer, 1860	<i>S. alba</i> , <i>F. excelgior</i> , <i>S. babylonica</i> , <i>P. alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>P. candican</i> , <i>Q. robur</i>	Oq tol, shumtol, majnuntol, oq terak, ko'k terak, mirza terak, amerika teragi, eman	Polifag
7.	<i>Spilonota ocellana</i> Denis & Schiffermüller, 1775	<i>Quercus robur</i> , <i>Betula verrucosa</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Salix babylonica</i>	Eman, qayin, oq tol, shumtol, majnuntol	Oligofag
8.	<i>Archips crataegana</i> Hubner, 1796-1799	<i>Quercus robur</i> , <i>Populis alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>P. candican</i> , <i>S.alba</i> , <i>Fraxinus excelgior</i> , <i>Pinus</i> , <i>Tilia cordata</i> , <i>Platanus orientalis</i> , <i>C.oxycantha</i>	Eman, oq terak, ko'k terak, mirza terak, amerika teragi, oq tol, shumtol, qarag'ay, jo'ka, chinor, do'lana	Polifag
9.	<i>Archips xylosteana</i> Linnaeus, 1758	<i>Quercus robur</i> , <i>Tilia cordata</i> , <i>Platanus orientalis</i> , <i>Populis alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>P. candican</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Pinus pallasiana</i>	Eman, jo'ka, chinor, oq terak, ko'k terak, mirza terak, amerika teragi, oq tol, shumtol, qarag'ay	Polifag
10.	<i>Glyphodes pyloalis</i> Walker, 1859	<i>Morus multicanlis</i>	Majnun tut	Monofag
11.	<i>Cossus cossus</i> Linnaeus, 1758	<i>Ulmus suberosa</i> , <i>Betula verrucosa</i> , <i>Quercus robur</i> , <i>Platanus orientalis</i> , <i>Morus alba</i>	Po`kak qayrag`och, qayin, eman, chinor, tut, oblepixa	Polifag

12.	<i>Malacosoma neustria</i> Linnaeus, 1758	<i>Q. robur, B. verrucosa, S.alba, F.excelgior, S.babylonica, P.orientalis</i>	Eman, qayin, oq tol, shumtol, majnuntol, chinor	Polifag
13.	<i>Laothoe populi</i> Linnaeus, 1758	<i>P.alba, P. bachofenii, P. nigra, P. candican</i>	Oq terak, ko‘k terak, mirza terak, amerika teragi	Oligofag
14.	<i>Smerinthus kindermannii</i> Lederer, 1857	<i>Populis alba, P. bachofenii, P. nigra, P. candican, Salix alba, Fraxinus excelgior, Salix babylonica</i>	Oq terak, ko‘k terak, mirza terak, amerika teragi, oq tol, shumtol, majnuntol	Oligofag
15.	<i>Cabera pusaria</i> Linnaeus, 1758	<i>Q. robur, B.verrucosa, S. alba, F.excelgior, S.babylonica</i>	Eman, qayin, oq tol, shumtol, majnuntol	Polifag
16.	<i>Campaea margaritaria</i> Linnaeus, 1761	<i>Populis alba, P. bachofenii, P. nigra, P. candican, Salix alba, Fraxinus excelgior, Salix babylonica</i>	Oq terak, ko‘k terak, mirza terak, amerika teragi, oq tol, shumtol, majnuntol	Oligofag
17.	<i>Eulithis populata</i> Linnaeus, 1758	<i>Populis alba, P. bachofenii, P. nigra, P. candican, Salix alba, Fraxinus excelgior, Salix babylonica, Quercus robur, Betula verrucosa</i>	Oq terak, ko‘k terak, mirza terak, amerika teragi, oq tol, shumtol, majnuntol, eman, qayin	Oligofag
18.	<i>Opisthograptis luteolata</i> Linnaeus, 1758	<i>S. alba, F. excelgior, Salix babylonica, Crataegus oxyacantha</i>	Oq tol, shumtol, majnuntol, do‘lana	Polifag
19.	<i>Amphidasis betularia</i> Linnaeus, 1758	<i>Quercus robur, Populis alba, P. bachofenii, P. nigra, Betula verrucosa, Tilia cordata , Albizzia julibrissima</i>	Qayin, oq terak, ko‘k terak, mirza terak, eman, lipa, akatsiya	Polifag

20.	<i>Ourapteryx sambucaria</i> Linnaeus, 1758	<i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>S. babylonica</i> , <i>Crataegus oxyacantha</i>	Oq tol, shumtol, majnuntol, do'lana	Polifag
21.	<i>Lymantria dispar</i> Linnaeus, 1758	<i>Quercus robur</i> , <i>Populis alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>Betula verrucosa</i> , <i>Tilia cordata</i> , <i>Albizzia julibrissima</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Salix babylonica</i> , <i>Betula verrucosa</i> , <i>Platanus orientalis</i>	Qayin, oq terak, ko'k terak, mirza terak, eman, lipa, akatsiya, oq tol, shumtol, majnuntol, chinor, qayrag`och	Polifag
22.	<i>Euproctis kargalika</i> Moore, 1878	<i>Populis alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>Quercus robur</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>S. babylonica</i>	Oq terak, ko'k terak, mirza terak, eman, oq tol, shumtol, majnuntol	Polifag
23.	<i>Euproctis chrysorrhoea</i> Linnaeus, 1758	<i>Ulmus suberosa</i> , <i>Quercus robur</i> , <i>Platanus orientalis</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i>	Chinor, qayrag`och, eman, oq tol, shumtol	Polifag
24.	<i>Leucoma salicis</i> Linnaeus, 1758	<i>Populis alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>P. candican</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Salix babylonica</i>	Oq terak, ko'k terak, mirza terak, amerika teragi, oq tol, shumtol, majnuntol	Polifag
25.	<i>Dysgonia algira</i> Linnaeus, 1767	<i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>S. babylonica</i>	Oq tol, shumtol, majnuntol	Oligofag
26.	<i>Grammodes stolidia</i> Fabricius, 1775	<i>Quercus robur</i>	Eman	Oligofag
27.	<i>Drasteria cailino</i> Lefèbvre, 1827	<i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>S. babylonica</i>	Oq tol, shumtol, majnuntol	Oligofag
28.	<i>Acronicta psi</i> Linnaeus, 1758	<i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>B. verrucosa</i>	Oq tol, shumtol, qayin	Oligofag

29.	<i>Cosmia pyralina</i> Denis & Schiffermüller, 1775	<i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Quercus robur</i>	Oq tol, shumtol, eman	Polifag
30.	<i>Cosmia trapezina</i> Linnaeus, 1758	<i>Populis alba</i> , <i>P. bachofenii</i> , <i>P. nigra</i> , <i>Salix alba</i> , <i>Fraxinus excelgior</i> , <i>Platanus orientalis</i> , <i>Quercus robur</i>	Oq terak, ko'k terak, mirza terak, oq tol, shumtol, qayrag'och, eman	Polifag

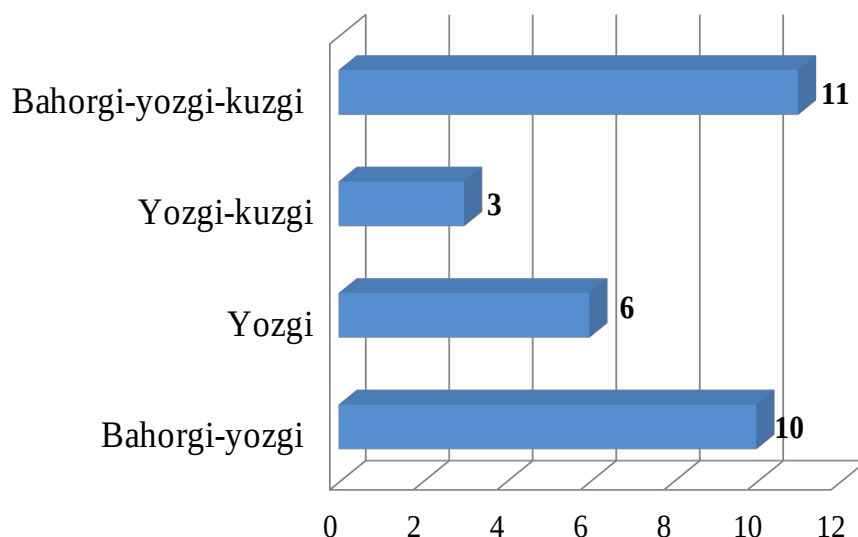
Tahlillar natijasida, Farg'ona shahrining manzarali daraxtlari bilan trofik aloqaga ega bo'lgan tangachaqanotli hasharotlarning 16 ta (53,3%) turlari (*Acleris variegana*, *Pandemis chondrillana*, *Archips crataegana*, *Archips xylosteana*, *Cossus cossus*, *Malacosoma neustria*, *Cabera pusaria*, *Opisthograptis luteolata*, *Amphidasis betularia*, *Ourapteryx sambucaria*, *Lymantria dispar*, *Euproctis kargalika*, *Euproctis chrysorrhoea*, *Leucoma salicis*, *Cosmia pyralina*, *Cosmia trapezina*) **polifag**, 13 ta (43,3%) turlari (*Stigmella maloidica*, *Yponomeuta padellus*, *Lyonetia clerkella*, *Leucoptera malifoliella*, *Spilonota ocellana*, *Laothoe populi*, *Smerinthus kindermannii*, *Campaea margaritaria*, *Eulithis populata*, *Dysgonia algira*, *Grammodes stolidia*, *Drasteria cailino*, *Acronicta psi*) **oligofag**, 1 ta (3,3%) tur (*Glyphodes pyloalis*) **monofag** guruhga mansub ekanligi aniqlandi.



1-rasm. Dendrofag tangachaqaqnotli hasharotlarni ozuqa spektri bo'yicha oilalar kesimida taqsimlanishi

Dendrofag tangachaqaqnotli hasharotlar ozuqa spektri bo'yicha oilalar kesimida taqsimlanishiga ko'ra, Yponomeutidae, Nepticulidae, Sphingidae, Lyoniidae, Erebiidae oilasidan qayd etilgan turlarning barchasi oligofag, Cossidae, Lasiocampidae, Lymantriidae oilalariga mansub turlarning barchasi polifag turlardan iborat. Crambidae oilasidan qayd etilgan yagona tur *Glyphodes pyloalis* esa, monofag. Noctuidae, Tortricidae, Geometridae oilasidan qayd etilgan turlar polifag hamda oligofag turlardan iborat (1-rasm).

Farg'ona shahri dendrofag tangachaqaqnotli hasharotlarining mavsumiy rivojlanish xususiyatlari (fenologiyasi) hamda ekologik talablariga ko'ra guruhlarini o'rganilib, tahlil etildi (2-rasm).



2-rasm. Farg'ona shahri dendrofag tangachaqaqnotli hasharotlarining fenologik guruhlar bo'yicha taqsimlanishi

Tadqiqotlar natijasida, Farg'ona shahri dendroflorasi lepidopterafaunasining 10 ta tur kapalaklari (*Stigmella maloidica*, *Yponomeuta padellus*, *Lyonetia clerkella*, *Cossus cossus*, *Malacosoma neustria*, *Laothoe populi*, *Amphidasis betularia*, *Euproctis kargalika*, *Dysgonia algira*, *Acronicta psi*) **bahorgi-yozgi** fenologik guruhga, 6 ta tur kapalaklar (*Archips crataegana*, *Archips xylosteana*, *Campaea margaritaria*, *Eulithis populata*, *Lymantria dispar*, *Cosmia pyralina*) **yozgi**, 3 ta tur kapalaklar (*Euproctis chrysorrhoea*, *Leucoma salicis*, *Cosmia trapezina*) **yozgi-kuzgi**, 11 ta tur kapalaklar (*Leucoptera malifoliella*, *Acleris variegana*, *Pandemis chondrillana*, *Spilonota ocellana*, *Smerinthus kindermannii*, *Glyphodes pyloalis*, *Cabera pusaria*, *Opisthograptis luteolata*, *Ourapteryx sambucaria*, *Grammodes stolidus*, *Drasteria cailino*) **bahorgi-yozgi-kuzgi** fenologik guruhga mansub ekanligi aniqlandi (2-rasm).

Farg'ona shahri dendrofag tangachaqaqnotli hasharotlarining 15 ta (50%) turlari (*Stigmella maloidica*, *Lyonetia clerkella*, *Leucoptera malifoliella*, *Malacosoma Neustria*, *Laothoe populi*, *Smerinthus kindermannii*, *Cabera pusaria*, *Opisthograptis luteolata*, *Amphidasis betularia*, *Ourapteryx sambucaria*, *Lymantria dispar*, *Euproctis kargalika*, *Euproctis chrysorrhoea*, *Leucoma salicis*, *Cosmia trapezina*) **mezofillar** bo'lib, ular asosan o'rtacha namlik biotoplarni afzal ko'radigan, daraxt va butazorlarda yashaydigan turlardan iborat. Dendrofag

tangachaqanotlilarning 6 ta (20%) turlari (*Acleris variegana*, *Pandemis chondrillana*, *Archips crataegana*, *Glyphodes pyloalis*, *Cossus cossus*, *Acrionicta psi*) **evribiontlar** bo'lib, ular asosan har xil turdagi biotoplarda uchraydigan, keng ekologik valentlikga ega hamda barcha landshaftlarda tarqalgan turlardan iborat. Tadqiqot hududi dendrofag tangachaqanotli hasharotlarining 9 ta (30%) turlari (*Yponomeuta padellus*, *Spilonota ocellana*, *Archips xylosteana*, *Campaea margaritaria*, *Eulithis populata*, *Dysgonia algira*, *Grammodes stolidia*, *Drasteria cailino*, *Cosmia pyralina*) **gemikserofillardir**. Ular namlik nisbatan kam bo'lgan, asosan madaniy o'simliklar o'sadigan, o'tloq-dasht maydonlar hamda bog'larda uchraydigan turlardan iborat.

Xulosa. Farg'ona shahrining manzarali daraxtlari bilan trofik aloqaga ega bo'lgan tangachaqanotli hasharotlarning 16 ta (53,3%) turlari polifag, 13 ta (43,3%) turlari oligofag, 1 ta (3,3%) tur monofag guruhga mansub ekanligi aniqlandi. Dendrofag tangachaqanotli hasharotlarning fenologiyasi tahlil etilganda, 10 ta tur kapalaklar bahorgi-yozgi, 6 ta tur kapalaklar yozgi, 3 ta tur kapalaklar yozgi-kuzgi, 11 ta tur kapalaklar bahorgi-yozgi-kuzgi fenologik guruhga mansub ekanligi aniqlandi. Tangachaqanotli hasharotlarining 15 ta (50%) turlari mezofil, 6 ta (20%) turlari evribiont, 9 ta (30%) turlari gemikserofillardir.

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