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### QUYI AMUDARYO SUV EKOTIZIMLARI CORBICULIDAE OILASI TURLARI FAUNASI

Аннотация

Tadqiqotning asosiy maqsadi Quyi Amudaryo suv ekotizimlari Corbiculidae oilasi turlari faunasini har tamonlama taxlil qilishdan iborat edi. Quyi Amudaryo xududi suv ekotizimlarida ikki pallali mollyuskalarning faunistik tarkibi antropogen omillar ta'sirida o'zgarishi ko'zatilmoqda. Tadqiqotlarimiz natijasida Quyi Amudaryo havzalarida Corbiculidae oilasining 2 ta urug'iga mansub 5 ta turi tarqalganligi aniqlandi. Ushbu turlardan *Corbicula cor*, *Corbicula fluminalis*, va *Corbicula purpurea* turlar xudud suv ekotizimlarida kichik biotoplardan tarqalgan stenobiont turlar ekanligi, *Corbiculina tibetensis* va *Corbiculina ferghanensis* turlari esa keng tarqalgan evribiont turlar ekanligi aniqlandi. O'rganilgan barcha turlar suv ekotizimlari indikatorlaridir.

**Kalit so'zlar:** Amudaryo, Corbiculidae, mollyuska, bioindikator, *Corbicula cor*, *Corbicula fluminalis*, *Corbicula purpurea*, turlar, suv ekotizimlari.

### ФАУНА ВИДОВ СЕМЕЙСТВА CORBICULIDAE В ВОДНЫХ ЭКОСИСТЕМАХ НИЖНЕЙ АМУДАРИИ

Аннотация

Основной целью исследования был всесторонний анализ фауны видов семейства Corbiculidae в водных экосистемах Нижней Амударьи. Состав фауны двустворчатых моллюсков в водных экосистемах Нижнеамударьи меняется под влиянием антропогенных факторов. В результате наших исследований было установлено, что в бассейнах Нижней Амударьи широко распространены 5 видов, принадлежащих к 2 семействам семейства Corbiculidae. Из этих видов *Corbicula cor*, *Corbicula fluminalis* и *Corbicula purpurea* являются стенобионтными видами, распространенными в небольших биотопах в водных экосистемах региона, в то время как *Corbiculina tibetensis* и *Corbiculina ferghanensis* являются широко распространенными эврибионтными видами. Все изученные виды являются индикаторами водных экосистем.

**Ключевые слова:** Amudarya, Corbiculidae, моллюск, биоиндикатор, *Corbicula cor*, *Corbicula fluminalis*, *Corbicula purpurea*, вид, водные экосистемы.

### FAUNA OF CORBICULIDAE FAMILY SPECIES IN THE LOWER AMUDARYA AQUATIC ECOSYSTEMS

Annotation

The main objective of the study was to comprehensively analyze the fauna of the Corbiculidae family species in the Lower Amu Darya aquatic ecosystems. The faunal composition of bivalve mollusks in the aquatic ecosystems of the Lower Amu Darya region is changing under the influence of anthropogenic factors. As a result of our studies, it was determined that 5 species belonging to 2 families of the Corbiculidae family are widespread in the Lower Amu Darya basins. Of these species, *Corbicula cor*, *Corbicula fluminalis*, and *Corbicula purpurea* are stenobiont species distributed in small biotopes in the aquatic ecosystems of the region, while *Corbiculina tibetensis* and *Corbiculina ferghanensis* are widespread eurybiont species. All studied species are indicators of aquatic ecosystems.

**Key words:** Amudarya, Corbiculidae, mollusk, bioindicator, *Corbicula cor*, *Corbicula fluminalis*, *Corbicula purpurea*, species, aquatic ecosystems.

**Kirish.** Quyi Amudaryo xududidagi suv ekotizimlarida Corbiculidae oilasi turlari soni va biomassasi so'nggi yillarda suv resurslarini boshqarish sug'orish kanallari, to'g'onlar va boshqalarning barpo etilishi, iqlim o'zgarishi va Oral dengizi suvining kamayishi ta'sirida sezilarli darajada o'zgargan. Ayniqsa, *Corbicula oilasi* turlari ba'zi hududlarda tarqalish zichligida ma'lum o'zgarishlar ko'zatiladi, bazi biotoplarda esa ularning populyatsiyasi kamayib bormoqda. Ushbu oila vakillari O'zbekiston xududida suv havzalarining umumiy ekologik barqarorligi uchun muhim bioindikator hisoblanadi [1,3,5,8,10,14]. Bugungi kunda Quyi Amudaryo deltasi va uning irmoqlarida Corbiculidae oilasi faunasini chuqurroq o'rganish, ularning populyatsiya dinamikasiga va antropogen omillar ta'sirini baholash zarurati dolzarb muammolardan biri bo'lib hisoblanadi.

**Mavzuga oid adabiyotlar tahlili.** Yer yuzasida Corbiculidae oilasi ikkipallali mollyuskalarining sistematikasi, tur tarkibi, tarqalishi va ekologik guruhlari bo'yicha izlanishlar H.T.James, S.A.Alanp (1994), D.C Aldridge (2000), P. Bouchet (2010), Huber Markus (2011,2014), A.Ye Bogan (2014), Annabelle Cuttelod (2016) lar tomonidan olib borilgan. Corbiculidae oilasi turlarining

xo'jalikdagi ahamiyati bo'yicha Maria Haws (2010,2014), N.Mamangkey et al (2010), Sata Yoshida (2016) lar ishlari muxim bo'lib hisoblanadi. Quyi Amudaryo suv ekotizimlarida Corbiculidae oilasi ikkipallali mollyuskalarini Z.I. Izzatullayev (2016, 2019, 2024), I.M.Mirabdullaev (2014, 2019, 2021), A. Kuzmetov (2017, 2022), X.T. Boymurodov (2020, 202022, 2025) lar tamonidan tadqiqotlar olib borilgan [2,4,5,6,7,9,11,12,13,15].

**Tadqiqot metodologiyasi.** Mollyuskalar va boqa gidrobiontlarni o'rganishda: V.I.Jadin (1960); G.V.Berezkina, Ya.I. Starobogatov (1988); G.L. Shkorbatov, Ya.I.Starobogatov (1990); N.D Kruglov, (2005); A.P.Stadnichenko (2006); Z.I Izzatullayev (2019) usullari bilan tahlil qilindi. Gidrobiontlardagi konxologik belgilarning o'zgaruvchanligi G.F. Lakin (1980) usuli bilan o'rganildi. MBS-9 yordamida 30 dona voyaga yetgan mollyuskalar olinib o'rganildi [2,4,5,13,15].

Material terishda Rijnashvili (2005); Storobogatov, Izzatullaev (1985,1989), Izzatullaev, Boymurodov, (2019, 2023) metodlaridan foydalanildi. Materiallar Kuyi Amudaryo xududidagi suv ekotizimlari daryo, ko'llar va kanallardan terildi. Gidrobiontlarning biotoplarda tarqalishi va populyatsiyalarini o'rganishda Alyoxina G.P., Misetov I.A., Puzakkova M.V, 2007, Izzatullaev Z.I. (2019, 2022), Boymurodov X.T.(2021, 2023) uslublari bilan o'rganildi [2,9,10,11,13].

**Tahlil va natijalar.** Quyi Amudaryo suv ekotizimlarida yashovchi ikki pallali mollyuskalar Bivalvia: Corbiculidae faunasini tahlil qilish, ekologik xususiyatlarini aniqlash va potensial resurslar sifatida ulardan foydalanish imkoniyatlarini o'rganish muxim masalalardan biri bo'lib hisoblanadi. Izlanish davomida ushbu umurtqasiz hayvonlarning turlar tarkibi o'rganilib, ularning tarqalish maydoni - ya'ni daryo o'zanlari, ko'llar, suv omborlari, baliqchilik xo'jaliklari va sug'orish kanallarida tarqalishi tahlil qilindi. Quyi Amudaryo havzasida ikki pallali mollyuskalarning faunistik tarkibini o'rganish, ularning ekologik xususiyatlarini aniqlash va ekolamizga moslashuv darajasini o'rganish ilmiy, amaliy jihatdan ham dolzarbdir. Tadqiqotlarimiz natijasida Quyi Amudaryo havzalarida Corbiculidae oilasining 2 ta urug'iga mansub 5 ta turi tarqalganligi aniqlandi.

### Bivalvia Linne 1758 sinfi

**Sardiiformes Ferussac, 1821 turkumi**

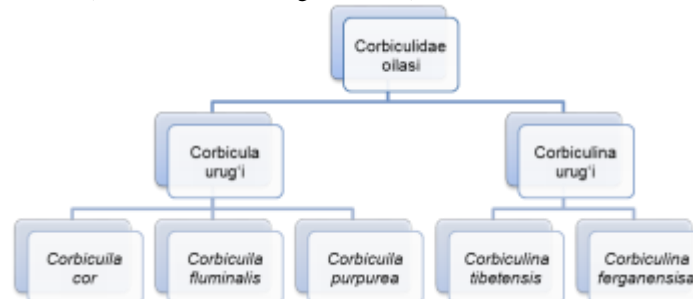
**Corbiculidae Gray, 1847 oilasi**

**Sorbicula Meqerle, 1811, urug'i**

1. *Corbicula cor* (Lamarck, 1818)
2. *Corbicula fluminalis* (O.F. Müller, 1774)
3. *Corbicula purpurea* Prime, 1864

**Corbiculina Dall , 1903 urug'i**

5. *Corbiculina tibetensis* (Prashad, 1929)
6. *Corbiculina ferganensis* (Kursalova et Starobogatov, 1971)



Corbiculidae oilasiga mansub ikki pallali mollyuskalar Quyi Amudaryo suv ekotizimlarida uchrashi xudud suvlari ekologik barqarorligi va monitoringida ham muhim bo'lib hisoblanadi.

***Corbicula cor* (Lamarck, 1818)**

**Tarqalishi.** Old Osiyo turi bo'lib Markaziy Osiyo suv ekotizimlarida ham tarqalganligi o'rganilgan. Quyi Amudaryo xududidagi Amudaryoda, Dovutko'l, Mejdureche ko'li, Sudoche-Karateren ko'llar tizimi, Mo'ynoq qo'ltig'i ko'li, Sariqamish ko'li. Akushpa ko'li va Shovot. **Toshsoqa**, Qilichniyozboy, Urgencharna, Qizketgan, **Kegeyli**, **Paxtaarna kanallarida tarqalganligi aniqlandi** (1-rasm).



**1-rasm. *Corbicula cor* (Lamarck, 1818) Quyi Amudaryo suv havzalaridan terilgan.**

**Ekologiyasi.** Quyi Amudaryo suvlarida suv oqim tezligi 0,58-0,94 m/s bo'lgan suv ekotizimlarida yashashi ko'zatildi. Bu tur 1,3-2,5 metr gacha bo'lgan chuqurliklardagi biotoplarda ham uchraydi. Tur chig'anog'i ulchamlari H – 21-25; L – 27-30; W – 15-19,7 mm. Peloreofil ekologik guruhiga mansub bo'lib oqar suvlar loylarida yashaydi. Suv harorati +4,2+10,2 °C bo'lishi minimal va +12,4+26,9 °C bo'lishi optemal ta'sir ko'rsatadi. *Corbicula cor* turi tuxum qo'yib ko'payadi

***Corbicula fluminalis* (O. F.Müller, 1774)**

**Tarqalishi.** Hudud suv ekotizimlarida Qizketgan, Kegeyli va Shovot kanallarida, Dovutko'l, Sudoche-Karateren ko'llar tizimi, Sarbas ko'llarida hamda boshqa kichik xavuzlardan 1,3-1,7 m chuqurliklardan terildi va tarqalganligi tahlil qilindi (2- rasm).



**2-rasm. *Corbicula fluminalis* (O. F.Müller, 1774) Qizketgan kanalidan terilgan.**

**Ekologiyasi.** Daryo va kanallari suv ekotizimlarining qumloq va botqoq biotoplarida yashaydi. Kuyi Amudaryo xududidagi suv ekotizimlari daryolar, kanallar va suv omborlari oqar suvlarida tarqalgan. O'lchamlari quyidagicha: H – 23-24; L – 21,2-21,7; W – 19,6 mm. Peloreofil ekologik guruhiga mansub bo'lib, kamdan-kam uchraydigan stenabiont tur bo'lib hisoblanadi. Amudaryo quyi oqimi suvlaridan terilgan *Corbicula fluminalis* laboratoriya sharoitida kesib ko'rilganda uning ichida tuxumlari borligi birinchi bor o'rganildi.

***Corbicula purpurea* (Prime, 1864)**

**Tarqalishi.** Old va Markaziy Osiyo suv ekotizimlarida tarqalgan Zarafshon, Oqdaryo va Qoradaryolar tarqalishi tadqiq qilingan. Amudaryo xududidagi Amudaryoda, Dovutko'l, Sudoche-Karateren ko'llar tizimi, Mo'ynoq qo'ltig'i ko'li va Shovot. **Toshsoqa, Qilichniyozboy, Qizketgan kanallarida tarqalganligini taxlit qildik**(3-rasm).



**3-rasm. *Corbicula purpurea* (Prime, 1864) Mo'ynoq qo'ltig'i ko'lidan terildi.**

**Ekologiyasi.** Amudaryoning loyli biotoplarida 0,5-1,20 m. chuqurliklarida ko'milgan xolatda yashaydi. Peloreofil guruhga mansub. C. Cor turi tarqalgan suvlarda yashashini ko'zatkid. Boshqa turlardan sonining ko'pligi bilan farq ajralib turadi. *Corbicula purpurea* tuxum qo'yuvchi bo'lib, bahorda suv temperaturasi ko'tarilishi bilan ko'payish bosqichiga o'tadi. O'lchamlari quyidagicha: H – 22,1-24,2; L – 22,1-21,4; W 18,1– 19,3 mm.

***Corbiculina tibetensis* (Prashad, 1929)**

**Tarqalishi.** Markaziy Osiyo xududidagi daryolar, suv omborlari va kanallar suv ekotizimlarida tarqalgan. Darg'om, Narpay va Kattaqo'rg'on kanallarida tarqalishi o'pganilgan. Kuyi Amudaryo xududidagi tabiiy va sun'iy suv tiplarida tarqalganligini aniqladik (4-rasm)



**4-rasm. *Corbiculina tibetensis* (Prashad, 1929) Toshsoqa kanalidan terilgan.**

**Ekologiyasi.** Kanallarning va daryolarning sekin oquvchi suvlarining tubida loyli biotoplarda 0,2-2,9 metrgacha bo'lgan chuqurlik joylarida uchraydi. Peloreofil. Chig'anog'i kesib ko'rish yo'li bilan tirik tug'uvchi tur ekanligini aniqladik. O'lchami: H -17,7-32,1 L –21,4-36,5, W-12,1-13,25 mm.

***Corbiculina ferghanensis* (Kursalova et Starobogatov, 1974)**

**Tarqalishi.** Markaziy Osiyo xududidagi suv ekotizimlarida tarqalgan.

Amudaryoda, Dovutko'l, Mejdureche ko'li, Sudoche-Karateren ko'llar tizimi, Mo'ynoq qo'ltig'i ko'li, Sariqamish ko'li. Akushpa ko'li, va Shovot. **Toshsoqa, Qilichniyozboy, Urgencharna, Qizketgan, Kegeyli, Paxtaarna kanallarida tarqalganligi aniqlandi** (5-rasm).



**5-rasm. *Corbiculina ferghanensis* (Kursalova et Starobogatov, 1974) Amudaryo quyi oqimi suv ekotizimlaridan terilgan**

**Ekologiyasi.** Quyi Amudaryo xududidagi daryolar, suv omborlari, hovuzlar, kanallar va ariqlarning 0,5-1,2 metr chuqurliklarida yashaydi. Suv ekotizimlarida keng tarqalgan evribiont tur bo'lib deyarli o'rganilmagan. *Corbiculina ferghanensis* tirik tug'uvchi bo'lib, ko'payishi bosqichma - bosqich amalga oshadi. Bahorda boshlanib yozgacha davom etadi. Peloreofil. O'lchamlari. H-14,2-31,3,8: L- 18-38,8: W- 12-12,8 mm.

Corbiculidae oilasi turlari Amudaryoning Xorazim viloyati xududidagi suv ekotizimlarida boshqa suv havzalariga qaraganda ko'p uchraydi va bu holat ushbu hudud suv havzalarida turlar yashashi, tarqalishi uchun qulay bo'lgan suvning sekin oqar biotoplari, baliqchilik xo'jaliklari va suv omborlarining ko'plab uchrashi bilan ajralib turadi.

**Xulosa va takliflar.** Quyi Amudaryo xududi suv ekotizimlarida ikki pallali mollyuskalarning faunistik tarkibi birinchi bor maxsus taxlil qilindi. Tadqiqotlarimiz natijasida Quyi Amudaryo havzalarida Corbiculidae oilasining 2 ta urug'iga mansub 5 ta turi tarqalganligi aniqlandi. Ushbu turlardan *Corbicula cor*, *Corbicula fluminalis*, va *Corbicula purpurea* turlar xudud suv ekotizimlarida kichik biotoplardan tarqalgan stenabiont turlar ekanligi, *Corbiculina tibetensis* va *Corbiculina ferghanensis* turlari esa keng tarqalgan evribiont turlar ekanligi aniqlandi.

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