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TUNLAM KAPALAKLARI (LEPIDOPTERA: NOCTUIDAE) OILASINING ADABIYOTLARDA O‘RGANILGANLIK DARAJASI

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Maqolada tunlam kapalaklari oilasi vakillarining dunyo faunasidagi tur tarkibi, bioekologiyasi va muhim turlari tarqalishi o‘rganilgan, bu borada xorijda va respublikamizda olib borilgan lepidopterologik tadqiqotlar tahlil qilingan. Mazkur hasharotlar O‘zbekiston mintaqasi faunasida ham alohida ahamiyatga ega bo‘lib, ularning tur tarkibi, hayotiy jarayonlari hamda ekologik xususiyatlarining o‘rganilishi, alohida turlarning populyatsiyasi dinamikasini barqarorlashtirishga oid tadqiqotlar tahlil qilingan. Shuningdek, qishloq xo‘jaligi ekinlariga zarar yetkazuvchi tunlam kapalaklari va ularga qarshi kurashish choralari haqida ilmiy ma’lumotlar keltirilgan.

Kalit so‘zlar*: entomologiya, hasharotlar, tangachaqanotlilar, tunlam kapalaklar, Helicoverpa armigera* Hbn.

В статье изучены сведения о видовом составе, биоэкологии и распространении важных видов представителей семейства ночных бабочек в мировой фауне, а также проанализированы лепидоптерологические исследования в масштабах зарубежья, СНГ и нашей Республики. Эти насекомые также имеют особое значение в фауне региона Узбекистана, и изучение их видового состава, жизненных процессов и экологических особенностей, а также исследования, направленные на стабилизацию динамики популяций отдельных видов, освещены анализом литературы. Также представлены научные сведения о моли, повреждающей сельскохозяйственные культуры, и мерах борьбы с ней.

Ключевые слова: *энтомология, насекомые, чешуекрылые, мотыльки, Helicoverpa armigera Hbn.*

Jahonda tangachaqanotli hasharotlar turkumi keng tarqalgan hamda eng ko‘p sonli turga ega bo‘lgan guruhlardan sanaladi. Tangachaqanotli kapalaklar o‘ziga xos yashash tarzi, biotsenozdagi o‘rni bilan ahamiyat kasb etadi. Shuning uchun tangachaqanotlilarni keng qamrovli o‘rganish dunyo entomolog olimlarini doimiy qiziqtirib kelgan [2, 6, 9, 15, 16, 23, 46, 58, 61].

Bu hasharotlar O‘zbekiston mintaqasi faunasida ham alohida ahamiyatga ega bo‘lib, ularning tur tarkibi, hayotiy jarayonlari hamda ekologik xususiyatlarini o‘rganish, shuningdek, alohida turlarning populyatsiyasi dinamikasini barqarorlashtirishga qaratilgan tadqiqotlar dolzarb hisoblanadi [1, 4, 9, 25, 28, 64, 70, 73].

Yirik sayohatchi-olim A.P.Fedchenko boshchiligida (1868–1871-yillar) Turkiston hayvonot dunyosini o‘rganish bo‘yicha olib borilgan ilmiy ekspeditsiya natijalarida O‘zbekiston kapalaklari faunasini tadqiq etishga oid dastlabki ma’lumotlar berilgan [10].

Fransuz entomologi E.L.Ragonot Farg‘ona vodiysida olib borgan ilmiy tadqiqotlariga bag‘ishlangan asari (“Diagnoses d’espèces nouvelles de Phycitidae d’Europe et des pays limitrophes”)da Phycitidae guruhiga mansub tangachaqanotli hasharotlarning ayrim turlari haqida ma’lumotlarni berib o‘tgan [59].

V.I.Plotnikovning (1911) Toshkent shahrida Turkiston entomologik stantsiyasining tashkil etilishi asnosida amalga oshirgan ishlari Markaziy Osiyo respublikalari, jumladan, O‘zbekistonda qishloq xo‘jaligi o‘simliklari zararkunandalarini o‘rganish hamda ularga qarshi kurashish usullari yo‘lga qo‘yilishiga sabab bo‘ldi. O‘rta Osiyo O‘simliklarni himoya qilish ilmiy tadqiqot instituti keyinchalik ana shu stansiya bazasida tashkil etildi [17; 18; 29; 69].

Oxirgi vaqtlarda kuzatilayotgan iqlim o‘zgarishlari bilan bog‘liq holatlarning zararkunanda hasharotlar miqdor zichligiga ta’siri dunyoning yirik olimlari tomonidan oziq-ovqat xavfsizligini ta’minlashdagi asosiy muammo sifatida qaralmoqda. Xususan, olimlar global miqyosda harorat omilining ortib borishi o‘simliklarda yashab rivojlanadigan hasharotlarning fenologik xususiyatlariga ta’sir ko‘rsatadigan dominant abiotik omil sifatida ularning areallarini geografik kengliklar hamda balandlik mintaqalari bo‘ylab kengayishiga, rivojlanishidagi o‘zgarishlar sabab avlodlari sonining ortishiga, shuningdek, o‘simliklarning fitofag hasharotlarga nisbatan chidamliligi pasayishiga sabab bo‘ladi, deb hisoblashmoqda [30, 40, 72].

Soha bo‘yicha yirik tadqiqotlar olib borgan olim G.Dhalivalning ta’kidlashicha, zararkunanda hasharotlar dunyo miqyosida qishloq xo‘jaligi ekinlari-

ning ma'lum qismi (13,6%) nobud bo'lishiga sabab bo'ladi [39].

Yana bir hind mutaxassisi H.Sharma tomonidan global iqlim o'zgarishi sharoitida Hindistonda ushbu ko'rsatkich 23,3% ga ortganligi qayd etilgan [75].

Yevropaning entomologlar faoliyat olib boruvchi nufuzli ilmiy tadqiqot muassasalari olimlarining ta'kidlashicha, oxirgi yillarda zararkunanda tangachaqanotli hasharotlar geografik arealini kengaytirmoqda [32, 33, 35, 47, 48, 49].

Tangachaqanotlilarning ko'psonli vakillaridan sanaluvchi tunlamlar yer yuzidagi eng xavfli zararkunanda hasharotlardan sanaladi. Ular asosiy tarkibining ozuqa spektri keng bo'lganligi uchun zararkunandalar sifatida iqtisodiy ahamiyati yuqori bo'lgan qishloq xo'jaligi ekinlari hosiliga jiddiy xavf soladi [5; 43; 60].

Tunlamlar (Noctuidae)ning dunyo bo'yicha 70000 ga yaqin turi aniqlangan [51].

D.G.Mantezano va hamkasblari tomonidan Amerikadagi *Spodoptera frugiperda* (Makkajo'xori barg tunlami) turining biologiyasi va ekologiyasi o'rganilgan. Ushbu tunlamlar qishloq xo'jaligi uchun jiddiy zararkunda hisoblanadi [66]. Ko'plab mamlakatlarda makkajo'xori hosildorligini sezilarli darajada yo'qotishga olib keladi [41].

Litvada jami tunlamlarning 372 ta turi qayd etilgan [44]. Shuningdek, Litvada 1993–2002-yillarda olib borilgan tadqiqotlarda tunlam kapalaklarining 6 ta turi aniqlangan: *Egira conspicillar*, *Eucarta virgo*, *Mythimna albipuncta*, *Hyssia cavernosa*, *Noctuidae interposita, Noctua interjecta.* Har bir turning joylashuvi, topilgan sanasi, to'plangan turlarning soni, jinsi va yashash joyi to'g'risidagi ma'lumotlar keltirilgan. Ushbu tadqiqotlar uchun materiallarning asosiy qismi Jalas-modelli avtomatik yorug'lik tuzoqlari (foto qopqon) yordamida yig'ilgan, ularda aralash yorug'lik 160 Vt lampalar ishlatilgan [63].

Serbiyada ham tunlamlarga oid tadqiqotlar qator izlanishlar, tajribalar orqali amalga oshirilgan. Serbiyada hozirgacha *Noctuidae* ning 23 kenja oila, 231 avlodi, 564 turi aniqlangan. Sakkizta tur Serbiya hududi uchun yangi tur sifatida qayd etilgan. Eng ko'p topilmalar Markaziy va G'arbiy Serbiya hududidan qayd etilgan, ammo Janubiy Serbiya hozirda tunlamlarning turlari eng kam o'rganilgan mintaqadir. Zoogeografik jihatdan ko'pchilik turlar Yevroosiyo (53,72%), O'rta Yer dengizi, Osiyo (35,64%) da tarqalgan, Golarktikada esa turlar biroz kamroq (4.61%) [38].

Hindistonda 2013-yilda Mudassir Hamza va hamkasblari tomonidan tunlamlarni o'rganish bo'yicha tadqiqot ishlari olib borilgan. Mazkur olimlarning izlanishlari natijasida Hindiston uchun *Noctudiae* oilasining 6 ta yangi turi aniqlangan. Ular *Helicoverpa armigera* (G'o'za tunlami)*, Mythimna unipunctata* (Guruch qurti)*, Spodeptera exigua* (Karadrina)*, Chrysodeixis furihatai, Argrotis ypsilon* (kichik tungi kuya, yog'li kesma)*, Agrotis cinearia* (kam tukli tunlam) bo'lib, morfologiyasi va jins farqlari o'rganilgan [36; 65]. Ularning qurtlari meva po'stini teshib, sharbatini so'rib zarar yetkazadi [34].

Hindistonning Karnataka shahrida sabzavotlar bilan bog'liq tungi kuyalarda keng qamrovli tadqiqotlar o'tkazildi. Ushbu tungi kuyalarning lichinkalari polifag bo'lib, turli xil sabzavotlar, donlar, begona o'tlar, gullar va mevali ekinlar bilan oziqlanadi. Lichikalarning ko'pchiligi barglar, o'sayotgan kurtaklar va poyalarga, gul kurtaklari, gul, meva yoki urug'lar kabi iqtisodiy ahamiyatli qismlarga jiddiy zarar yetkazadi. Zararkunandalarga qarshi kurashish uchun katta kuch va mablag' sarflanadi [54].

Mudassar Venkateshali tungi kuyalarni o'rganishda yorug'lik manbalaridan foydalangan. Tungi kuyalar paxta bargi qurti, tamaki kesuvchi qurt va tropik armiya qurti sifatida ham tanilgan. Pokistondagi ko'plab ekinlarga zarar yetkazib, ekinlarning 15–17% qismini yo'qotadi [53].

Shuningdek, G.Xristov, O.Shtavdinger, R.Pyungler ham tangachaqanotlilarni o'rganishga o'z hissalarini qo'shganlar. Eron tadqiqotchilari Muhammad Ahmad, Mehdi Esfandiyor, Asqar Shirvani qizil chiziqli kuya (*Noctuidae*: *Agrochola*)ning 2 ta yangi turini aniqlashgan. Ular – *Agrochola imitate, Agrochola consuet*. Ushbu tunlamlarning katta boshi tuklar bilan qoplangan bo'lib, qorni uzun, silindrsimon, orqa qanotlari nisbatan keng joylashgan [62]. Bu tunlamlarning qadimgi a'zolari Himolay hududidagi baland tog'li o'rmonlarda topilgan [42].

Sibir va Oltoy tog'laridagi taxminan 160 yillik lepidopterologik tadqiqotlar va Oltoy *Noctuidae* siga bag'ishlangan ko'plab faunistik maqolalarga qaramay, Janubiy Sibirning ushbu muhim mintaqasidagi *Noctuidae* uchun aniq identifikatsiya qo'llanmasi bo'lmagan. Keyinchalik Anton Volinkinning "*Noctuidae* of the Russian Altai" kitobida Tunlam (*Noctuidae*)larning 583 turi haqida ma'lumot keltirilgan. Ularning 22 turi Rossiya Oltoyi uchun yangi tur deb qayd qilindi. Muallif kitobining kirish qismida Oltoyning lepidopterologik tadqiqotlar tarixiga qisqacha to'xtalib, hudud geografiyasi, tabiiy sharoiti va Rossiya Oltoyining biogeografiyasini tavsiflaydi. Ushbu kitob butun Sibirning *Noctuidae* va *Lepidoptera* turkumi bioxilmaxilligini, taksonomiyasi, biogeografiyasini baholash va o'rganish uchun juda muhimdir [67].

Rossiya davlatining Rostov-Don shahrida tunlamlar oilasining 10 ta turi o'rganilgan. Ularning 9 tasi 1980–2006-yillarda 29 ta aholi punktlarida topilgan.

Kichik marmar tunlami (Noctuidae, *Eublemminae eublemma*) tunlamlar oilasining eng kichik vakili bo‘lib, qanotlari 13–27 *mm*ga teng [19].

Yana bir Rossiya olimi Vladimir Kononenko (*Noctuidea* Sibiricae) kitobi *Noctuidea* oilasiga kiruvchi to‘rtta oila a’zolarining sistematikasi, taksonomiyasi, faunasi, ekologiyasi va geografik tarqalishi haqida yangilangan ma’lumotlardan iborat. Unga ko‘ra, Noctuidae to‘rtta oilaga bo‘lingan: Nolidae, Erebidae, Eutelidae va Noctuidae. Arctiinae va Lymantriinaelarga esa kenja oilalar sifatida qaralgan [52].

Markaziy Osiyo tangachaqanotlilari, shuningdek, tunlamlar to‘g‘risidagi dastlabki ma’lumotlar M.Menetriz va Y.Eversmenga tegishlidir. Keyinchalik N.G.Yershov tangachaqanotlilarni, jumladan, tunlamlarni o‘rganib, fanga 89 ta yangi turni olib kirgan [24].

Markaziy Osiyo davlatlarida tarqalgan tunlamlar boshqa mamlakatlarda tarqalgan tunlamlardan farq qiladi. Bunga sabab iqlimning o‘zgarishidir, ya’ni Orol dengizi va Turkmaniston cho‘llari yaqinida yog‘in miqdori o‘rtacha 75–100 *mm* bo‘lsa, Farg‘ona tog‘larining janubi-g‘arbiy qismida taxminan 2000 *mm* ga yetadi. Bir yillik makkajo‘xori ekinlari Markaziy Osiyo mamlakatlari orasida Afg‘onistonda 379,1 ming gektarni, Qozog‘istonda 80 ming gektarni va Tojikistonda 6000 gektarga yaqin maydonni egallaydi. Makkajo‘xori tunlamining zararini yo‘qotish uchun Markaziy Osiyodagi qo‘shni mamlakatlar zararkunandalar ustidan birgalikda muntazam nazorat ishlari olib borishi zarur [56].

Tunlamlar oilasining yana bir turi bo‘lgan tungi kuya (Noctuidae: Erebidae) Qozog‘iston g‘arbiy qismida ham yetarlicha o‘rganilgan [45]. Sharqiy Qozog‘iston va Xitoy o‘rtasidagi chegarada, Zaysan ko‘lidan janubi-sharqda va Qora-Irtish daryosi vodiysidan janubda joylashgan Saur tog‘larida tangachaqanotlilarning birinchi to‘plami 1877–1878-yillarda J.Xaberxauer tomonidan tuzilgan. Xaberxauer to‘plagan *Noctuidae* va *Erebidae* oilalari bo‘yicha materiallar Shtaudinger kolleksiyasida saqlanadi [63].

Qirg‘iziston Respublikasida ilk bor tunlamlar haqidagi ma’lumotlarni F.I.Markov fanga ma’lum qilgan [26].

Qozog‘iston Respublikasida boshoqli-donli o‘simliklar tunlamlari va ularning zararlari haqidagi ma’lumotlarni N.A.Kazanskiy (1958) P.I.Zayeva (1961) Y.G.Matesova va D.I.Mityayev, N.L.Yuxnevichlar (1962) ishlarida ko‘rish mumkin [27].

1904-yilda S.Tshetverikov va P.Sushkin, 1910-yilda A.Yakobson ekspeditsiyasi davomida Noctuidae va Erebidae oilalariga oid keng qamrovli materiallar to‘plandi. To‘plangan namunalar Rossiya Fanlar akademiyasining Zoologiya instituti (Sankt-Peterburg) kolleksiyasida saqlanadi [68].

Tangachaqanotli hasharotlarni o‘rganish qishloq xo‘jaligini yanada rivojlantirish uchun ma’lum ahamiyatga ega. Tunlamlar oilasi vakillari dehqonchilik ekinlarining ashaddiy zararkunandalari hisoblanadi.

B.B.Yaxontov O‘rta Osiyo sharoitida zararkunanda tunlamlarning biologiyasi, ekologiyasi va zararini o‘rgangan. Jumladan, yovvoyi g‘o‘za, beda tunlamlari zarari haqida batafsil ma’lumot bergan [70].

E.Vasileva (1906) qand lavlagi dalalaridan topilgan ildiz kemiruvchi tunlamlar (ko‘k qurt tunlami, undov tunlam) haqida ma’lumotlarni keltirib o‘tgan. Shu yo‘sinda Farg‘ona vodiysida g‘o‘zaga zarar keltiruvchi kuzgi tunlamlar haqida I.Vasilev o‘z ilmiy ishlarida ma’lumot bergan [7].

Tangachaqanotli kapalaklar mutaxassisi, taniqli entomolog B.I.Kojanchikovning ilmiy ishlari yer osti kemiruvchi (*Agrotinae* kenja oilasi) tunlamlariga bag‘ishlangan [13].

X.Bekchanov va M.Bekchanova maqolasida ham Tollik to‘qay biotsenozida tungi kuyalarning tarqalishi, biologiyasi va ekologik xususiyatlari yoritilgan. Materiallar tahlili davomida Gurlan tumanidagi Tollik to‘qay massivida ovlangan tungi kuyalarning 3 oila 18 turi, 10 avlodga mansub 4 turkum ekanligi aniqlandi. Fenologik jihatiga ko‘ra, ovlangan turlar bahor-yoz, yoz-kuz ekologik guruhi, bahorgi ekologik guruh, yozgi ekologik guruh turlari ekanligi aniqlandi, ular 4 ta ekologik guruhga bo‘lingan: mezofil (3 tur), hemixerofil (9 tur), kserofil (4 tur) va evribiont (2 tur) [37].

Toshkent shahrida 1911-yilda qishloq xo‘jaligi ekinlari zararkunanda hasharotlarining sistematik holatini o‘rganish uchun “O‘simliklarni himoya qilish stansiyasi” tashkil qilindi.

B.Mo‘minov ko‘p yillik izlanishlari davomida O‘zbekiston sharoitida kuzgi tunlam haqidagi ma’lumot va materiallar aks etgan maqolalar chop ettirgan [17].

B.Mo‘minov 8 kenja oilaga mansub 35 tur haqidagi ma’lumotlarni “Toshkent viloyati tunlamlar faunasi” nomli tadqiqotida keltirib o‘tgan [57]. Qoraqalpog‘iston Respublikasi hududida M.Bobojonova va B.Mo‘minovlar 1995-yilda 22 avlodning 34 turini aniqladilar [3].

M.Karimov o‘zining ilmiy ishlarini tog‘oldi hududlari tunlam kapalaklaridan *Caradrina auguroides* Roth, *Triphaena orbona* Hufn va boshqa tunlam vakillarining biologik-ekologik xususiyatlarini, zararlarini o‘rganishga bag‘ishlagan. R.Kenjayev (1974), K.Qadirov (1971) va X.Otamurodovlar (1983) Qashqadaryo vohasi tunlamlari bo‘yicha ilmiy izlanishlar olib borishgan [11].

Keyingi izlanishlarda, asosan, g‘o‘za o‘simligining turli navlariga zarar keltiruvchi tunlamlar va ularning rivojlanishi haqidagi ma’lumotlar keltirilgan [8].

Tunlamlar bo‘yicha O‘zbekistonda professor Sh.T.Xo‘jayevning ishlari ham katta ahamiyatga ega. Paxta yetishtiruvchi barcha mintaqalarda g‘o‘zaning yer ostki qismiga zarar yetkazuvchi tunlamlarning 11 ta turi aniqlangan. Tunlamlar g‘o‘zaga turli darajada zarar yetkazadi. O‘rta Osiyo sharoitida g‘o‘zaga ko‘pincha kuzgi tunlam (ko‘k qurt) tushadi. Boshqa turlar, jumladan undov va yovvoyi tunlam uncha ko‘p uchramaydi, ammo ba’zi yillarda bunday turlar ham ekinlarga katta xavf tug‘dirishi mumkin. Bu tunlamlar hammaxo‘r hisoblanadi, lekin ularning xush ko‘radigan ekinlari va begona o‘tlari mavjud. Masalan, undov tunlam bedani, kuzgi tunlamlar g‘o‘zani, yovvoyi tunlam esa poliz ekinlarini xush ko‘radi. Yashash tarzi, shikastlashi va kurash usullari hamma tunlamlarda deyarli bir xil [69].

Sh.Semyonova g‘o‘za tunlami (*Helicoverpa armigera* Hbn.) qurtlarining tana sirti va stigmalari orqali tana haroratini sovituvchi bug‘lanishi mavjudligi tufayli quyosh radiatsiyasi 1 sm^2 sathiga 1,0–1,2 kkal dan to‘g‘ri kelishini va tana harorati 8°C dan oshmasligini aytib o‘tgan [22].

Hasharotlar yashash muhitiga qarab rangini o‘zgartiradi, bu esa muhitning harorati va namligiga bog‘liqdir. Tashqi muhit omili bir xil bo‘lganda unga javoban turli tunlamlar turli populyatsiyalarda o‘ziga xos ta’sirlanadi va diapauzada, rivojlanish bosqichlarida uzilish kuzatilishi mumkin, ba’zan esa hasharotlar diapauza holatiga umuman tushmasligi mumkin [13].

Tunlamlarning eng xavfli vakillaridan sanaluvchi *Agrotis segetum* (kuzgi tunlam) 30 dan ortiq o‘simlik oilalari vakillarida oziqlanib, zararkunandalik qiladi. Kuzgi tunlamning qurtlari yangi unib chiqqan yosh nihollarning ildiz bo‘g‘zini qirqib, o‘simlik yer ustki qismini butunlay yeb bitiradi [31].

Ayni yo‘nalish bo‘yicha salmoqli tadqiqotlar olib borgan yirik olim X.Kimsanboyev va uning hammualliflari keltirgan ma’lumotlarga ko‘ra, g‘o‘za, makkajo‘xori, mosh, sabzavot, mevali bog‘ ekinlarida Noctuidae oilasining 17 turi uchrab, zarar keltiradi. G‘o‘za tunlami, kuzgi tunlam, yovvoyi tunlam hamda gamma tunlami agrotsenozlarda tez-tez uchraydigan turlar sirasiga kiradi [12].

Pomidorga tunlamlarning 6 turi zarar keltirishi haqida M.Rashidov tadqiqotida bayon etilgan [21].

Xorazm vohasi antropogen landshaftlarida tadqiqot olib borgan M.Rahimov tunlamlarning 53 turi haqida ma’lumotlar keltirib o‘tgan. Muallifning ma’lum qilishicha, g‘o‘za agrotsenozida 20 tur, beda agrotsenozida 30 tur, makkajo‘xori agrotsenozida 28 tur, sholi agrotsenozida 4 tur tunlam kapalaklarning qurtlari turli darajada zarar keltiradi [20].

A.Jabborov Farg‘ona vodiysi sharoitida pomidor agrotsenozlarida g‘o‘za tunlami zararkunandalik qilishini ta’kidlagan. Shuningdek, tadqiqotchi ko‘sak qurtining pomidordagi xavfli zarar keltirish muddatlari iyunning oxiri – iyul oylariga to‘g‘ri kelishi bo‘yicha fenologik ma’lumotlarni taqdim etgan [50].

A.X.Yusupov tomonidan olib borilgan tadqiqotlarda O‘zbekiston mevali bog‘larida tunlamlarning 16 ta turi zarar keltirishi aniqlangan. Ko‘chatzorlarda tunlamlarning asosiy qismini kuzgi (*Agrotis segetum*) va undov (*A.exlamationis*) tunlamlari tashkil etib, payvandtag hamda yosh nihol ko‘chatlarning ildiz qismini shikastlaydi [71].

I.Zokirov tadqiqoti Markaziy Farg‘onaning sabzavot-poliz ekinlari agrotsenozlarida uchrovchi zararkunandalarni o‘rganishga qaratilgan bo‘lib, unda tunlamlarning 23 turi, shu jumladan, pomidorda 19 tur, lavlagida esa 14 tur zararkunandalik qilishi qayd etilgan. Shuningdek, tunlamlarning 4 ta turi (*Agrotis segetum*, *A.ipsilon*, *Helicoverpa armigera*, *Autographa gamma*) sabzavot-poliz ekinlarining barchasida keng tarqalganligi ta’kidlangan [74].

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TUNLAM BUTTERFLIES (LEPIDOPTERA: NOCTUIDAE) LEVEL OF EDUCATION IN LITERATURE OF THE FAMILY

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Butterfly butterflies are important because of their unique way of life and their place in the biocenosis. Therefore, the comprehensive study of ants has been of constant interest to world entomologists. In the world, the order of pincers is considered one of the groups with the largest number of species.

In this article, information on the species composition, bioecology and distribution of important species of representatives of the night butterfly family in the world fauna is studied, and lepidopterological researches on the scale of foreign, CIS, and our Republic are analyzed. These insects are also of special importance in the fauna of the region of Uzbekistan, and the study of their species composition, life processes and ecological characteristics, as well as studies aimed at stabilizing the population dynamics of individual species, are covered by literature analysis. Scientific information on moths that damage agricultural crops and measures to combat them is also presented. In recent times, the effects of climate change on the population density of pest insects are considered by leading scientists of the world as the main problem in ensuring food safety. In particular, scientists believe that the global temperature increase, as a dominant abiotic factor affecting the phenological characteristics of insects that live and develop in plants, expands their areas across geographic latitudes and altitude regions, increases the number of generations due to changes in their development, they also believe that it causes a decrease in the resistance of plants to phytophagous insects. Cockroaches are one of the most dangerous insect pests on earth. Due to the wide spectrum of nutrients of their main composition, as pests, they pose a serious threat to the harvest of agricultural crops of high economic importance.

Tornadoes cause damage to a girl in different degrees. In the conditions of Central Asia, cotton is often attacked by the autumn bollworm (blueworm). Other species, including the sedge and wild nightshade, are less common, but in some years these species can pose a significant threat to crops. These tundras are omnivores, but they also eat crops and weeds. For example, the exclamation mark sees nightshade-clover, the autumn nightshade-cotton, and the wild nightshade-pale crops. The lifestyle, damage and fighting methods are almost the same in all tunnels.

Insects change their color depending on their habitat, which depends on the temperature and humidity of the environment. When the external environmental factor is the same, in response to it, different tissues are affected differently in different populations, and a break in diapause and developmental stages can be observed, and sometimes insects may not enter the diapause state at all.

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