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Международные индексы:

Статьи, поступающие в редакцию, рецензируются. За достоверность сведений, изложенных в статьях, ответственность несут авторы. Мнение редакции может не совпадать с мнением авторов материалов. При перепечатке ссылка на журнал обязательна. Материалы публикуются в авторской редакции.

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СОДЕРЖАНИЕ

БИОЛОГИЧЕСКИЕ НАУКИ

МЕДИЦИНСКИЕ НАУКИ

BIOLOGICAL ACTIVITY OF OASIS SOILS OF THE DESERT ZONE AND THE WAY OF THEIR OPTIMIZATION

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ABSTRACT

The article deals with the study of the general biological activity of the oasis meadow-alluvial, irrigated meadow-alluvial and irrigated desert-sandy soils of the territory; the correlative relationship between the number, distribution of physiological groups of microorganisms in the soils of the territory, their seasonal dynamics with the basic properties of the soil; the transformation ratio of organic matter, biogenicity and integral indicator of the ecological and biological status of irrigated soils of the territory; the level of fertility, the biological activity of irrigated meadow-alluvial soils of the territory and the effectiveness of the use of bio-fertilizers in increasing the yield of cotton.

Keywords: biological activity, irrigated soils, salinization, transformation coefficient, organic matter, soil degradation.

Introduction.Today, a number of scientific studies are being conducted in the world to analyze the interrelationship of the agrochemical, physicochemical properties and biological activity of soils with environmental factors. As well, a special attention is paid to scientific and practical work on defining the soil degradation processes in the initial stage with the use of modern technologies and on obtaining high and quality environmentally friendly yields of agricultural crops by increasing soil fertility, by application of organic farming and by the use of biological methods.

Studies on the significance of biological activity in soil fertility, the study of morphological, agrochemical, physicochemical and biological properties of irrigated soils, the definition of degraded land, the introduction of soil protection technologies, the obtaining high-quality and environmentally friendly agricultural products in different years among foreign and national scientists had been conducted by Rattan Lal, D.V.Resck, M.A. Mazirov, N.S.Matyuk, N.A.Dimo, V.A.Kovda, Yu.P.Lebedev, M.A.Orlov, A.N.Rozanov, V.A.Molodtsov, I.N.Felitsiant, N.V.Kimberg, M.U.Umarov, A.M.Rasulov, Kh.A.Abdullaev, K.G.Gafurov, L.T.Tursunov, U.T.Tozhiev, L.A.Gafurova, M.M.Tashkuziev, S.A.Abdullaev, Y.B. Saimnazarov G.I. Dzhumaniyazova, Z.R.Akhmedova, Kh.M. Khamidova, G.M.Nabiyeva, D.A.Kadirova and others. However, scientific studies on the current state of irrigated soils in the desert zone, in particular, biological activity, quantity, seasonal dynamics of microorganisms, as well as the role of biological factors in maintaining and increasing soil fertility based on a comprehensive study, taking into account the unique conditions of the territory, had never been adequately conducted before.

The aim of the study is to determine the biological activity of irrigated soils of the Bukhara oasis and to develop measures for their optimization.

Objectives of the study. study of morphological, agrochemical, physical-chemical and chemical properties of irrigated arid soils, taking into account the peculiar natural and climatic conditions of the territory;

determination of correlative relationship between the biological activity of the soil and its seasonal dynamics with the main properties of irrigated soils;

assessment of the degree of soil biological activity based on the transformation coefficient of soil organic matter, their biogenicity, integral. indicators of the ecological and biological state of irrigated soils (IPEBSP) of the territory;

usage of agrobiotechnologies to increase the fertility of irrigated meadow-alluvial soils and determination of effectiveness of bio-fertilizers while increasing the yield of cotton.

Research methods. The studies used modern agrochemical, microbiological, information-computer analytical methods. The statistical processing of the data obtained was carried out by the dispersion method of B.A. Dospekhov using Excel 2015 and Originprov. 8.5 SR1. Soil studies were analyzed with the help of the "Manual on chemical analysis of soils" by E.V. Arinushkina, the number of soil microorganisms was analyzed using the "Methods of soil microbiology and biochemistry" by D.G. Zvyagintsev, the enzymatic activity - by "Methods of soil enzymology" of F.Kh. Khaziyeva, calculations of the IPEBSP value were carried out in accordance with the methodological guidelines of K.Sh.Kazeev "Biological diagnostics and indication of soils: methodology and research methods". Field experimental studies were carried out on the basis of the "Methods of field and vegetation experiments with cotton under irrigation conditions" and "Methods of conducting field experiments" [4,7,8,9,11].

The object of study was oasis meadow-alluvial, irrigated meadow-alluvial and irrigated desert-sandy soils that are common in the Bukhara oasis.

The results of study. The natural conditions of the Bukhara oasis differ from the rest of Uzbekistan by peculiar properties of arid climate, low content of plant

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residues, mineralization and proximity to the surface of groundwater, special geomorphological, lithological conditions of soil formation and its properties (morphogenetic, agrochemical, physical-chemical, chemical and biological activity) in soil formation under the influence of human activity [1,5,13].

The morphological indicators of oasis meadow-alluvial soils differ in originality, color, mechanical composition, density and thickness of the agro-irrigation horizon, the humus layer is not clearly pronounced relative to irrigated meadow-alluvial soils, but characterized by greater power. According to the power of the agro-irrigation horizon, oasis meadow-alluvial soils belong to the "powerful" group, and irrigated meadow-alluvial soils to the "average power" group [6,10].

In the arable horizon of irrigated meadow-alluvial soils, the humus content is somewhat higher compared to oasis meadow-alluvial soils (1.215-1.560%), and in the lower horizons, unlike oasis meadow-alluvial soils, its index sharply decreases (0.155-0.216%). Due to the fact that the soils of the studied territories are widespread in the desert zone and have extra-arid climatic conditions, organic substances undergo intensive mineralization and as a result, the nitrogen under the influence of the long-term irrigation process is washed away into the lower horizons and the C: N ratio narrows from the upper horizons the lower, however, in the oasis meadow-alluvial soils as a result of many years of moisture, the mineralization processes weaken and in the C: N ratio there is no sharp decrease in the soil profile. In arable and subsurface horizons of oasis meadow-alluvial soils, the nitrogen content is 0.058-0.082%, and in the lower horizons it is 0.028-0.041%. In the upper horizon of irrigated meadow-alluvial soils, the nitrogen content is 0.066–0.096%, and by the lower horizons, this figure drops sharply and is 0.009–0.028%, in desert-sandy soils the nitrogen is found in small quantities and is 0.016–0.038% in the upper horizons, by the lower horizons there is a sharp decrease in its amount to 0.005-0.0111%.

The total phosphorus content in the arable and subsurface horizons of oasis meadow-alluvial soils is 0.185-0.205%, and in the lower horizons 0.091-0.115%, this indicator is higher in the upper soil horizons, and the reason for this is nutrient accumulation and a long-term system of fertilizer application. The content of mobile phosphorus in the arable and subsurface horizons is 11.5-21.2 mg/kg, and in the lower horizons under the influence of carbonate and alkaline environment, there is a sharp decrease to 5.2-9.1 mg/kg. In irrigated meadow-alluvial soils, the total phosphorus content is respectively 0.131-0.182 and 0.066-0.089%, and the mobile phosphorus is 14.1-19.2 and 3.9-8.6 mg /kg; in the upper horizons of irrigated desert-sandy soils, the total phosphorus content is 0.091-0.114 and 0.036-0.062%, respectively, and the mobile phosphorus is 12.3-15.8 and 1.1-2.1 mg/kg.

In the studied oasis meadow-alluvial soils, the amount of total potassium in the soil profile is 1,482-1,843%, the exchangeable potassium is 122.3-176.7 mg/kg. The relatively high content of potassium in the arable horizon is the result of many years of nutrient accumulation and fertilizer use. Irrigated meadow-alluvial soil contain 0.602-1.244% of gross potassium, and 98.8-173.0 mg/kg of exchangeable potassium, respectively, and also in irrigated desert-sandy soils, total potassium values are 0.661-1.102%, and the exchangeable potassium - 96.3-168.1 mg/kg.

The oasis meadow-alluvial soils of the territory according to the degree of their provision with humus are characterized as "poor" and "medium", according to the content of mobile phosphorus - as "poor" and "very poor", according to the content of exchangeable potassium - as "poor"; irrigated meadow-alluvial soils according to humus are "poor" and "very poor", according to mobile phosphorus – as "very poor" and "poor", according to the exchange potassium - as "poor"; and the desert-sandy soils are characterized as "very poor" by the content of humus and phosphorus and as "poor" by the content of potassium.

The composition of the absorbed bases of the oasis meadow-alluvial soils of the studied territories is characterized by relatively high values of absorbed magnesium and in some places absorbed sodium, and is characterized by the presence of weak alkalinity. According to the degree of salinity oasis meadow-alluvial soils, due to long-term irrigation and soil washing processes are non-saline and slightly saline soils, irrigated meadow alluvial soil are slightly saline to moderately saline, irrigated desert-sandy soils are non-saline, slightly and moderately saline soils. According to the type of salinization, soils are mainly affiliated to sulphate, and in moderately saline lands – to chloride-sulphate, by cations of magnesium-sodium types.

In the studied soils, ammonifiers constitute the largest group, they can be arranged in the following descending order: oasis meadow-alluvial soils> irrigated meadow-alluvial soils> irrigated desert-sandy soils. According to the soil profile, the amount of ammonificators decreases from the upper horizons (2355-1125 thousand/h in oasis meadow-alluvial, 1692-716 thousand/h in irrigated meadow-alluvial, 606-370 thousand/h in irrigated desert-sandy soils) to the lower horizons, respectively, up to 235-90-54 thousand/h and it should be noted that in the oasis meadow-alluvial soils there is a repetition of the humus profile and a gradual decrease in the number of these microorganisms, compared with irrigated meadow-alluvial, and especially desert sandy soils (Fig-1).

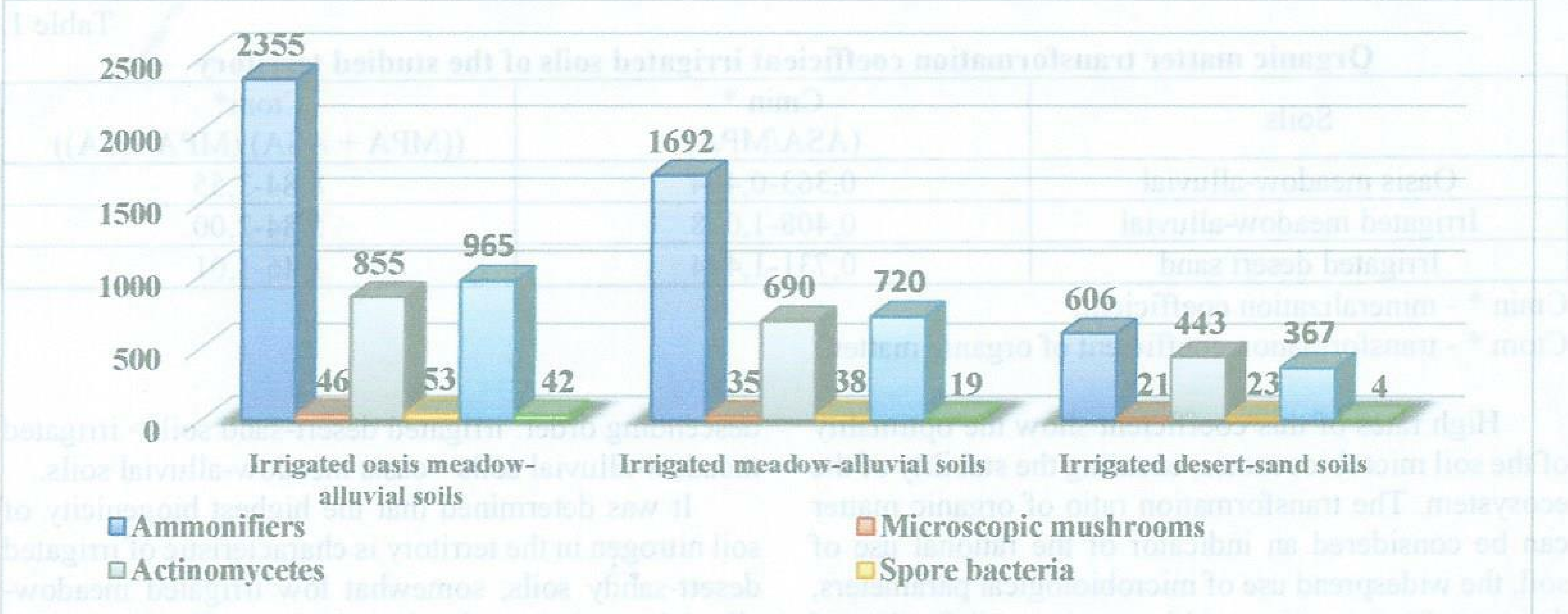

Fig.1. The number of microorganism in irrigated soils of the studied territory (thousand/g of soil)

The prevalence of actinomycetes and oligonitrophils after ammonificators resistant to unfavorable conditions over the other groups of microorganisms in all soils was determined: in oasis meadow-alluvial soils, the amount of actinomycetes is 855-521 thousand/g, in irrigated meadow-alluvial soils - slightly less than 690-398 thousand/g, in irrigated desert-sandy soils - 443-213 thousand/g, the number of oligonitrophils relative to actinomycetes is, respectively, 965-824 thousand/g, 720-512 thousand/g, 367-216 thousand/g, and the smallest quantities are characteristic of spore bacteria (53-23 t c./g) and microscopic fungi (46-31 thousand/g).

The studied soil by enzymatic activity (catalase, peroxidase, polyphenol oxidase) can be located in the next descending row, oasis meadow-alluvial soils> irrigated meadow-alluvial soils> irrigated desert-sandy soils.

It was determined that a high index corresponds to oasis meadow-alluvial soils, a lower index is characteristic for irrigated meadow-alluvial soils, and the lowest index is observed for irrigated desert-sandy soils. Based on the peculiarity of irrigated oasis meadow-alluvial soils, their microbiological and enzymatic activity, as well as “soil respiration” relative to the soils of other territories, did not have a sharp decline from the arable horizon to the lower ones, which can be explained by long-term irrigation and long-term use of organic and mineral fertilizers. These soils are non-saline and they have a relatively powerful humus horizon and higher nutrient reserves. Low provision of irrigated meadow-alluvial, and especially irrigated desert-sandy soils with humus and nutrients, is expressed by low enzymatic and microbiological activity of the soils depending on the season of the year, and their small quantities depending on the soil profile, including also due to soil salinization in different degree.

The seasonal dynamics of biological processes in the soils of the studied territory is significant. It was discovered that the number of microorganisms is the maximum in spring, with a sharp decrease in summer and growth in autumn. The decrease in the number of microorganisms in the soil during the summer is associated with the climatic conditions of the studied territory, with a sharp increase in temperature, low rainfall and a decrease in the moisture content in the soil due to an increase in water evaporation.

The total stock of soil microorganisms is represented by proteolytic, amylolytic microorganisms, oligonitrophils and micromycetes. They carry out an accelerated reaction of the active and mobile part of the organic matter of the soil - its plasma, and react to changes in the state of the soil (including under the influence of anthropogenic activity). The originality of microbiological processes of the studied irrigated soils is noted. Informative indicators are the coefficient of mineralization of organic matter (Cmin) and the transformation coefficient of organic matter (Ctom). These coefficients characterize the rate of mineralization occurring through soil microflora and the transformation of organic residues into the organic matter of the soil. Cmin show the development of the amylolytic part of the soil microbiocenosis and coherence with mineral nitrogen. Microbiological changes in organic matter with nitrogen compounds can be characterized based on their transformation ratio. In oasis meadow-alluvial soils, the figure is 3.55-8.84, irrigated meadow-alluvial soils - 2.00-5.84, irrigated desert-sandy soils –1.01-1.43. Soils by transformation coefficient (Ctom) can be arranged in the following descending order: oasis meadow-alluvial soils> irrigated meadow-alluvial soils> irrigated desert-sandy soils (Ctom) (Table 1).

Table 1.

Organic matter transformation coefficient irrigated soils of the studied territory

Soils	Cmin * (ASA/MPA)	Ctom* ((MPA + ASA) (MPA/ASA))
Oasis meadow-alluvial	0,363-0,464	8,84-3,55
Irrigated meadow-alluvial	0,408-1,078	5,84-2,00
Irrigated desert sand	0,731-1,444	1,46-1,01

Cmin * - mineralization coefficient;
Ctom * - transformation coefficient of organic matter

High rates of this coefficient show the optimality of the soil microbiocenosis, ensuring the stability of the ecosystem. The transformation ratio of organic matter can be considered an indicator of the rational use of soil, the widespread use of microbiological parameters, their use for managing and improving soil fertility of agricultural landscapes, regulating human activity in a positive way [12,14].

The microbiological regime of the studied soils shows a high activity of biological processes in them. Nitrogen in the plasma composition of bacterium to some extent reflects the decay energy of organic matter in soils and, in turn, characterizes the nitrogen content assimilated during plant nutrition [2, 3,13]. In these soils, the nitrogen plasma of bacteria makes up 22-30% of its total amount. Microbial nitrogen in irrigated desert-sandy soils makes up 29-30% of total nitrogen, 26-28% in irrigated meadow-alluvial soils, 22-23% in oasis meadow-alluvial soils, and the splitting energy of organic matter can be located in the following descending order: irrigated desert-sand soils> irrigated meadow-alluvial soils> oasis meadow-alluvial soils.

It was determined that the highest biogenicity of soil nitrogen in the territory is characteristic of irrigated desert-sandy soils, somewhat low irrigated meadow-alluvial soils, and the lowest biogenicity is characteristic of oasis meadow-alluvial soils. In irrigated desert-sandy and irrigated meadow-alluvial soils, due to low availability of organic matter and high biogenicity, the use of organic fertilizers is required. In oasis meadow-alluvial soils with a high supply of organic matter and low biogenicity, the use of mineral fertilizers is often required. So, microbiological indicators of the soil enable scientifically-based and effective use of mineral and organic fertilizers.

According to the integral indicators of the ecological and biological state of the soils of the studied territories (IPEBSP) reflecting the level of impact of natural factors and anthropogenic activity [15], as well as the level of fertility are determined on the basis of diagnostic indicators (Fig. 2)

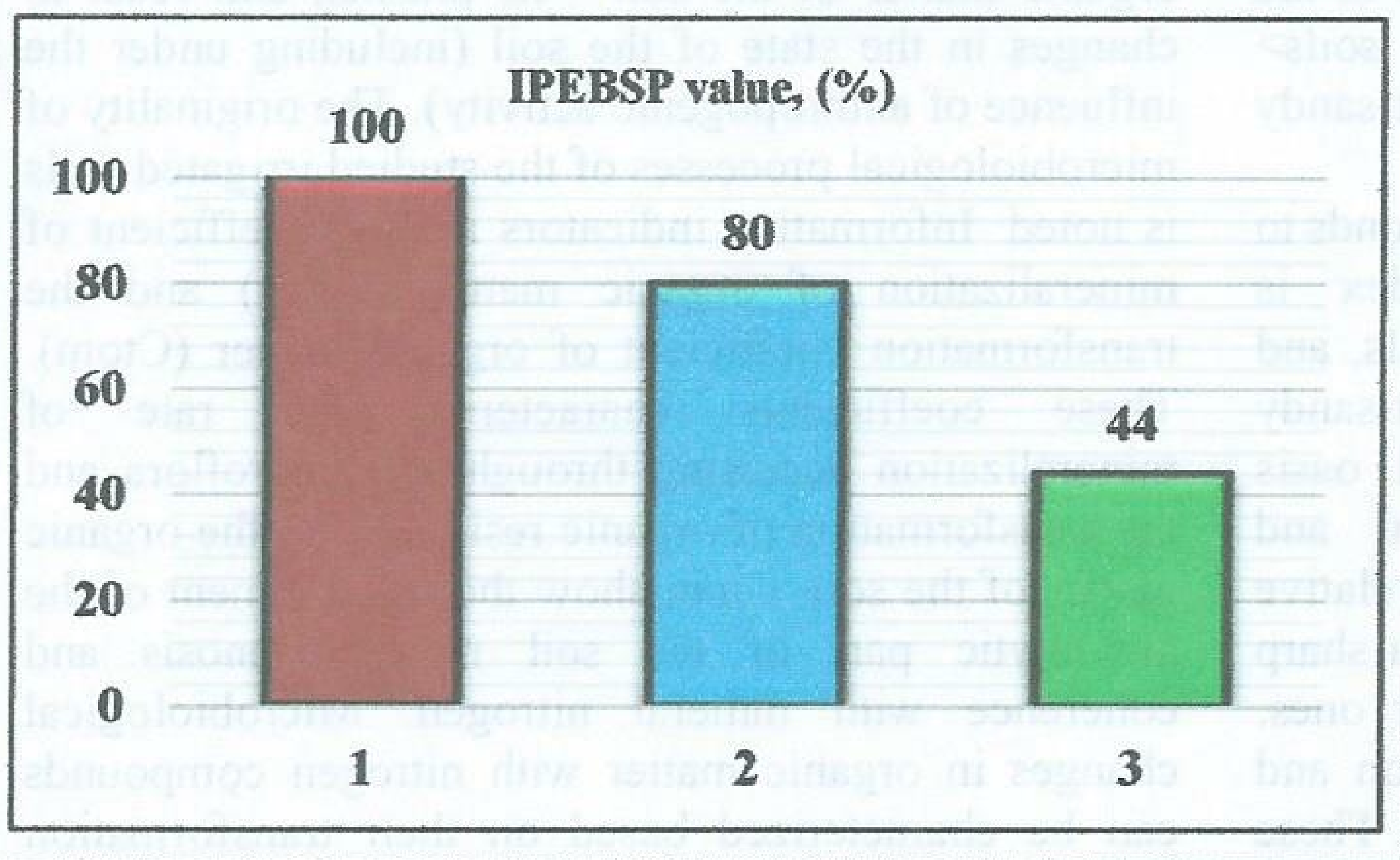

Fig.2. Integral indicators of the ecological and biological state of irrigated soils of the studied territory: 1-oasis meadow-alluvial soils; 2-irrigated meadow-alluvial soils; 3- irrigated desert-sandy soils

In oasis meadow-alluvial soils, on the basis of their informative indicators (humus, number of groups of microorganisms, enzymatic activity, indicators of intensity of soil respiration) the level of total biological activity is characterized as "high" and "medium", in irrigated meadow-alluvial soils - as "average" and "low", and in irrigated desert-sandy soils as "low" and "very low".

A comprehensive study of the basic properties of the soil and the sum of the integral indicators of the ecological and biological state of the soil makes it possible to clarify the level of the impact of their ecological and genetic properties, as well as natural and environmental factors on soil fertility. Based on the obtained results, indicators of degradation are recommended for oasis meadow-alluvial soils of the desert zone. These criteria provide an opportunity to assess, map and conduct soil-ecological monitoring as an indicator determining soil fertility (Table 2).

Indicators of Oasis Meadow-Alluvial Soils Degradation

Indicators	Not degraded	Low-degraded	Medium-degraded	Highly degraded
Humus,%	>1,5	1,0-1,5	0,8-1,2	0,8-1,0
Agro-irrigation horizon, cm	> 100	70-100	50-70	30-50
Mobile P2O5, mg/kg	> 60	45-60	30-45	15-30
Exchange K2O, mg/kg	> 400	300-400	200-300	100-200
Dry residue,%	< 0,3	0,3-1	1-2	2-3
Organic matter transformation coefficient	> 6,0	4-6	2-4	1,0-2,0
BOMC, mg/g soil	1,0-1,2	0,8-0,9	0,6-0,8	<0,6
Humification coefficient	1-1,5	0,9-1,0	0,7-0,8	0,6-0,7
IPEBSP,%	81-100	71-80	61-70	51-60

When using resource-saving agrobiological technologies to improve the fertility of irrigated soils, an improvement in the basic properties of the soil (agrochemical, microbiological properties, as well as enzymatic activity and soil respiration) and an increase in cotton yields were noted. Field experiments were conducted under the conditions of meadow-alluvial soils of the "Bafo Mardon Sharif" farm of the Bukhara district, using biological fertilizers "Baikal EM-1", "Trichodermin" and "Mikroustirgich" applied to the "Bukhara-6" cotton (Table 3).

The yield of "Bukhara-6" cotton in conditions of meadow-alluvial soil dt/ha

№	Variants	Number of cotton bolls pcs./plant	Average weight of bolls, gr	Yield dt/ha	Increase	
					dt/ha	%
1	Control	9,2	4,9	36,6	-	-
2	«Baikal EM – 1»	10,8	5,6	39,7	+3,1	8,4
3	«Mikroustirgich»	11,9	6,4	40,3	+3,7	10,1
4	«Trichodermin»	11,5	6,1	40,1	+3,5	9,5
	Sx	0,13	0,04	0,68	-	-
	HCP 005	0,44	0,13	2,68		

The biological fertilizers used in the experiment were effective in increasing the cotton yield: the yield of cotton in the control variant was 36,6 dt/ha, while the variant with the use of the Baikal EM-1 bio-fertilizer was 39,7 dt/ha, with the use of the Trihodermin bio fertilizer – 40,1 dt/ha and on the variant with the use of the Mikroustirgich bio-fertilizer – 40,3 dt/ha, as a result, an additional crop was obtained relative to the control value, respectively, +3,1 dt/ha, +3,5 dt/ha, +3,7 dt/ha.

As a resul, the net profit of the farm in 2016-2017 relative to 2015 control year (22,486.5 thousand soums) was 33 300.9 and 54 982.5 thousand soums, respectively, the economic profitability index increased from 14.5% to 18.3% and 20.7% respectively.

Conclusion .The soil formation conditions of the region are distinguished by peculiar extreme properties: arid climate, high temperature, insignificant precipitation, close occurrence of mineralized groundwater, and the soil is characterized by a low content of plant residues, salinization, low nutrient reserves, rich in absorbed magnesium, which are subject to changes as a result of dates of irrigation under the influence of human activity.

The morphological indicators of oasis meadow-alluvial soils differ in originality, color, mechanical composition, density and thickness of the agro-irrigation horizon, the humus layer is not clearly pronounced relative to irrigated meadow-alluvial soils, but characterized by greater power. According to the power of the agro-irrigation horizon, oasis meadow-alluvial soils belong to the "powerful" group, while irrigated meadow-alluvial soils belong to the "average power" group.

In the studied soils, ammonifiers constitute the largest group, they can be arranged in the following descending order: oasis meadow-alluvial soils> irrigated meadow-alluvial soils> irrigated desert-sandy soils. According to the soil profile, the number of ammonifiers decreases from the upper horizons to the lower horizons. It should be noted that in oasis meadow-alluvial soils there is a repetition of the humus profile and a gradual decrease in the number of these microorganisms, compared with irrigated meadow-alluvial, and especially with irrigated desert-sandy soils.

The studied soils according to their enzymatic activity (catalase, peroxidase, polyphenol oxidase) can be placed in the following descending order, oasis meadow-alluvial soils> irrigated meadow-alluvial soils> irrigated desert-sandy soils. The enzymatic activity of the soil decreases down the profile, especially sharply in irrigated desert-sandy and irrigated meadow-alluvial soils.

Irrigated soils of the territory are characterized by the presence of a correlative connection between the basic properties of the soil and the microbiological and enzymatic activity: with humus r = 0,90-0,99, with nitrogen r = 0,93-0,97, with mobile phosphorus r = 0,93- 0,98, with exchangeable potassium r = 0,95-0,99. The presence of positive correlations shows the biological potential of the soils, as well as their important role in the peculiarity of the soil-forming processes.

At the peculiarity of microbiological processes in irrigated soils, the coefficient of mineralization of organic matter (Cmin) serves as an informative indicator. In oasis meadow-alluvial soils, this indicator is -0,363-0,464, irrigated meadow-alluvial soils-0,408-1,078, irrigated desert-sandy soils make up-0,731-1,444. Microbiological changes in organic matter with nitrogen compounds are determined based on their transformation coefficient (Ctom). In irrigated oasis meadow-alluvial soils, this indicator is 3,55-,.84, in irrigated meadow-alluvial soils – 2,00-5,84, in irrigated desert-sandy soils – 1,01-1,43. According to the transformation coefficient (Ctom) of the soil, you can arrange the following descending row: oasis meadow-alluvial soils> irrigated meadow-alluvial soils> irrigated desert-sand soils. Depending on the climatic conditions and soil properties (humus, the number of groups of microorganisms, enzymatic activity, indicators of the intensity of soil respiration), as well as based on the sum of the integral indicators of the ecological and biological state of soil (IPEBSP), the level of total biological activity, in oasis meadow - alluvial soils are marked as "very high", in irrigated meadow-alluvial soils – as "high", in irrigated desert-sandy soils - as "medium".

Indicators of degradation taking into account the basic properties of irrigated soils of the Bukhara oasis and integral indicators of the ecological and biological state of the soil degradation (exemplified by Bukhara district soils). criteria are recommended to be used for assessment, mapping and for conducting soil and environmental monitoring as indicators determining soil fertility.

By the use of bio-fertilizers ("Baikal EM-1", "Trichodermin", "Mikroustirgich") in meadow-alluvial soils, due to improvement of the agrochemical properties and biological activity of the soils, an increase of 3,1-3,7 dt/ha of yield was achieved for cotton and a growth was noted in economic profitability of the farm from 14,5% to 18,3% and 20,7%, respectively. The use of this agrobiological technology on oasis meadow-alluvial soils of the territory is recommended.

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МЕДИЦИНСКИЕ НАУКИ

DRIVES TO IMPROVE THE QUALITY AND EFFECTIVENESS OF MEDICAL CARE

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Review article

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The meaning of quality of medical care is usually perceived as a sum of a number of medical care attributes, reflecting its ability to meet the needs of patients, taking into account medical standards that are relevant to the current stage of medical development. Access to medical care is a real opportunity for the population to receive the medical care they need, regardless of social status, welfare level, and place of residence. In other words, quality of medical care is timely medical care provided by qualified health care providers and complies with statutory acts, standards of medical care, contractual or customary expected requirements [17, 18].

According to Alexeyev's approach, the notion of the quality of medical care is the ability of the main links of the medical process to provide adequate care to the needs of all participants in the process [2].

The following characteristics are classified as the main criteria for the quality of medical care:

Access to health services is the free access to health services, regardless of geographical, economic, social, cultural, organizational and linguistic barriers. Access to medical services is enshrined in the constitutions of many countries, regulated by the free medical care and service regulations, and by national legal norms. This regulation is conditioned by a number of factors: compliance with state funding and services, right to free medical facility and doctor, provision of timely medical care, health promotion and enhancement, public education, disease prevention [10, 19, 37].

However, the above mentioned does not mean that States have access to all types of medical care and services. In developing countries, such restrictions are widely applied, and in developed countries such restrictions apply only to expensive and difficult to access research. In addition, different countries apply confidential restrictions such as queues, bureaucratic scrutiny, non-inclusion of different services in the basic services package, etc. [44].

The main factor affecting access to medical services is the economic situation of the country. Excessive health care costs lead to rising prices and competitiveness of medical services. Therefore, understanding of resource limitation is fundamental to medical service delivery opportunities [12, 22].

According to Kharabchiev's opinion, access to health care can be achieved by dividing the requirements by the minimum (mandatory) and the optimal (required) volume, which is provided by medical instructions and includes expensive types of care [20].

Equivalence. According to WHO experts, the adequacy of medical services is in line with public needs and expectations within medical service technologies and patient-friendly outcomes. Equivalence includes elements of access and timeliness of medical care that are presented as being convenient to the patient, in a time of need, in a timely, necessary, and acceptable range [27].

Continuity of medical care - Coordination of activities by different medical institutions, different hours and different specialists. Continuity of medical service is provided by standard requirements for medical records [4], technical equipment, process and personnel. Such standardization of activity guarantees the stability of the treatment process and the end result [25, 26].

Effectiveness - Compliance of the volume of medical service delivered with the end result. Effective health care should provide optimal medical care rather than maximum volume [9, 16].

Patient orientation and satisfaction - means patient involvement in decision making and decision making and satisfaction with outcomes. This approach applies not only to quality medical services and care, but also to the attentive attitude of the medical staff, the patient's consent to intervene, and the protection of other patient rights [1, 28, 30].

Safety - ensuring the life and health of the physician and patient, adverse side effects, and guarantees of sanitary safety. The effectiveness and safety of treatment are directly dependent on the amount of information available to the physician. Reducing unfavorable conditions for patients and fair treatment for patients is a priority from the perspective of health policy [41].

Modernity of medical care -providing medical services and care as needed, that is, according to medical instructions, as well as promptly and without queues. [29]

Scientific-technical level - an important component of the quality of medical services is the scientific-technical level of used medical methods, diagnostics and prevention, which enables to assess the integrity of the service provided. Very often this index is included in the equivalence index [37].

Sector Standardization - An analysis of international experience shows that medical standards ensure the effectiveness of medical care qualty elements. Standards are the most important scientifically-based mechanisms that allow a decision to be made or to limit any intervention [40].