



Changes In Soil Alcocenoses In Steep Regions

**Khusanova Onarkhan
Gaybullaevna¹**

¹Namangan Institute of Engineering and Technology, Department of Landscape Gardening, Faculty of Engineering and Technology, Namangan City, Uzbekistan

Zokirova Moxidilxon²

²Andijan State University, Faculty of Biology, Department of Biology, Andijan city, Uzbekistan
Corresponding author's e-mail: xusanovaonora@gmail.com

ABSTRACT

In this article, the number and diversity of species of soil alcocenoses distributed in the steep regions of the northern, southern, eastern and western parts of the Fergana Valley were taxonomically analyzed. According to it, Cyanophyta, Xanthophyta, Bacillariophyta, Chlorophyta, Euglenophyta and Cryptophyta divisions have 73-79 species in the plain regions, 62-68 species in the hills, 54-59 species in the foothills and 42-45 species in the mountains. considered.

Keywords:

ecotope, species, section, Cyanophyta, Xanthophyta, Bacillariophyta, Chlorophyta Euglenophyta, Cryptophyta, alcocenosis

Introduction

Ecotopes classify landscapes based on a combination of biotic and abiotic factors, including plants, soil, alcocenoses, microorganisms, and other factors. The first tariff of the ecotop was given by Torvald Sorensen in 1936.

Ecotope is a homogeneous ecological space consisting of various landscape components, physiotope (topographic, lithological features and soil), biotope (vegetation cover), anthropope (anthropogenic factors).

In world practice, special attention is paid to the use of natural ecosystems. In this, the biotic factors of soil formation - plant cover, alcocenoses and the soil microbiomass associated with them play the main role. The activity of alcocenoses is related to the

maintenance of soil fertility and ecosystem functions, the balance of nutrient circulation, and ecological adaptation to stressful conditions. In addition, some soil algae have the ability to quickly adapt and absorb any changes in the environment. The structure and components of alcocenoses are determined by the agrochemical and microbiological parameters of the soil. At the same time, communities of alcocenoses are found in different ways in cultivated and uncultivated, man-made landscapes and soils in eroded areas.

Material and Methods

Algoflora analysis is based on the criteria described by E. A. Shtina and M. M. Gollerbach (1976): species composition, dominant species and species, algae, occurrence of separate species or groups of algae, is calculated by the following formula.

$$B(\%) = \frac{\text{number of specimens found species}}{\text{total number of samples examined}} \cdot 100\%$$

Results

In order to obtain complete information about the distribution patterns of algocenoses in the soil conditions of the steep regions of the Fergana Valley, a study was conducted in developed and undeveloped areas. In the years 2012-2022, samples were taken in spring,

summer, autumn and winter in the steep regions of the northern, southern, eastern and western parts of the valley. It was observed that in the soils of all studied areas there were few or many types of soil algae. The flora of algae in the soils of the plain regions is distinguished by the number of species and diversity compared to other regions, which made it possible to identify the soils of the plain regions as favorable for the life and development of algae. The taxonomic analysis of the algocenosis of the valley according to the ecotope is presented in Table 1.

Table 1
Taxonomic analysis of algocenosis of the Fergana Valley depending on the ecotope

Bo'limlar	Shimoliy qism				Janubiy qism				G'arbiy qism				Sharqiy qism			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Cyanophyta	5 2	4 0	32	28	4 5	4 0	31	22	5 4	4 1	39	28	4 3	4 0	33	21
Xanthophyta	7	6	6	5	1 0	6	8	7	4	5	7	3	8	8	8	8
Bacillariophyta	9	1 0	9	6	1 1	1 2	12	10	8	8	3	3	1 0	1 2	11	6
Chlorophyta	7	8	8	4	1 3	7	8	5	7	8	5	8	1 3	8	4	6
Euglenophyta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
Cryptophyta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Jami	7 5	6 4	5 5	4 3	7 9	6 5	5 9	4 4	7 3	6 2	5 4	4 2	7 4	6 8	5 8	4 5

Note: I-plain, II-adir, III-mountain, IV-mountain regions.

In this table, we identified the main ecotopes of algocenose habitat. General types and species of algocenoses were recorded in the ecotope of the steep regions. As a result, the number of species of soil algae in the plains of the northern, southern, western and eastern steep regions of the Fergana Valley is from 73 to 79, depending on the ecotope, from 62 to 68 in the hills, from 54 to 59 in the foothills, and from 42 to 45 in the mountains. the number of taka has decreased. In this case, the normal life activity of algocenoses depended on the soil salinity level, the environment, the amount of humus and mineral substances, climatic factors and anthropogenic influences.

According to the results of the analysis, the number of soil algae increased from the

upper mountain regions to the lower plains. For example, in the northern, southern, western and eastern steep regions, the number of algocenoses decreased from 73-79 species in the plain regions, to 62-68 species in the hills, to 54-59 species in the foothills, and to 42-45 species in the mountains. At the same time, the diversity of algocenoses decreased in the foothills and mountain regions. When analyzing our results and literature, the normal life activity of algae depends on the salinity of the soil, the environment, the amount of humus and mineral substances, climatic factors, anthropogenic influences, and the soil reclamation system.

Algocenoses serve as a link between soil and plants. Algae play an important role in

ecological adaptation of plants to stressful conditions.

Discussion

In the soils of the areas where we conducted our research, algocenoses from the Cyanophyta section are *Synechocystis parvule*, *Synechocystis sallensis*, *Nostoc punctiforme* f. *polymorphum*, *Nostoc punctiforme* f. *populorum*, *Nostoc verrucosum*, *Anabaena variabilis*, *Oscillatoria nitida*, *Oscillatoria splendida*, *Oscillatoria lemmermannii*, *Oscillatoria brevis*, *Phormidium foveolarum*, *Phormidium dimorphum*, *Phormidium favosum*, *Phormidium coutinhoi*, *Phormidium uncinatum*, *Lyngbya lagerheimii*, *Plectonema edaphicum*, *Plectonema puteale*, *Microcoleus vaginatus* f. *polythrichoides*, *Spirulina jenniferi*; *Pleurogaster lunaris*, *Botrydiopsis arhiza*, *Botrydiopsis eriensis*, *Tribonema vulgare*, *Heterococcus caespitosus* from Xanthophyta; *Melosira undulata*, *Fragilaria brevistriata*, *Achnanthes andicola*, *Achnanthes minutissima*, *Navicula mutica* from Bacillariophyta; *Hypnomonas tuberculata*, *Chlorococcum dissectum*, *Chlorosarcina minor*, *Protococcus viridis*, *Scenedesmus bijugtus*, *Chlorolobion lunulatum*, *Fernandinella alpine* species and species dominated from Chlorophyta.

The species of the Cyanophyta division are very diverse and dominant in all regions, and the presence of mucilage in the upper layer of the cell membrane increases their viability and durability. In the analysis of the samples, it was found that the number of species is much less in the mountain and mountain regions. In these areas, the soil has been eroded by strong winds and rains. Similar studies were conducted by Yu. A. Tokhtaboeva when studying the main soil types of the Fergana Valley, and S. T. Mamasoliev studied the diversity of soil algae in the residential, recreational, transport and industrial areas of Andijan city. The authors showed that the decrease or increase in the diversity of soil algae depends on soil pollution and climate factors

Conclusion

Shunday qilib, Farg'ona vodiysini turli ekotoplarida algotsenozining yuqori xilma-xilligi (288 tur va tur xillari) kuzatildi. Bunda asosan Cyanophyta bo'limining turlari keng

tarqalgan bo'lib, qolgan Xanthophyta, Bacillariophyta, Chlorophyta bo'limining turlari kamroq tarqalgan (jami algoflorani 36,9 %). Euglenophyta va Cryptophyta bo'limlarining turlari faqat Farg'ona vodiysini sharqiy qismining tog' mintaqalarida uchraganligi aniqlandi. Tekislik, adir mintaqalarida antropogen ta'sirida tuproqlarda chirindi va namlikni yetarli bo'lishi suvo'tlarning yashasha, ko'payishi hamda turlar sonining xilma-xil bo'lishiga asoslandi.

List of Literatures

1. Khusanova O., Kurbonov I., Kamoliddinov M. Ecological features of the northern Fergana soil algae // International Journal of Advanced Science and Technology. Australia. 2020. Vol 7, 77- P. 539-544.
2. Khusanova O. Surveys on soil algoflora in Uzbekistan // International Journal of innovations in engineering research and Technology (injiert). India. 2020. Volume 7, P. 141-143.
3. Onarkhon Khusanova. Comparative analysis of soil algoflora in some regions of Uzbekistan and Central Asia // International Journal of Virology and Molecular Biology 2023; 12(2): - P. 19-21.
4. Onarkhon Khusanova, Muhammadali Kamoliddinov. The Ecological Features of the Soil Seaweeds. // International Conference. -2022. - P. 030003-1, 030003-5 (Scopus & Web of Science Indexed).
5. Khusanova O., Kurbonov I., Mamajanova Sh., Abdullaeva A. Taxonomic Composition Of Soil Algoflora Of The Northern Fergana Valley// Turkish Online Journal of Qualitative. -2021. - P.7461-7469
6. Khusanova O.G., Rakhimova Z.B, Uzokova Z.A, Alikhanov SM., Yokubzhanov M.O. Soil algae discovered in the soils of the mountainous region of the Fergana Valley // E3S Web of Conferences 537, 050 (2024) The Authors, published by EDP Sciences. This is an open access article distributed

- under the terms of the Creative Commons Attribution License 4.0.
7. Khusanova O. Green soil algae distributed in the soils of Fergana valley// International Conference on Advance Research in Humanities, Applied Sciences and Education Hosted from New York, USA. August, 28th 2023. P.63-66.
 8. Misirova, S. A. "Systematic types of fungi of allocated and determined types from decorative flowers in conditions region Tashkent." *Agricultural sciences* 6.11 (2015): 1387.
 9. Misirova, Surayyo, and Ibrohim Qurbanov. "Biological Characteristics of Fungal Pathogens of Bulb Flowers and Control Measures." *Texas Journal of Agriculture and Biological Sciences* 22 (2023): 49-56.
 10. Abdumutalovna, Misirova Surayyo, and Sarimsaqova Nilufar Sobirjonovna. "Bioecology of Fungi-Pathogens of Flower Crops and the System to Combat Them." *Agricultural sciences* 7.8 (2016): 539-547.
 11. Misirova, S., et al. "Growing Dutch tulips in Namangan region." *Bulletin of Agrarian Science of Uzbekistan* 1 (2021).
 12. Misirova, Surayyo, and Ibrohim Qurbanov. "Biological Characteristics of Fungal Pathogens of Bulb Flowers and Control Measures." *Texas Journal of Agriculture and Biological Sciences* 22 (2023): 49-56.
 13. Misirova, Surayyo. "Technology of growing orchid flowers from seeds." *E3S Web of Conferences*. Vol. 390. EDP Sciences, 2023.
 14. MISIROVA, SA, and NN ERNAZAROVA. "FIGHTING MEASURES THE DISEASE CAUSES A VERY DANGEROUS FUNGAL SPECIES WIDESPREAD IN TASHKENT REGION." *International Journal of Botany and Research (IJBR)* 6 (2016): 5-12.
 15. MISIROVA, SA. "TECHNOLOGY OF CULTIVATION AND REPRODUCTION OF ORNAMENTAL AND UNIQUE ORCHID FLOWER IN NAMANGAN CONDITIONS." *World Bulletin of Social Sciences* 17 (2022): 156-164.
 16. Misirova, S. A. "BIOLOGICAL CHARACTERISTICS OF FUNGAL SPECIES THAT CAUSE DISEASES OF ONION FLOWERS AND MEASURES TO COMBAT THEM." (2022).
 17. Misirova, S., and M. Haydarova. "Flowers from Nederland are Considered to Develop in the Climatic Conditions of Uzbekistan and Are Identified the types of Fungus." *Annals of the Romanian Society for Cell Biology* 25.4 (2021): 5922-5929.
 18. Misirova, S. A., et al. "Determination types of fungi-pathogens of ornamental flower crops in conditions region Namangan." *ISJ Theoretical & Applied Science* 10.66 (2018): 185-189.
 19. Abdumutalovna, Misirova Surayyo, and Muhabbat Davlatova Urmanovna. "Technology of in vitro propagation of mangosteen in the climatic conditions of Uzbekistan." *NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal| NVEO* (2021): 5610-5617.
 20. Мисирова, Сурайё Абдумуталовна. "БИОЛОГИЧЕСКАЯ ЭФФЕКТИВНОСТЬ ФУНГИЦИДОВ В БОРЬБЕ С МУЧНИСТОЙ РОСОЙ И РЖАВЧИНОЙ РОЗ." *Научный поиск в современном мире*. 2016.
 21. Misirova, Surayyo. "Reproduction technology of a unique orchid flower in the conditions of Namangan." *Texas Journal of Agriculture and Biological Sciences* 22 (2023): 37-48.
 22. Мисирова, Сурайё Абдумуталовна, Иброхим Шарифбаевич Курбонов, and Назокат Кобилжоновна Сайфуллаева. "ОПРЕДЕЛЕНИЕ ГРИБКОВЫЕ БОЛЕЗНИ ЦВЕТОЧНЫХ КУЛЬТУР В УСЛОВИЯХ ОБЛАСТИ НАМАНГАНА." *Theoretical & Applied Science* 10 (2018): 185-189.
 23. Мисирова, Сурайё Абдумуталовна. "Биоэкология грибов-возбудителей болезней цветочных культур и создание ситемы борьбы с ними." *Материалы* 54-й

- Международной научной студенческой конференции МНСК-2016: Сельское хозяйство. 2016.
24. Насритдинов, А., А. Нормирзаев, and А. Нуриддинов. "Разработка агрегатов для основной и предпосевной обработки почвы к севы промежуточных." *ФУНДАМЕНТАЛ ФАНЛАР* (2015): 44.
 25. Насритдинов, Ахмаджон Абдухамидович, and Хусниддин Тургунбоевич Киргизов. "Агрегат для полосной обработки почвы." *Современные научные исследования и инновации* 12 (2015): 412-416.
 26. Байбобоев, Н. Г., Насриддинов, А. А., Нормирзаев, А. Р., & Нуриддинов, А. Д. (2014). Энергоресурсосберегающий комбинированный агрегат для обработки почвы. *Вестник Рязанского государственного агротехнологического университета им. ПА Костычева*, 3(23), 42-44.
 27. Насритдинов, Ахмаджон Абдухамидович. "Результаты исследования формы лобовой поверхности стойки чизеля-культиватора." *Universum: технические науки* 1 (58) (2019): 18-20.
 28. Бойбобоев, Набижон Гуломович, and Ахмаджон Насритдинов. "Теоретические определение перемещение частиц почвы по поверхности углоснима." *Science Time* 6 (18) (2015): 84-89.
 29. Бойбобоев, Набижон Гуломович, and Ахмаджон Насритдинов. "Теоретические определение перемещение частиц почвы по поверхности углоснима." *Science Time* 6 (18) (2015): 84-89.
 30. Ходжаев, Ш. Т., Сагдуллаев, А. У., Исаев, О. Б., & Юсупова, М. Н. (2011). Проблемы защиты растений в Узбекистане. *Защита и карантин растений*, (8), 23-24.
 31. Yusupova, M. N., and A. M. Gapparov. "Biological Method Of Plant Protection In Uzbekistan." *The American Journal of Agriculture and Biomedical Engineering* 2.11 (2020): 29-32.
 32. Ходжаев, Ш. Т., Юсупова, М. Н., Курязов, Ш., & Саттаров, Н. (2008). Перспективы биологической защиты хлопчатника от хлопковой совки. *Сб. трудов.-Ташкент: Таллин*, 44-49.
 33. Yusupova, M. N. "Biological method of crop protection in the fergana valley." *Agrarian science* 6 (2018): 68-70.
 34. Юсупова, Махпуза Нумановна, Азиза Нуьмановна Тургунова, and Сайдулло Нуриддинович Очиллов. "Система интегрированной защиты растений." *Российский электронный научный журнал.-2015* 1 (2015): 169-174.
 35. MN, Yusupova, and B. Z. Nosirov. "Control Of Cotton Pests On Stubble Lands." *International Journal of Applied* 10.2 (2015): 99-108.
 36. Yusupova, M. N., S. T. Hodzhaev, and K. S. Mamatov. "Possibilities of the biological method of cotton plant protection." *Agriculture and Biology Journal of North America* 2.5 (2011): 742-744.
 37. Yusupova, Махпуза. "Protection of after harvest cultures-as a reservetors of cotton pests." *Agriculture and Biology Journal of North America* 4.5 (2013): 576-582.
 38. Ходжаев, Ш. Т., Юсупова, М. Н., Юлдашев, Ф., Исаев, О. Б., & Шокирова, Г. (2011). Борьба с вредителями хлопчатника на пожнивных культурах в севообороте. *Вестник защиты растений*, (2), 46-52.
 39. Ходжаев, Ш. Т., Юсупова, М. Н., Юлдашев, Ф., & Жамалов, А. Г. (2010). Хлопковая совка на пожнивных культурах. *Защита и карантин растений*, (12), 22-23.
 40. Юсупова, М. "Особенности защиты хлопчатника посеянного под пленки от вредных организмов." *Автореф. канд. дисс./М. Юсупова-Ташкент* (2001).

41. Yusupova, Makhpuza, Shakhnoza Irisova, and Otabek Numonov. "Biology of Pomegranate Pests, Control Measures and First Aid in Case of Pesticide Poisoning." *BIO Web of Conferences*. Vol. 82. EDP Sciences, 2024.
42. Yusupova, M., Turgunova, A., & Ochilov, S. INTERGRATED PLANT PROTECTION SYSTEMS.
43. Yusupova, M. N., and B. Z. Nosirov. "Cotton Pest Control on Stubble Crops at Crop Rotation." *International Journal of Biotechnology and Allied Fields* 1.11 (2013): 472-482.
44. Khodzhaev, S. T., Sagdullaev, A. U., Isaev, O. B., & Yusupova, M. N. (2011). Plant protection problems in Uzbekistan.
45. Khodzhaev, S. T., Yusupova, M. N., Yuldashev, F., & Zhamalov, A. G. (2010). Cotton bollworm in the post harvest crops.
46. Khodzhaev, Sh T., and M. N. Yusupova. "Defoliation times and bollworm." (2001): 35.
47. Sabirov, R. Z., Kurbannazarova, R. S., Melanova, N. R., & Okada, Y. (2013). Volume-sensitive anion channels mediate osmosensitive glutathione release from rat thymocytes. *PLoS One*, 8(1), e55646.
48. Rashidovna, Melanova Nazira, and Numonov Otabek Urmonovich. "Comparative Characteristics of the Leaving of Glutathione From Cells of Different Types." *International Journal on Orange Technologies* 2.10: 79-82.
49. Sabirov, R. Z., Kurbannazarova, R. S., Melanova, N. R., & Okada, Y. (2010, January). Swelling-induced release of glutathione from rat thymocytes. In *JOURNAL OF PHYSIOLOGICAL SCIENCES* (Vol. 60, pp. S13-S13). 1-11-11 KUDAN-KITA, CHIYODA-KU, TOKYO, 102-0073, JAPAN: SPRINGER TOKYO.
50. Melanova, N. R., M. U. Davlatova, and O. Numanov. "The Effect of Extracellular Glutathione on the Regulation of Thymocyte Volume in Rats under Conditions of Hypoosmotic Stress." *Annals of the Romanian Society for Cell Biology* (2021): 7032-7038.
51. Меланова, Назира Рашидовна. "Сравнительная характеристика выхода глутатиона из различных типов клеток." *Universum: химия и биология* 5 (59) (2019): 9-12.
52. Melanova, N. R., & Yulchiyeva, S. A. (2021). EFFECT OF EXTRACELLUIAR GLUTATHIONE ON COLLOID-OSMOTIC LYSIS OF HUMAN RED BLOOD CELLS. *Scientific Bulletin of Namangan State University*, 2(2), 144-149.
53. Choriyeva, N. M., & Melanova, N. R. (2019). STUDY OF LYSIS OF HUMAN ERYTHROCYTES UPON ADMINISTRATION OF GOSSYPOL, MEGOSIN AND BATRIDEN. *Bulletin of Namangan State University: Vol, 1(9)*, 11.
54. Melanova, N. R., Yulchieva, S., Rahimova, G. L., & Mamadjanova, M. A. (2020). The role of intracellular camp in the production of glutathione from rat thymocyte cells under hypoosmotic stress. *International journal of Advanced Science and Technology*, 29(8 Special Issue), 821-825.
55. Melanova, N. R. (2023). REPRODUCTION OF THE MAGNOLIA (MAGNOLIACEAE) PLANT IN NAMANGAN CONDITIONS. *British Journal of Global Ecology and Sustainable Development*, 22, 81-87.
56. Melanova, Nazira R. "The importance of the soap tree plant (*Kelreiteria Paniculata*) in environmental protection and landscaping in the climatic conditions of the Namangan region." *E3S Web of Conferences*. Vol. 390. EDP Sciences, 2023.
57. Шамситдинов, Ф. "Результаты опыта." *Защита и карантин растений* 5 (2003): 27-27.
58. Абдуалимов, Ш. Х., and Ф. Р. Шамситдинов. "Влияние применения стимуляторов роста на всхожесть семян, рост, развитие и урожайность хлопчатника в условиях светлых сероземных каменистых почв Наманганской области Республики

- Узбекистан." *Актуальные проблемы современной науки* 5 (2019): 47-51.
59. Абдуалимов, Шухрат Хамадуллаевич, and Фазлиддин Расулович Шамситдинов. "НАМАНГАН ВИЛОЯТИНИНГ ҚИР АДирЛИ ТОШЛОҚ ЕРЛАРИДА ЯНГИ СТИМУЛЯТОРЛАРИНИНГ ҒЎЗА БАҒГ ЮЗАСИ ВА ҲОСИЛДОРЛИГИГА ТАЪСИРИ." *Журнал Биологии и Экологии* 1 (2019).
60. Kurbanov, I. G. "CARE OF TULIP VARIETIES OF THE NETHERLANDS IN THE CLIMATIC CONDITIONS OF THE NAMANGAN REGION." *American Journal of Interdisciplinary Research and Development* 6 (2022): 117-120.
61. Qurbonov, Ibragim Sharifjonovich. "CLONELY MICRO-CULTIVATION OF PLANTS AND ITS APPLICATION TO AGRICULTURE." *Scientific Bulletin of Namangan State University* 1.4 (2019): 74-78.
62. Qurbonov, I. "E-RECRUITMENT: SOCIAL MEDIA AND RECRUITING." *InterConf.-2021*.
63. Qurbonov, I. "Tulip varieties imported from the netherlands technology of cultivation of namangan region. galaxy international interdisciplinary research journal (giirj) issn (E): 2347-6915 Vol. 9." (2021).
64. Yusupova, M., Irisova, S., & Numonov, O. (2024). Biology of Pomegranate Pests, Control Measures and First Aid in Case of Pesticide Poisoning. In *BIO Web of Conferences* (Vol. 82, p. 01014). EDP Sciences.
65. Irisova, Sh. "Protection Of Plants Sown After Cereals In The Fergana Valley." *Science and innovation* 2.D11 (2023): 158-166.
66. Irisova, Sh. "GROWTH AND REPRODUCTION CHARACTERISTICS OF BLACK FISH (SCHIZOTHORAX INTERMEDIUS) IN A PASTORAL POOL." *Science and innovation* 3.D10 (2024): 132-136.
67. IRISOVA, Shakhnoza. "BIO-ECOLOGICAL FEATURES OF BLACKFISH (SCHIZOTHORAX INTERMEDIUS) IN CHERVOK RESERVOIR." *Journal of Experimental Studies* 1.12 (2023): 18-24.
68. Yusupova, Makhpuza, and Shakhnoza Irisova. "Agrotechnological protection of cotton from sucking pests in various ways of planting." *E3S Web of Conferences*. Vol. 390. EDP Sciences, 2023.
69. Faxriddinova, Irisova Shakhnoza. "Ekish oldidan chigitga elektrofaollashgan suv bilan ishlov berishning g'o'zaning o'sish davriga ta'siri." *Science and innovation* 2.Special Issue 11 (2023): 421-425.
70. Urmonovich, Numonov Otabek. "MANGOSTEEN NUTRITIONAL PRICE AND FUNCTIONAL PROPERTIES." *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ* 14.5 (2023): 3-5.
71. Abduhamidovich, Nasritdinov Ahmadjon. "MANGOSTIN DARAXTI VA MEVASINI TIBBIYOTDA FOYDALANISH." *Journal of new century innovations* 28.2 (2023): 12-14.
72. Юсупова, Махпуза Нумановна. "ФАРФОНА ВОДИЙСИ ШАРОИТИДА ИГНА БАҒЛИ ДАРАХТЛАРНИ ЗАРАКУНАНДАЛАРДАН ҲИМОЯЛАШ." *SO 'NGI ILMIY TADQIQOTLAR NAZARIYASI* 6.4 (2023): 316-320.
73. Юсупова, Махпуза Нумановна. "АНОРНИ ЗАРАКУНАНДАЛАРДАН ҲИМОЯЛАШ." *PEDAGOG* 6.4 (2023): 562-567.
74. Юсупова, Махпуза Нумановна. "БИОЛОГИЧЕСКИЙ МЕТОД ЗАЩИТЫ РАСТЕНИЙ." *Scientific Impulse* 1.9 (2023): 1460-1464.
75. O'rmonovna, Davlatova Muhabbat. "MANGOSTIN DARAXTI VA UNING KIMYOVIY XUSUSIYATLARI." *INNOVATION IN THE MODERN EDUCATION SYSTEM* 3 (2022): 1-4.
76. Юсупова, Махпуза Нумановна. "УФТ: 635 САБЗАВОТ ЭКИНЛАРИГА БИОЛОГИК КУРАШ ҲАҚИДА

- МУЛОХАЗАЛАР." *Научный импульс* 355.
77. Юсупова, М. Н., and О. У. Нумонов. "ЗАЩИТА ТУТОВОГО ДЕРЕВА ОТ ВРЕДИТЕЛЕЙ." *Экономика и социум* 6-1 (121) (2024): 1500-1503.
78. Shamsitdinov, Fazliddin, and Numonov Otabek Urmonvich. "FIBERS OF THE PREPARATION BIOBARS-M IMPACT ON QUALITY INDICATORS I." *American Journal of Interdisciplinary Research and Development* 23 (2023): 173-175.
79. Юсупова, Махпуза Нумановна. "ТУТ ПАРВОНАСИ ВА УНИНГ ЗАРАРИ." *O'ZBEKISTONDA FANLARARO INNOVATSIYALAR VA ILMIY TADQIQOTLAR JURNALI* 3.32 (2024): 35-38.
80. Khusanova, Onarkhon, and Muhammadali Kamoliddinov. "The ecological features of the soil seaweeds." *AIP Conference Proceedings*. Vol. 2789. No. 1. AIP Publishing, 2023.
81. Khusanova, O. G., M. I. Kamoliddinov, and D. B. Muhammadjanova. "The taxonomic structure of soil waterweed in altitudinal belt of the north fergana." *Asian Journal of Multidimensional Research (AJMR)* 8.2 (2019): 332-336.
82. Xusanova, Onarxon. "FARG 'ONA VODIYSI TEKISLIK MINTAQALARIDA TARQALGAN AL'GOSENOZLARNING EKOLOGIYASI." *Namangan davlat universiteti Ilmiy axborotnomasi* 8 (2023): 190-195.
83. Khusanova, Onarkhon, and Zulfiya Rakhimova. "ФАРФОНА ВОДИЙСИ ТУПРОҚЛАРИДА ЎЧРАЙДИГАН (CHLOROPHYTA) ЯШИЛ СУВ ЎТЛАРИ." *Formation and Development of Pedagogical Creativity: International Scientific-Practical Conference (Belgium)*. Vol. 1. 2023.
84. Khusanova, Onarkhon. "GREEN SOIL ALGAE DISTRIBUTED IN THE SOILS OF FERGANA VALLEY." *Conferencea* (2023): 63-66.
85. Khusanova, Onarkhon. "SOIL ALGAE INDICATORS." *E Conference Zone*. 2023.
86. Onarkhon, G., Khusanova Kh, and X. A. Alimjanova. "Structure and taxonomic analysis of soil algae steep areas of northern Ferghana in winter." *European science review* 7-8 (2018): 26-29.
87. Khusanova, Onarkhon Gaybullaevna. "TAXONOMIC ANALYSIS OF THE SUANOPHYTA DEPARTMENT ON THE SOILS OF THE NORTHERN FERGANA." *Scientific Bulletin of Namangan State University* 2.2 (2021): 136-140.