different periods of late prenatal ontogenesis. //Problems of biology and medicine -2011. No. 4.– P.64-65.

10. Oripov F. S., Dekhkanov T. D. Morphology of the immune structures of the small intestine of some laboratory animals. //Problems of biology and medicine. - 2013. No. 3. – pp. 62-63.

11. Oripov F.S., Dekhkanov T.D., Blinova S.A., Ten S.A., Khusanov E.U. Morphological features of the immune structures of the small intestine of laboratory animals with different feeding habits. //Tinbo. - 2009. No. 6. – P. 109-111.

12. Chava S.V. Morphofunctional characteristics of lymphoid structures in the wall of the small intestine. //Morphology. 2004.T.126.- No. 4. -WITH. 133.

13. Yuldashev A.Yu., Yuldashev M.A. The immune system of the mucous membranes as an independent functional system of the body. \\Morphology-2006.-No.4.-p.145.

14. Yaglov V.V., Yaglova N.V. Unsolved problems of normal and pathological morphology of the diffuse endocrine system. //Archives of Pathology, volume 73, September-October, No. 5, 2011. P. 58-62.

15. Yaglov V.V., Yaglova N.V. New concepts of biology of the diffuse endocrine system: results and prospects for its study. //Bulletin of the Russian Academy of Medical Sciences, No. 4, 2012, pp. 74-80.

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THE ROLE OF ALGAE IN DETERMINING THE ECOLOGICAL AND SANITARY CONDITION OF BIOLOGICAL WATER PLANTS

Mustafayeva Mamlakat Ismailovna

Associate Professor, Bukhara state medical institute, Bukhara, Uzbekistan. mamlakatm@mail.ru

Abstract. Among the complex of anthropogenic factors, one of the leading places is occupied by the "water factor" associated with pollution of water sources, shortcomings in water purification and disinfection. Discharge of insufficiently treated and untreated wastewater into watercourses predetermines abnormal changes in their chemical composition and degradation of biocenoses. Municipal wastewater contaminated with organic and nitrogen-phosphorus-containing compounds, as well as bacteria and viruses, also contribute to the pollution of water bodies.

The main factor affecting the change in the quality indicator of water bodies is municipal wastewater. In the treatment facilities of Bukhara, about 20 thousand m^3 of wastewater, which will lead to a change in the chemical and biological composition of water. At the same time, there is no complete picture of the distribution of algae and their role in determining the ecological and sanitary state of biological ponds of the treatment plant in Bukhara, which prompted us to study these important problems.

Keywords: factor, pond, algae, flora, algoflora, pollution of water, systematic, filtering, season.

РОЛЬ ВОДОРОСЛЕЙ В ОПРЕДЕЛЕНИИ ЭКОЛОГО-САНИТАРНОГО СОСТОЯНИЯ БИОЛОГИЧЕСКИХ ВОДОРАСТЕНИЙ

Мустафаева Мамлакат Исмаиловна.

Доцент, Бухарский государственный медицинский институт, Бухара, Узбекистан. mamlakatm@mail.ru

Аннотация: Среди комплекса антропогенных факторов одно из ведущих мест занимает «водный фактор», связанный с загрязнением водных источников, недостатками очистки и обеззараживания воды. Сброс в водотоки недостаточно очищенных и неочищенных сточных вод предопределяет аномальные изменения их химического состава и деградацию биоценозов. Загрязнению водных объектов также способствуют городские сточные воды, загрязненные органическими и азот-фосфорсодержащими соединениями, а также бактериями и вирусами.

Основным фактором, влияющим на изменение качественного показателя водных объектов, являются городские сточные воды. На очистных сооружениях Бухары около 20 тыс. м3 сточных вод, что приведет к изменению химического и биологического состава воды. В то же время отсутствует полная картина распространения водорослей и их роли в определении эколого-санитарного состояния биологических прудов очистных сооружений Бухары, что побудило нас к изучению этих важных проблем.

Ключевые слова: фактор, пруд, водоросли, флора, альгофлора, загрязнение воды, систематика, фильтрация, сезон.

БИОЛОГИК СУВ ЎСИМЛИКЛАРИНИНГ ЭКОЛОГИК ВА САНИТАРИЯ ҲОЛАТИНИ АНИҚЛАШДА СУВ ЎТЛАРИНИНГ РОЛИ

Мустафоева Мамлакат Исмоиловна

Доцент, Бухоро Давлат Тиббиёт Институти, Бухоро, Ўзбекистон. mamlakatm@mail.ru

Annotasiya: Antropogen omillar majmuasi ichida suv manbalarining ifloslanishi, suvni tozalash va dezinfeksiya qilishdagi kamchiliklar bilan bog‘liq bo‘lgan “suv omili” yetakchi o‘rinlardan birini egallaydi. Yetarlicha tozalanmagan va tozalanmagan oqava suvlarni oqizish ularning kimyoviy tarkibidagi g'ayritabiiy o'zgarishlarni va biotsenozlarning degradatsiyasini oldindan belgilab beradi. Suv havzalarining ifloslanishiga organik va azot-fosfor birikmalari, shuningdek, bakteriya va viruslar bilan ifloslangan shahar oqava suvlari ham sabab bo'ladi. Suv ob'ektlarining sifat ko'rsatkichlarining o'zgarishiga ta'sir qiluvchi asosiy omil shahar oqava suvlari hisoblanadi.

Buxoro tozalash inshootlarida 20 ming m^3 ga yaqin oqava suvlar mavjud bo‘lib, bu suvning kimyoviy va biologik tarkibining o‘zgarishiga olib keladi. Shu bilan birga, Buxorodagi oqava suvlarni tozalash inshootlarida suv o‘tlarining tarqalishi va biologik suv havzalarining ekologik va sanitariya holatini aniqlashda tutgan o‘rni haqida to‘liq ma’lumot yo‘q, bu bizni ushbu muhim muammolarni o‘rganishga undadi.

Kalir so'zlar: ekologik omil, hovuz, suv o'tlari, flora, suvning ifloslanishi, sistematika, filtratsiya, fasl.

INTRODUCTION

The species composition of the algae flora of ponds in different regions of Uzbekistan and Central Asia is different. These reservoirs differ in area, depth, mineralization, nutrition, location, composition of prevailing species.

So in the biological ponds of purification plants in the city of Bukhara in early spring, late autumn and in winter, the algae found are peculiar to the mountain and northern water bodies proper. In the spring, summer and early autumn, the more thermophilic forms of algae developed.

RESULTS AND DISCUSSION

The study of the qualitative and quantitative composition of algae in the ponds of the Kalgan Chirchik fish farm in the Tashkent region, as well as the periodicity of its development for the seasons of the year, was

studied by P.N. Saksen also identified 522 taxa, of which blue-green -87, golden -6, diatoms -209, dinophyte -6, euglene -37, yellow-green -4, green -172. In the list of algae found in the Kalgan Chirchik fishery, 56 species of algae are similar to our studies.

Since, for example, Merismopedia punctata, Gomfhosphaeria lacustris, Pediastrum duplex, P.simplex. Tetraedron minimum, Ankistrodesmus densus, Scenedesmus acuminatus, Pandoriuna morum and others were also found in the spring, summer and autumn of the biological ponds of the purification facilities in Bukhara.

Thus, after algalization, the phytoplankton and phytobenthic groups were enriched in qualitative and quantitative terms of the biological ponds of the purification plant in the city of Bukhara. The increase in the species composition of algae up to 357 taxa and their adaptation in bioproducts allowed to continue work on revealing the role of algae in wastewater treatment.

Algae are mostly composed of alpha-beta-mesosaprobes. The content of dissolved oxygen in water is one of the important factors of water self-purification. As the amount of dissolved oxygen increases, the self-cleaning process accelerates. In the spring period, when the temperature of water and solar energy rises in biological ponds, intensive development of phytoplankton is observed. As microalgae develop in water, the amount of dissolved oxygen increases to 3.0-4.0 mg / l. Reduces the amount of organic substances in BOD_5 to 44.0-50.8 mg O_2 / l.

On the basis of 520 algological samples collected biological ponds of the city of Bukhara and as a result of treatment 357 algal taxa, belonging to 5 systematic groups, were found; blue-green - 105, diatoms - 100, dinophytes - 10, euglenic - 30, green - 112. The highest occurrence is observed by the predominance of green algae, then blue-green and diatom algae. A small number is euglenic and dinophyte. As can be seen species diversity of bioproducts is great.

Algae of biological ponds largely determines the appearance of phytoplankton in various water bodies. The difference in the species composition of algae in biological ponds of purification plants from other bioproducts in Uzbekistan and Central Asia is not surprising, since the hydrological and hydrochemical characteristics of water bodies affect the composition of the flora. The level of development of phytoplankton in biological ponds of sewage treatment plants is much more common from other ponds in Uzbekistan and Central Asia.

With the development of introduced organisms in biological ponds, favorable conditions are gradually created for many accompanying species

of hydrobionts. Some introduced algae gave active development in ponds. This contributed to a decrease in the organic content of water and gave rise to an increase in the amount of oxygen dissolved in water. In the coastal parts in all ponds, there were often accumulations of filamentous algae consisting of the waters of the genera Stigeolonium, Cladophora, Spirogyra and others. Along with them occasionally came across blue-green, diatoms and other algae. Among them, Oscillatoria tenuis, O.sancta, Phormidium foveolarum, Lungbya aestuari and others were distinguished.

Fouling was observed on the surface of various underwater objects (branches, boards, stones) consisting of Stigeoelonium tenue, along with them the threads Oscillatoria brevis, O.irrigua, O.limosa, O.tenuis and on the surface of filaments epiphytic species of diatoms Cocconeis placentula, Navicula tryptocophala and much more.

According to saprobity, the first place is occupied by β-mesosaprob of 84 species and forms, or 38.1%, of which blue-green -32, diatom-12, euglena 10, green -30. α-mesosaprob is only 41 taxa, of which green algae occupy the first place -14, then blue-green and diatoms have 10 species, and euglena 7.

Polysaprobic of only 36 species and varieties is 16.3%. Diatom algae are the most abundant here, 10 green and euglena are 9 species, blue-green.

Saprobes is -28 species of algae, of which blue-green-8, diatomaceous 6, euglenic -4, green -10.

Table 1

Saprobic algae found in water biological ponds of treatment facilities

Algae departments	Saprogenic algae					Total saprobic species
	x	o	β	α	p	
Cyanophyta	1	2	5	7	2	17
Bacillariophyta	1	8	35	9	-	53
Dinophyta	-	-	-	-	-	-
Euglenophyta	-	-	7	-	2	9
Chlorophyta	-	5	16	5	1	27
Total	2	15	63	21	5	106

Note: x-xenosaprob, o-oligosaprob, β-beta-mezasaprob, α-alpha-mesosaprob, p-polysaprobю Alpha-beta mesosaprobes of only 21 taxa, blue-green 3, diatoms 6, euglenic 5, green -7. Mesosaprob only 5 species, of which diatoms -4, green -1.

The remaining saprobic, such as oligo-beta mesosaprob, alpha-mesosaprob, polysaprob, meso-oligosaprob, oligo-mezasaprob and others are contained in one or two species.

To understand the dynamics of phytoplankton, a clear representation of both the seasonal periodicity and the distribution of populations of mass species of algae is necessary. The dominant are the dominant, giving in this or that period a large number and number of phytoplankton. The composition of the dominant species of algae in different types of water bodies located in different regions varies, changing with environmental factors such as temperature, sunlight, biogenes, mineralization of water, transparency of hydrogen ions (pH), gas content and others.

CONCLUSION

1. In biological ponds of treatment facilities there are 21 dominant species, most of which belong to the blue-green 8 species, then green 7, diatoms 4,euglenic 2 species.

2. The main factors favouring the development of predominant species in biological ponds of treatment facilities are the temperature of water and air, mineralization, nutrients, transparency and other environmental factors.

3. In the composition of the dominant species of algae there is no one that would dominate in all seasons of the year, but most of the predominant species are registered in the spring, summer and autumn, in the winter dominants are not found.

4. Most of the prevailing species of biological pond treatment facilities similar to the flora of other ponds in Uzbekistan.

5. In biological ponds of treatment facilities there are 21 dominant species, most of which belong to the blue-green 8 species, then green 7, diatoms 4,euglenic 2 species.

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8. Most of the prevailing species of biological pond treatment facilities similar to the flora of other ponds in Uzbekistan.

REFERENCES

1. Bot P.V.M., Brussaard, C.P.D., Stam, W.T. & Hoek, C. Introduction to the Algae. Prentice-Hall, Inc., Englewood Cliffs, New Jersey - 1991. 573 pp.

2. Hegewald, E. & Schnepf, E.Struktur und Taxonomie bestachelter Chlorellales (Micractiniaceae, Golenkiniaceae, Siderocystopsis). Nova Hedwigia. - 1991.39:297-383.

3. O'Neil, R.M. & La Claire, J.W. Systematics of the Green Algae. Academic Press, London. 1984. - pp. 121-56.

4. Израэль Ю.А. Экология и контроль состояния природной среды. М.: Гидрометеоиздат. 1984. - 560 с. [Izrael Yu.A. Ecology and control of the state of the natural environment. Moscow: Gidrometeoizdat. 1984 .-- 560 p.]

5. Вассер С.П., Кондратьев Н.В. и др. Водоросли. Справочник.- Киев: Наукова Думка, 1989. - 608 с. [Wasser S.P., Kondratyev N.V. and others. Algae. Reference book. - Kiev: Naukova Dumka, 1989. - 608 p.]

6. Мустафаева М.И., Ҳакимова З. Развитие фитопланктонов зависимости от сезона года в прудах очистительных сооружений//Агропроцессинг журнали. – 2020. – № 6. – С. 35-39. [8. Mustafaeva MI, Hakimova Z. Development of phytoplankton depending on the season in the ponds of treatment facilities // Agroprocessing magazines. - 2020. - №. 6. - P. 35-39.]

7. Мустафаева М.И., Назарова Ф. Изменения численности и биомассы в связи с сезонными изменениями биопрудов// Ученый XXI века. Научный журнал. –Москва. – 2016. – № 5-4. – С. 21-24. [9. Mustafaeva MI, Nazarova F. Changes in the number and biomass due to seasonal changes in bioponds // Scientist of the XXI century. Science Magazine. -Moscow. - 2016. - № 5-4. - P. 21-24.]

8. Мустафаева М.И., Назарова Ф. Экологический анализ водорослей биопрудов// Ученый XXI века. Научный журнал. – Москва. – 2016. – № 5-4. – С. 24-27. [10. Mustafaeva MI, Nazarova F. Ecological analysis of algae bioponds // Scientist of the XXI century. Science Magazine. - Moscow. - 2016. - №. 5-4. - P. 24-27.]

9.Маматожиев, Ш. И., Мирзаева, М. А., & Шокирова, Г. Н. (2021). Влияние технологии допосевной обработки на содержание влаги в почве. Universum: технические науки, (6-3 (87)), 46-49.

10.Мирзоева, М. А., Ильясов, А. Р. (2021). СЕКРЕТ УРОЖАЙНОСТИ. Журнал естественных наук, 1(1).

11. Akhtamovna, M. M. (2023). Digitalization–Development. Web of Synergy: International Interdisciplinary Research Journal, 2(2), 128-130.