

**МЕЖДУНАРОДНЫЙ ЦЕНТР НАУЧНОГО СОТРУДНИЧЕСТВА
«НАУКА И ПРОСВЕЩЕНИЕ»**



НАУКА и ПРОСВЕЩЕНИЕ
МЕЖДУНАРОДНЫЙ ЦЕНТР НАУЧНОГО СОТРУДНИЧЕСТВА

СОВРЕМЕННЫЕ НАУЧНЫЕ ИССЛЕДОВАНИЯ

АКТУАЛЬНЫЕ ВОПРОСЫ, ДОСТИЖЕНИЯ И ИННОВАЦИИ

**СБОРНИК СТАТЕЙ XXII МЕЖДУНАРОДНОЙ НАУЧНО-ПРАКТИЧЕСКОЙ КОНФЕРЕНЦИИ,
СОСТОЯВШЕЙСЯ 10 ДЕКАБРЯ 2021 Г. В Г. ПЕНЗА**

**ПЕНЗА
МЦНС «НАУКА И ПРОСВЕЩЕНИЕ»
2021**

СОДЕРЖАНИЕ

| | |
|---|----|
| ХИМИЧЕСКИЕ НАУКИ | 9 |
| ПРИБЛИЖЕННЫЙ РАСЧЕТ ЗАТРАТ МОЩНОСТИ ПРОЦЕССА ЭМУЛЬГИРОВАНИЯ В РОТОРНО-ДИСКОВЫХ СМЕСИТЕЛЯХ ЛАПОНОВ СЕРГЕЙ ВЛАДИМИРОВИЧ, ШУЛАЕВ НИКОЛАЙ СЕРГЕЕВИЧ | 10 |
| СИНТЕЗ ДОПИРОВАННОГО КИСЛОРОДОМ ГРАФИТОПОДОБНОГО НИТРИДА УГЛЕРОДА ИЗ МЕЛАМИНА СИДРАСУЛИЕВА ГОЗЗАЛ БЕКБЕРГЕНОВНА, КАТТАЕВ НУРИТДИН ТУРАЕВИЧ..... | 13 |
| БИОЛОГИЧЕСКИЕ НАУКИ | 16 |
| ВОЗДЕЙСТВИЯ ГЕКСАНА НА МОРФОЛОГИЧЕСКИЕ ИЗМЕНЕНИЯ КОСТНОГО МОЗГА ЭКСПЕРИМЕНТАЛЬНЫХ ЖИВОТНЫХ БЕКЕЕВА САУЛЕМАЙ АЙДАРОВНА, ХАМЗИНА ДАРЖАН ШОРТАНБАЕВНА | 17 |
| ВИДОВОЙ СОСТАВ СОРНОЙ РАСТИТЕЛЬНОСТИ В ПОСЕВАХ ОЗИМОЙ ПШЕНИЦЫ НА ТЕРРИТОРИИ РОСТОВСКОЙ ОБЛАСТИ ТАРИК ЕКАТЕРИНА ПЕТРОВНА, КУПРЮШКИН ДЕНИС ПАВЛОВИЧ, ВАРДУНИ ТАТЬЯНА ВИКТОРОВНА, ДМИТРИЕВ ПАВЕЛ АЛЕКСАНДРОВИЧ..... | 21 |
| ГЕОЛОГО-МИНЕРАЛОГИЧЕСКИЕ НАУКИ | 25 |
| BIOLOGICAL ACTIVITY OF OLD IRRIGATED MEADOW SOILS OF “MIRZO JAMSHID” FARM OF SHAFIRKAN DISTRICT OF BUKHARA REGION HAKIMOVA N.X., ISLOMOVA U..... | 26 |
| ТЕХНИЧЕСКИЕ НАУКИ | 29 |
| РАЗРАБОТКА ПРОЦЕССА КАЛИБРОВКИ ДЛИННОМЕРНОЙ ЦИЛИНДРИЧЕСКОЙ ЗАГОТОВКИ СО СНИЖЕНИЕМ ЕЁ ПРОЧНОСТНЫХ ХАРАКТЕРИСТИК ЦИКЛИЧЕСКИМ ЗНАКОПЕРЕМЕННЫМ ДЕФОРМИРОВАНИЕМ СПАДАЮЩЕЙ ИНТЕНСИВНОСТИ КУЗНЕЦОВ СЕРГЕЙ АЛЕКСАНДРОВИЧ | 30 |
| УКЛАДКА И УПЛОТНЕНИЕ БЕТОННОЙ СМЕСИ БЕТОНОУКЛАДЧИКОМ ИЛИЕВ АДАМ АДЫЛХАМИТОВИЧ | 38 |
| МОДЕЛИРОВАНИЕ УГРОЗ В РАМКАХ БЕЗОПАСНОЙ РАЗРАБОТКИ ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ МАКОВСКИЙ КОНСТАНТИН ЕВГЕНЬЕВИЧ | 41 |
| ПРОЧНОСТЬ ГРУНТА В УСЛОВИЯХ КОЛЕБАНИЙ ДОСАЛИЕВ К.С., БЕКЗАТ Л.Т., ЖАСТАЙ Д.Н. | 44 |
| ЭКОНОМИЧЕСКИ ЭФФЕКТИВНАЯ ТЕХНОЛОГИЯ ПРОИЗВОДСТВА ДЕЛАКТОЗИРОВАННОЙ ДЕМИНЕРАЛИЗОВАННОЙ МОЛОЧНОЙ СЫВОРОТКИ ШЕВЧУК В.Б., СЛАВОРОСОВА Е.В., ФИАЛКОВА Е.А. | 48 |

ГЕОЛОГО- МИНЕРАЛОГИЧЕСКИЕ НАУКИ

УДК 551

BIOLOGICAL ACTIVITY OF OLD IRRIGATED MEADOW SOILS OF “MIRZO JAMSHID” FARM OF SHAFIRKAN DISTRICT OF BUKHARA REGION

HAKIMOVA N.X.

Teacher

ISLOMOVA U.

Student

Bukhara State University

Аннотация: Микроорганизмы – ключевой фактор в процессе почвообразования и необходимое звено обмена веществ в природе. В зависимости от климатических условий, растительного покрова и физико-химических свойств почвы в этом типе почвы формируется набор микроорганизмов, специфичных для данного подвида.

Ключевые слова: луговые почвы, актиномицеты, олигонитрофилы, окислительно-восстановительные и гидролитические ферменты, хозяйство «Мирзо Джамшид», Шафирканский район.

БИОЛОГИЧЕСКАЯ АКТИВНОСТЬ СТАРЫХ ОРОШАЕМЫХ ЛУГОВЫХ ПОЧВ ХОЗЯЙСТВА «МИРЗО ДЖАМШИД» ШАФИРКАНСКОГО РАЙОНА БУХАРСКОЙ ОБЛАСТИ

Хакимова Н.Х.,

Исломова У.

Abstract: Microorganisms are a key factor in the process of soil formation and a necessary link in the metabolism in nature. Depending on the climatic conditions, vegetation cover and physical and chemical properties of the soil, a set of microorganisms specific to the subspecies is formed in this type of soil.

Keywords: meadow soils, actinomycetes, oligonitrophils, oxidation-reduction and hydrolytic enzymes, “Mirzo Jamshid” farm, Shafirkan district.

The diversity of chemical, agrochemical and agrophysical indicators of the studied soils, which in turn are related to the specific properties of soil-forming rocks, hydrothermal rhythm of soils, differentiation of relief, the degree of salinity processes, all depend on biological conditions and soil fertility in general, and especially affects the soil microflora. The accumulation of ammonia in a medium from the decomposition of proteins and other organic compounds containing nitrogen is called ammonification. Usually, this process is called protein breakdown.

In addition to bacteria, *actinomycetes* and mold fungi are also involved in the ammonification process. The ammonification process is common in nature and plays a very important role in agriculture. In this process, the nitrogenous organic matter in animal and plant residues is broken down to form the minerals needed for plant nutrition. “Mirzo Jamshid” farm of Shafirkan district used to irrigate old irrigated meadow soils in the upper layer in the amount of $1,4 \times 10^8 - 6,7 \times 10^7$ KHB / hectares towards the lower layers increased by $5,2 \times 10^5 - 3,0 \times 10^3$ KHB / g. In the 0-10 cm layer of irrigated meadow soils of “Mirzo Jamshid” farm of Shafirkan district, ammonifiers in the spring and autumn amounted to $1,4 \times 10^8 - 6,7 \times 10^7$ KHB / hectares towards the lower layers increased by $5,2 \times 10^5 - 3,0 \times 10^3$ KHB / hectares.

Actinomycetes are among the most common soil microorganisms. Krasilnikov (1949) explains this by their lack of food choice, their ability to use substances that other types of microorganisms cannot benefit from, and their ability to adapt easily to changes in environmental conditions. Actinomycetes assimilate organic and mineral forms of nitrogen develop mono, di- and polysaccharides, as well as organic acids capable of breaking down animal and vegetable oils. Some actinomycetes are capable of breaking down soil humus and chitin. Actinomycetes are resistant to high concentrations of salts, some of which are able to accumulate nitrogen in the atmosphere. Actinomycetes are very resistant to drying (Tanson, 1936; Krasilnikov, 1952 ;). This is probably why there are more actinomycetes than bacteria and fungi during the summer. The number of these microorganisms increases in moderately and weakly eroded soils, oligonitrophiles and nitrogen are the most abundant groups, the least numerous groups are ammonium and spore-forming microorganisms. At the same time, the amount of the latter in the washed and accumulated soil increases slightly. "Mirzo Jamshid" farm of Shafirkan district used to irrigate old irrigated meadow soils in the upper layer in the amount of $2,2 \times 10^4$ - $1,5 \times 10^4$ KHB/hectares. Decreased towards the lower layers.

Oligonitrophiles. Microorganisms are capable of growing in soil nitrogen-prone environments, and most of these organisms are diazotrophic: they are able to detect atmospheric nitrogen. Oligonitrophils have the ability to participate in nitrogen detection. It plays an important role in the nitrogen cycle, especially in nature, by providing plants with good forms of nitrogen in the atmosphere.

They are oligonitrophilic and oligo-carbophilic microorganisms that form a group of soil microflora that complete the mineralization of organic compounds, which have the ability to accumulate energy dissipated in nature. Mirzo Jamshid farm of Shafirkan district used to irrigate old irrigated meadow soils in the upper layer in the amount of $3,0 \times 10^5$ - $2,2 \times 10^5$ KHB/ hectares. Decreased towards the lower layers. Fungi. Soil microscopic fungi (micromycetes) play an important role in soil fertility, and many species are actively involved in the decomposition of plant and animal remains in the soil. The results of the study show that the amount of fungi during the year was almost indistinguishable. In both summer and autumn, an increase in the amount of fungi in the soil due to irrigation conditions was observed, which is due to optimal hydrothermal conditions and abundance of nutrients, adequate soil moisture is shown to have a positive effect on various fungi. Fungi synthesize large amounts of protoplasm and cause an increase in the amount of organic matter in the soil. Mirzo Jamshid f / x, Shafirkan district, irrigated meadow soils in the upper layer in the amount of $1,2 \times 10^8$ - $6,7 \times 10^7$ KHB / hectares. Towards the lower layers $2,2 \times 10^6$ - $7,0 \times 10^6$ decreased. (Table 1)

Table 1

Quantity and dynamics of microorganisms in the irrigated meadow soils of "Mirzo Jamshid" farm of Bobur massif of Shafirkan district

| Depth of cut and fold, cm | ammonifiers | | | actinomycetes | | | oligonitrophiles | | | fungi | | |
|---------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| | spring | summer | fall | spring | summer | fall | spring | summer | fall | spring | summer | fall |
| Cut - 4. | | | | | | | | | | | | |
| 0-10 | $1,4 \times 10^8$ $7,1 \pm 0,2$ | $4,5 \times 10^7$ $7,4 \pm 0,1$ | $6,7 \times 10^7$ $7,6 \pm 0,2$ | $2,2 \times 10^4$ $4,2 \pm 0,2$ | $5,2 \times 10^5$ $5,5 \pm 0,2$ | $1,5 \times 10^4$ $4,1 \pm 0,2$ | $3,0 \times 10^5$ $5,3 \pm 0,1$ | $1,5 \times 10^4$ $4,1 \pm 0,2$ | $2,2 \times 10^5$ $5,2 \pm 0,2$ | $1,2 \times 10^8$ $8,1 \pm 0,2$ | $4,5 \times 10^7$ $7,4 \pm 0,1$ | $6,7 \times 10^7$ $7,6 \pm 0,2$ |
| 10-30 | $6,7 \times 10^7$ $7,6 \pm 0,1$ | $9,5 \times 10^7$ $7,9 \pm 0,1$ | $1,4 \times 10^8$ $8,1 \pm 0,2$ | - | $6,0 \times 10^5$ $5,6 \pm 0,3$ | - | - | - | $2,2 \times 10^4$ $4,2 \pm 0,2$ | $6,7 \times 10^7$ $7,6 \pm 0,1$ | $9,5 \times 10^7$ $7,9 \pm 0,1$ | $1,4 \times 10^8$ $8,1 \pm 0,2$ |
| 30-60 | $5,2 \times 10^5$ $3,5 \pm 0,2$ | $1,5 \times 10^4$ $4,1 \pm 0,2$ | $3,0 \times 10^3$ $3,3 \pm 0,1$ | - | - | - | - | - | $2,2 \times 10^6$ $8,1 \pm 0,2$ | $4,5 \times 10^7$ $7,4 \pm 0,1$ | $4,3 \times 10^5$ $5,4 \pm 0,2$ | $7,0 \times 10^6$ $5,3 \pm 0,2$ |

The results showed that the phosphatase enzyme activity in all studied soils was higher in spring and autumn than in summer. "Mirza Jamshid" farm of Shafirkan district. The old irrigated meadow soils in the upper layer fluctuated in the amount of 1.9-5.2 KHB/hectares. Towards the lower layers decreased by 0.22-0.26 KHB/ hectares

It should be noted that redox enzymes, in particular peroxidase and polyphenol oxidase, are directly involved in the breakdown of organic phenolic substances and are involved in the breakdown of plant residues,

lignin carbohydrates. In addition, ureases (intermediates in nitrogen metabolism) are soluble in ammonia and water and play a key role in nitrogen accumulation. The indicated activity of enzymes is characteristic of fungi as well as putrefactive bacteria in the soil.

Thus, the activity of microorganisms, oxidation-reduction and hydrolytic enzymes in the old irrigated meadow soils of "Mirzo Jamshid" farm of Shafirkan district, quantitative and seasonal changes in the natural climatic conditions, physical properties, and salinity of the region were determined. Hence, the decomposition and synthesis of humus in typical irrigated gray soils depends on the activity of enzymes.

References

1. Davronov K.D., Karshieva D.Kh. (2002) The role of microorganisms in improving soil health, increasing their fertility and productivity of agricultural plants. Agrarian Bulletin of Uzbekistan. – Tashkent. - No. 4 (10). – pp. 60-64.
2. Dzhumaniyazov I. (1991) Soil is a living organism. – Tashkent: Fan. – p. 45. Krasilnikov N.A. (1958) Microorganisms of the soil and higher plants. – Moscow: Publishing house of the Academy of Sciences of the USSR. – p. 211.
3. Mishustin E.N. (1961) Biological ways of increasing the efficiency of increasing soil fertility. Sat. "Microorganism and soil fertility". Tr. Institute of Microbiology of the USSR Academy of Sciences. – pp. 55-59.
4. Khaziev F.Kh. (2005) Soil enzymology methods. – Moscow: Nauka. – p. 252.
5. Yuldasheva H.E. (2008) Microbiological processes and properties of soils of the Karshi steppe, their change during prolonged irrigation and ways of bioremediation of fertility: Author's abstract. Doctor of Biological Sciences. – Tashkent: Institute of Microbiology of the Academy of Sciences of the Republic of Uzbekistan. – p. 46.