



CENTRAL ASIAN JOURNAL OF THEORETICAL AND APPLIED SCIENCES

Volume: 03 Issue: 06 | Jun 2022 ISSN: 2660-5317

Biological Activity of Typical Irrigated Gray Soils (On the Example of Tashkent Region)

Abdukadirova Muxarram Arabboyevna

Fergana Polytechnic Institute
muharramabdukadyrova@gmail.com

Received 24th Apr 2022, Accepted 13th May 2022, Online 16th Jun 2022

Abstract: The article examines some physiological groups of microorganisms (ammonifiers, oligonitrophiles, fungi) in the typical irrigated gray soils of Orta Chirchik district of Tashkent region.

Keywords: irrigated, gray, soil, farming, ammonifiers, oligonitrophiles, fungi mineral.

Introduction. Of all the agro-technologies used in agriculture today, soil microflora is not taken into account or denied at all. Soil microorganisms are the "living machines" of agriculture. Some species of microorganisms cause humus to form, while others break it down and turn it into minerals that plants can absorb. [1-5]

Effective microorganisms or EM technologies can help in the effective application of microorganisms and in solving environmental, energy and food problems related to agriculture. The purpose of EM technologies is to increase the activity and create conditions for beneficial microorganisms that can reduce harmful microflora, create a healthy environment for the soil and plants, increase soil fertility and crop yields. [6-10]

Our research was carried out on autorphic soils in Orta Chirchik district of Tashkent region.

Main part. In typical gray soils, the amount of microorganisms decreases under the influence of erosion processes. As a result of erosion processes, the amount of nutrients in the soil decreases and the activity of microorganisms slows down. It was observed that the amount of microorganisms in the soil varies depending on the amount of humus and nutrients and the degree of soil erosion. The use of the drug Bakal EM also had a positive effect on the amount of humus and nutrients in the soil (Table 1). [10-15]

Table 1. During the vegetation period of wheat in typical gray soils irrigated agrochemical properties

Option	Depth, cm	Humus, %	N-N ₀₃ mg/kg	P ₂ O ₅ mg/kg	K ₂ O mg/kg
1. Supervision	0-30	1,42	28,2	6,0	148
	30-50	1,09	26,3	4,0	115
2. Baikal EM1	0-30	1,46	36,3	3,3	115
	30-50	1,09	30,9	2,0	110

Table 2. The amount of microorganisms in typical gray soils irrigated

Cut №	Options	Depth, CM	Ammoni-fixators	Oligoniterofillar	Actinomites	Zamburugs
Eroded soil, spring						
1	1-option	0-30	210 000	510	255	210
2		30-50	130 500	135	165	165
3	2-option	0-30	142 500	825	285	150
4		30-50	96 000	240	225	105
Moderately eroded, spring						
1	1-option	0-30	93 000	375	210	165
2		30-50	57 000	270	150	75
3	2-option	0-30	73 500	345	165	120
4		30-50	30 000	270	105	45
Eroded soil, summer						
1	1-option	0-30	130 000	150	95	30
2		30-50	36 000	18	60	20
3	2-option	0-30	140 00	170	120	40
4		30-50	93 000	160	80	25

1. option, control.

2. option, Baikal EM1 drug was used.

In order to study the amount of microorganisms in the conditions of typical gray soils, field experiments were carried out on winter wheat, samples were taken from the driving layer and the amount of ammonifiers, oligonitrophiles, actinomycetes, fungi was studied. The Baikal EM1 biopreparation was used in the experiment. [15-20]

It was also found that the use of this drug has a positive effect on the activity of microorganisms in typical irrigated gray soils. This is because the microorganisms in the Baikal EM1 biopreparation enrich the soil with various enzymes, physiologically active substances and increase their activity, as a result of which they absorb more nitrogen from the air and increase soil fertility. [21-23] The aqueous solution of lactic acid bacteria and yeast produces amino acids, organic acids, polysaccharides and vitamins necessary for plants. It also has the properties of strengthening the physiological processes of the cell, strengthening the immune system of the plant, increasing its biofungicide against diseases, improving the biological activity and fertility of the soil.[24-30]

During the study, high levels of microorganisms were found in the option of using the biopreparation in relation to soil control. At the same time, as a result of soil erosion, a decrease in their number was observed. In non-eroded soils, the amount of ammonifiers in the 0-30 cm layer was 142,500,000 (humus 1.46%), 510 oligonitrophils, 285 actinomycetes, and 150,000 fungi. This figure can be seen to decrease slightly in moderately eroded soils (Table 2). [30-35]

In terms of seasons, the number of microorganisms in the spring was higher than in the summer. This can be explained by the fact that during this period favorable conditions for the development of microorganisms occur and the plant is supplemented during the same period. [35-44]

Conclusion. In summary, the number of representatives of taxonomic groups of microorganisms is negatively affected by erosion processes on the one hand, and on the other hand, on hot days of the year, ie in summer. Among the microorganisms studied, actinomycetes had a significant effect on the

application of organic and biopreparations to any conditions. The use of biohumus and biopreparations had a greater effect on the number of actinomycetes bacteria, while the use of fertilizers and biogumus and biopreparations had a higher effect on the amount of fungi. Mineral fertilizers had a positive effect on the number of soil ammonifiers and oligonitrophils. High levels of bacteria were observed in all options. In general, the application of biohumus and biopreparation to the soil gave high yields.

References

1. Arabboevna A. M., Shavkat o'g'li Y. S. The Use of Geoinformation Systems in the Study of the Land Fund of Household and Dekhkan Farms //Texas Journal of Multidisciplinary Studies. – 2022. – Т. 8. – С. 163-164.
2. Хакимова К. Р., Абдукадирова М. А., Абдухалилов Б. К. РАЗРАБОТКА ТЕМАТИЧЕСКИХ СЛОЕВ НА ОСНОВЕ СОВРЕМЕННЫХ ГИС-ПРОГРАММ КАРТ ЭКОЛОГИЧЕСКОГО АТЛАСА //Актуальная наука. – 2019. – №. 11. – С. 39-43.
3. Makhmud K., Khasan M. Horizontal Survey of Crane Paths //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 410-417.
4. Madaminovich A. B. The use of gis technology to create electronic environmental maps //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – Т. 10. – №. 5. – С. 438-440.
5. Kh T. K. et al. Strength Evaluation of the Charvak Earth Dam in a Plane Formulation //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 424-434.
6. Сорокин А. Г., Каюмов О. А. Динамическая модель трансформации стока р. Амударьи в среднем течении //Водные ресурсы Центральной Азии (Материалы научно-практической конференции, посвященной 10-летию МКВК). Алтаты. – 2002. – С. 154-158.
7. Khakimova K. R., Ahmedov B. M., Qosimov M. Structure and content of the fergana valley ecological atlas //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – Т. 10. – №. 5. – С. 456-459.
8. Abduvaxobovich A. A. Methods of Improving Physical and Mechanical Properties of Light Concrete on the Basis of Chemical Additives //Texas Journal of Multidisciplinary Studies. – 2022. – Т. 8. – С. 165-167.
9. Marupov A. A., Ahmedov B. M. General Characteristics of Zones with Special Conditions of use of the Territory //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 446-451.
10. Hamidov A. A., Shermatova Z. Changes in the cities of the fergana valley and its surroundings under the influence of anthropogenic factors //ACADEMICIA: An International Multidisciplinary Research Journal. – 2021. – Т. 11. – №. 6. – С. 736-739.
11. Shavkat o'g'li Y. S., Zuxriddinova M. S., Shuxratbek qiziOlimova D. RAQAMLI TASVIRLARNI QAYTA ISHLASH VA QAYTA ISHLASHNI TOIFALASHTIRISH //INNOVATION IN THE MODERN EDUCATION SYSTEM. – 2022. – Т. 2. – №. 18. – С. 425-429.
12. Хакимова К. Р., Абдукадирова М. А., Абдухалилов Б. К. РАЗРАБОТКА ИННОВАЦИОННЫХ МЕТОДОВ В КАРТОГРАФИЧЕСКОМ ОПИСАНИИ ЭКОЛОГИЧЕСКОГО СОСТОЯНИЯ //Актуальная наука. – 2019. – №. 11. – С. 34-38.
13. Kasimov M., Habibullaev E., Kosimov L., (2020). Determination of the chimney roll, An International Multidisciplinary Research Journal, 10(6), Pp 1313-1318.
14. Каюмов О., Кенда Д. Я., Манопов Х. В. ВІДНОВЛЕННЯ ТА ЗБІЛЬШЕННЯ ПРОДУКТИВНОСТІ ВОДОЗАБІРНИХ СВЕРДЛОВИН //ЛОГОС. МИСТЕЦТВО НАУКОВОЇ

- ДУМКИ. – 2019. – №. 8. – С. 47-50.
15. Marupov A., Axmedov B. General characteristics of zones with special conditions for using the territory of the city of Fergana //Збірник наукових праць ЛОГОΣ. – 2020. – С. 7-10.
 16. Salyamova K. D., Turdiqulov X. X. Analysis of stability of ground dams under seismic loads //Scientific-technical journal. – 2020. – Т. 3. – №. 1. – С. 37-41.
 17. ХАКИМОВ К. Ж. и др. ТЕХНОГЕННЫЕ ОТХОДЫ-ПЕРСПЕКТИВНОЕ СЫРЬЕ ДЛЯ МЕТАЛЛУРГИИ УЗБЕКИСТАНА В ОЦЕНКЕ ОТВАЛЬНЫХ ХВОСТОВ ФИЛЬТРАЦИИ МЕДНО-МОЛИБДЕНОВЫХ РУД //Universum: технические науки. – 2020. – №. 12-1 (81). – С. 54-59.
 18. Mamanazarovna E. M., Abbosxonovich M. A. Analysis of Agricultural Soils Designation of Different Linear Protected Zones using GIS Technology //CENTRAL ASIAN JOURNAL OF THEORETICAL & APPLIED SCIENCES. – 2021. – Т. 2. – №. 11. – С. 188-192.
 19. Hamidov A. A., Najmiddinova G. Geocological fundamentals of nature protection and rational use of natural resources in the fergana valley //Asian Journal Of Multidimensional Research. – 2021. – Т. 10. – №. 6. – С. 260-263.
 20. Shavkat o'g'li Y. S. et al. QISHLOQ XO 'JALIK KARTALARINI YARATISHDAGI GEODEZIK ISHLAR //THEORY AND ANALYTICAL ASPECTS OF RECENT RESEARCH. – 2022. – Т. 1. – №. 5. – С. 460-466.
 21. Abdukadirova M. A. The Role Of Builder And Building In The Development Of The Country Is Invaluable //The American Journal of Interdisciplinary Innovations Research. – 2021. – Т. 3. – №. 05. – С. 81-84.
 22. Musinovich S. M., Khaitmuratovich K. I., Raximovna K. K. Innovative Irrigation Technology //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 514-520.
 23. Манопов X. V., Kasimov M. KARTALARNING RAQAMLI MODELINI YARATISH //INTERNATIONAL CONFERENCES ON LEARNING AND TEACHING. – 2022. – Т. 1. – №. 8. – С. 252-258.
 24. Marupov A. A., Ahmedov B. M. General Characteristics of Zones with Special Conditions of use of the Territory //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 446-451.
 25. Salyamova K. D. et al. The Stress State Of A Soil Dam Under Dynamic Action, Taking Into Account The Dissipative Properties Of The Soil //International Journal of Progressive Sciences and Technologies (IJPSAT), <http://ijpsat.ijst-journals.org>. – 2021. – Т. 25. – №. 2. – С. 51-62.
 26. Xayitmurodovich K. I., Abbosxonovich M. A., Qizi M. M. D. Estimation Of Irrigated Soils Of Fergana Region (On The Example Of Dangara District) //The American Journal of Agriculture and Biomedical Engineering. – 2021. – Т. 3. – №. 05. – С. 8-12.
 27. Hamidov A., Khalilov K. LAND LEGISLATION AND SOIL PROTECTION IN THE FERGHANA VALLEY //Конференции. – 2021.
 28. Berdaliyeva Y. X. et al. Gis Dasturlari Yordamida Geografik Asos Qatlamlarini Joylashtirish Va Ularni Boshqarish //International Conferences On Learning And Teaching. – 2022. – Т. 1. – №. 6. – С. 312-314.
 29. Abduqodirova M. A., qizi Mirzakarimova G. M. GIS TEXNOLOGIYASI YORDAMIDA KARTANING GEOGRAFIK ASOSINI TUZISH, UNI TAHRIR QILISH //INTERNATIONAL CONFERENCES ON LEARNING AND TEACHING. – 2022. – Т. 1. – №. 6. – С. 309-311.
 30. Musinovich S. M., Khaitmuratovich K. I., Raximovna K. K. Methods of Irrigation of Gardens and

- Vineyards in Salty Land //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 521-525.
31. Maksudovich M. I., Bakhromalievich E. D., Valiyevich M. K. Order And Methodology For Determining Administrative-Territorial Borders Based On Digital Technologies //The American Journal of Engineering and Technology. – 2021. – Т. 3. – №. 03. – С. 49-57.
 32. Abduraufovich Q. O., Valiyevich M. X., Dilshodbeko'g'li H. E. Some issues of re-utilization of casing strings, unused water intake wells (for example, some countries in the south-western sahel) //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – Т. 10. – №. 6. – С. 1568-1574.
 33. Salyamova K. D., Turdikulov K. K. Stress state of an earth dam under main loads considering data from field observations //Journal of Physics: Conference Series. – IOP Publishing, 2021. – Т. 1926. – №. 1. – С. 012004.
 34. Numanovich A. I., Abbosxonovich M. A. The analysis of lands in security zones of high-voltage power lines (power line) on the example of the Fergana region //EPRA International Journal of Multidisciplinary Research (IJMR). – 2020. – Т. 2. – С. 25-30.
 35. Ogli Y. S. S., O'G'Li A. P. A. KOSMIK MA'LUMOTLAR YORDAMIDA YER TUZISH LOYIHA ISHLARINI OLIB BORISH //Ta'lim fidoyilari. – 2022. – Т. 25. – №. 5. – С. 23-25.
 36. Abdukadirova M. A., qizi Mirzakarimova G. M. The use of Geo Information System in the Establishment of Land Balance //Middle European Scientific Bulletin. – 2021. – Т. 18. – С. 441-445.
 37. Khakimova K. R., Holmatova D. B., Abdusalomov A. A. Basics of atlas mapping optimization in the ferghana region //ACADEMICIA: An International Multidisciplinary Research Journal. – 2020. – Т. 10. – №. 5. – С. 613-617.
 38. Yangiev A. et al. Dynamics of an earth dam with account for rheological properties of soil under dynamic effect //IOP Conference Series: Materials Science and Engineering. – IOP Publishing, 2020. – Т. 869. – №. 7. – С. 072005.
 39. Xakimova K. R., Marupov A. A., Mirzakarimova G. M. Maintaining Cadastral Valuation for the Effective Use of Agricultural Lands of the Fergana Region. ijarset. com “International Journal Of Advanced Research In Science, Engineering And Technology” //ORCID: 0000-0002-5120-4359. – 2019. – С. 6-10.
 40. Arabboyevna A. M. et al. In orthophotoplane technology photomod mosaic module //International Journal Of Discourse On Innovation, Integration And Education. – 2020. – Т. 1. – №. 4. – С. 93-97.
 41. Мирзаахмедова У. А. и др. Надежности И Долговечности Энергоэффективные Строительные Конструкций //Таълим ва Ривожланиш Таҳлили онлайн илмий журнали. – 2021. – Т. 1. – №. 6. – С. 48-51.
 42. Мирзабабаева С. М. и др. Влияние Повышенных И Высоких Температур На Деформативность Бетонов //Таълим ва Ривожланиш Таҳлили онлайн илмий журнали. – 2021. – Т. 1. – №. 6. – С. 40-43.
 43. Гончарова Н. И., Абобакирова З. А. БИТУМИНИРОВАННЫЙ БЕТОН ДЛЯ ПОДЗЕМНЫХ КОНСТРУКЦИЙ ЗДАНИЙ //INTERNATIONAL CONFERENCES ON LEARNING AND TEACHING. – 2022. – Т. 1. – №. 6. – С. 122-125.
 44. Мирзабабаева С. М., Мирзаахмедова Ў. А. ДРЕВЕСИНЫ И СТРОИТЕЛЬСТВО //INTERNATIONAL CONFERENCES ON LEARNING AND TEACHING. – 2022. – Т. 1. – №. 6. – С. 96-101.