ACTUAL PROBLEMS OF MODERN SCIENCE, EDUCATION AND TRAINING

KHOREZMSCIENCE.UZ

CONTENTS

Section 1. MODERN PROBLEMS OF TECHNICAL SCIENCES…….…………...4

SHUKHRAT SHAKIROV, SANOBAR SADADDINOVA, BEGALI BEKTEMIROV, KAROLINA GUZASHVILI, ZUKHRA MIRZARAKHIMOVA, MUKHLISA ABDURAKHMONOVA, NODIRJON NASIRKHODJAEV, ULUGBEK UMIROV AND MUROD BEKIEV /// DEVELOPMENT OF BOUNDARY CONDITIONS FOR THE CONSTRUCTION OF A MATHEMATICAL MODEL OF THE PROCESS OF PRESSING POWDER IN A CLOSED PRESS MOLD……………………………4

PARMONOV SARVAR TOSHPULATOVICH, UBAYDULLAEV MAMASIDIK MAXAMMATSOLIEVICH, MIRZAVALIYEV DOSTONBEK BAKHODIR UGLI AND PATTAYEVA ZILOLA SANJAR KIZI /// TECHNOLOGY OF PRODUCING TUNGSTEN CARBIDE NANOPOWDER BY SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS (SHS) METHOD…………………………………………….…..……………………16

RUZMETOV RAKHMATJON IBODULLAEVICH, TUYCHIEV TIMUR ORTIKOVICH AND SAPAROV MAKHMUD KADAMOVICH /// ANALYSIS OF FIBER QUALITY INDICATORS IN THE TECHNOLOGICAL PROCESS OF THE SHOVOT COTTON GINING PLANT……………………..……….23

OYBEK ALLAMOV, ANAKHON ISMOILOVA AND ASADBEK RUSTAMOV /// OPTIMAL ROUTE FINDING IN AUTOMATIC VEHICLE CONTROL AND OVERCOMING BOTTLENECKS IN LARGE-SCALE GRAPH DISTRIBUTION……….…………………………………………...………29

KARIMOV KAMALDJAN ABBASOVICH, EGAMBERDIEV ILKHOM PULATOVICH AND YAKHSHIEV SHERALI NAMOZOVICH /// ANALYSIS OF THE DYNAMIC CHARACTERISTICS OF SPINDLE ASSEMBLIES…..38

Section 2. ACTUAL PROBLEMS OF HISTORY, PHILOSOPHY AND SOCIOLOGY……………………………………………………………..……...44

OCHILOVA MAFTUNA DONIYOR KIZI /// PROBLEMS OF TRANSFORMATION OF VALUES IN THE CONTEXT OF GLOBALIZATION…………………………………………..….……………44

MURTAZAYEVA MUQADDAS SOHIB KIZI /// SOCIO-PHILOSOPHICAL ANALYSIS OF THE PHENOMENON OF NATIONAL IDENTITY……..……48

EGAMBERDIEVA ZARINA UKTAMOVNA /// PHILOSOPHICAL ANALYSIS OF SOCIO-POLITICAL IDEAS IN THE WORKS OF NAVOI…………..……54

MAFTUNA KHAKIMOVA /// SOCIO-PHILOSOPHICAL ANALYSIS OF VALUES AS A FACTOR IN THE DEVELOPMENT OF SPIRITUALITY...…59

NASRULLAEVA MOHIGUL SUXROBOVNA /// MORAL AND ETHICAL PROBLEMS OF TRANSHUMANISM………………………………...………67

Section 3. MODERN PROBLEMS OF PHILOLOGY AND LINGUISTICS.......73

AKHMEDOVA MEHRINIGOR BAHODIROVNA /// FRAME ANALYSIS OF “MA’NAVIYAT” CONCEPT IN THE UZBEK LANGUAGE…………...……..73

CHORIEVA MUKHLISA JUMAMURODOVNA /// THE CONCEPT OF “PRIDE” IN ENGLISH POETIC DISCOURSE…………………...…..………78

JUMANIYOZOV ZOKHID OTABOYEVICH /// CLASSIFIED STUDY ON THE DIPLOMATIC LEXICAL UNITS……………………………………..…84

Section 4. ACTUAL PROBLEMS OF NATURAL SCIENCES.……..…..…………89

YARMUHAMMEDOV JASUR MANSUROVICH, SHODMONOV FERUZJON QAMARIDDINOVICH AND YULDOSHOV LAZIZ TOLIBOVICH /// AGROBIOTECHNOLOGY OF CULTIVATION RICINUS COMMUNIS L. IN THE CONDITIONS OF THE BUKHARA…………………………………….……89

SHAROPOVA SHAKHNOZA RAKHMATILLOYEVNA AND NURILLAYEVA GULZODA ULUG’BEK KIZI /// HYDROCHEMICAL COMPOSITION OF PONDS IN BAHA ‘AL-DIN NAQSHBAND SHRINE, BIOTECHNOLOGY OF DETERMINATION AND PROPAGATION OF PHYTOPLAKTONS……………………………………...……………..…95

SHAROPOVA SHAKHNOZA RAKHMATILLOYEVNA AND KAMALOVA AZIZA UKTAMOVNA /// BUKHARA REGION MOKHI-KHOSSA WATER BASIN. SANITARY-HYGIENIC INSPECTION…………………...………….101

Section 5. MODERN PROBLEMS OF TOURISM AND ECONOMICS..…….108

ASHUROV SHERZOD RAKHIMOVICH /// ESSENCE, FUNCTIONS, METHODS AND TOOLS OF TAX ADMINISTRATION……….……………108

[9] Yarmuhammedov J.M., Jumayev T.G., Ro'ziyeva Z.A. "Aerva Lanata Juss. ni Buxoro viloyati sharoitida unib chiqishi va rivojlanishini o'rganish" *O'zbekiston agrar fani xabarnomasi,* № 6 (86/2), 2023, p. 59.
[10] Shodmonov F.Q., Kobilov A.M., and Okilova G.A. "Propagation of Chlorella Vulgaris and Scenedesmus Obliquus in Dengizkul Lake and determination of protein content in them", *E3S Web of Conferences* 420, 2023, p. 09012. https://doi.org/10.1051/e3sconf/202342009012
[11] Baydeman I.N. "Metodika izucheniya fenologii rasteniy i rastitelnых soobshestv", Novasibirsk: *Nauka* 1974, p.154.
[12] Zaysev G.N. "Obrabotka rezultatov fenologicheskix nablyudeniy v botanicheskix sadax", *Byul.bot.sada*, Vip. 94, 1974, pp. 3-10.

UDC:606, 574, 582.261

HYDROCHEMICAL COMPOSITION OF PONDS IN BAHA 'AL-DIN NAQSHBAND SHRINE, BIOTECHNOLOGY OF DETERMINATION AND PROPAGATION OF PHYTOPLAKTONS

Sharopova Shakhnoza Rakhmatilloyevna
Associate Professor (PhD), Department of Biotechnology and Food Safety
s.r.sharopova@buxdu.uz

Nurillayeva Gulzoda Ulug'bek qizi
Master student of Bukhara State University

Annotatsiya. Ushbu maqolada Bahouddin Naqshband ziyoratgohida joylashgan hovuzlardagi fitoplanktonlar aniqlash va ularning gidrokimyoviy tarkibini o'rganish to'g'risida ma'lumotlar keltirilgan.

Kalit so'zlar: *hovuzlar, fitoplankton, probirka, shtativ, eritmalar, distillangan suv, tekshiriluvchi suv, indikator.*

Аннотация. В данной статье представлены сведения по идентификации фитопланктона в прудах, расположенных на территории святилища Бахауддина Накшбанда, и изучению их гидрохимического состава.

Ключевые слова: *пруды, фитопланктон, пробирка, штатив, растворы, дистиллированная вода, тестируемая вода, индикатор.*

Abstract. This article presents information on the identification of phytoplankton in the ponds located in the shrine of Baha 'al-Din Naqshband (Bahauddin Naqshband) and the study of their hydrochemical composition.

Keywords: *ponds, phytoplankton, test tube, tripod, solutions, distilled water, tested water, indicator.*

Introduction

The Baha 'al-Din Naqshband monument complex is located 10 km north-east of Bukhara and has been formed for many centuries. This complex was created after the death of Baha'al-Din Naqshband. Baha 'al-Din Nqashband's full name is Baha 'al-Din Muhammad ibn Al-Bukhari lived in 1318-1389.

He was known by such names as "Shahi Naqshband" and "Khojayi Buzruk". Baha 'al-Din Naqshband is known as the seventh Pir Baha 'al-Din Naqshband memorial complex begins with a small domed gatehouse. In 2003, 28 verses of Surah Ra'd were written in calligraphy by the calligrapher Habibullah Salih in "Babi Islam", i.e. the Gate of Islam. The name of the masters and the year of construction of the building are written in the nastaq letter on the muqarnas part of the gate. A ruby inscription was written on the gate of the chillakhana in the complex. The mausoleum in the complex was arranged by the order of Abdulaziz Khan and was erected now. In 1544-1545, the largest building of the complex was built and in the rooms of the house, poems were written in nastalik script. There is a minaret in the memorial complex, the year 1885 is written on it. It is known that after the gate, there was a small mosque on the right and various buildings for pilgrims on the left. Along the way, on the left is the tomb of the Khans - Dakhmai Shahon. Dakhmai Shahon is rectangular, 2.5 m high, covered with gray marble. It has wonderful examples of marble carving and calligraphy.

Literature Review

Bukhara ponds were built in the memorial complexes of Bukhara and were used for drinking water, purification and various other purposes. Pools are mainly built in city squares, in front of mosques and madrasahs, in palace and palace gardens. In the 19th century, there were pools in the city of Bukhara in Labi pool, Boli pool, Sitorai Mokhi Khosa and other architectural complexes [1].

At the beginning of the 20th century, there were more than 100 ponds in the city of Bukhara, and there were more than 250 ponds around it. The pools were filled once every two weeks in the summer months, and the households were supplied with pool water by water bearer. Pools are mostly surrounded by marble or stones. There was a playground by the pool. There was a leak in the ponds, and water came from them. Pools are usually rectangular in shape and have 6-8 sides. A cistern was built over the pools of Khalifa Khudoidod and Eshoni Imla. By 1925, water pump (water dispenser) was installed in houses in Bukhara and water pipes were installed [1].

The size of Bukhara ponds is different, and the water capacity of all ponds reaches 82,580 cubic meters, i.e. 6,606,376 cubic meters [9]. Construction of ponds in the city has become important. The pools of Bukhara were built in the Central Asian style, and craftsmen made stone walkways from the bottom of the pool to its shore. The construction of the pool was mainly funded by the state, officials and local nobles. Pools are named after their builder or the place where they were built. Covering the Mir-Dostim pool with stone was built at the expense of the treasury at the initiative of Qazi Badruddin, a resident of the neighborhood [2]. Some of Bukhara's ponds have now been renovated.

Depletion of natural resources on Earth, environment, climate change providing the population with nutritious and safe food is one of the primary tasks. Phytoplankton in open water bodies it is important to identify the species and study the biotechnology of their breeding. Through photosynthesis, phytoplankton consume carbon dioxide on a scale equal to that of forests and other land plants. Some of this carbon is transferred to the deep ocean when phytoplankton die, and some is transferred to different layers of the ocean because phytoplankton are eaten by other organisms, which themselves reproduce, creating waste and perish [4].

Figure 1. Baha'al-Din Nashqband Pond.

Five priorities for the further development of the Republic of Uzbekistan Strategy of actions of the Republic of Uzbekistan President's "On further development of the Republic of Uzbekistan Decree" № PF-4947 dated February 07, 2017 "on action strategy" in paragraph 3.3 of "...further strengthening of the country's food security such important tasks as expanding the production of environmentally friendly products defined". In this regard, the usual, national and ensuring the stability of water bodies at the local level, hydrobionts study of phytozooplankton in preservation of biodiversity, their reproduction and development of appropriate recommendations for the study of biotechnology of application in fisheries is considered important in output [3].The fisheries sector plays a potentially important role in the development of Uzbekistan's agriculture, although the sector's contribution to GDP has been less than 0.1% in recent years. Despite the availability of large water resources (ponds, reservoirs, lakes, rivers, canals, etc.), fish production has decreased from 27,000 tons in 1991. Up to 7,200 tons in 2006. There are several reasons for this decrease: the general economic crisis, the breakdown of relations in the industry of the former Soviet Union and problems related to the supply of food, equipment, education, scientific research, etc. As a result, the average per capita consumption is 16.6 kg, and the minimum healthy consumption is less than half a kilogram compared to the global consumption of 10-12 kg (5-6 kg in the late 1980's) decreased. Until 1961, fishing was mainly carried out in the Aral Sea [5]. The monograph introduces readers to the developed and promising freshwater aquaculture technologies in deep continental Uzbekistan, which has a seasonal climate, including hot summers and rather cold winters. A section on pond polyculture of carp fish is presented. Under the condition of water fertilization, fish productivity of ponds reaches 10-20 s/ha with additional feeding, productivity increases by 25-30 s/ha; Sections for cage aquaculture (minimum fish productivity 40 kg/m^3) and trout farming (productivity 20 - 70 kg/m^3) are presented. It is promising to grow cages for lowland lakes, and trout breeding for the foothills and mountain zones of the republic [6]. The indicator of vertical weakening of the daylight flux c is one of the main hydro-optical properties that determine the parameters of the light field in the sea. In particular, it is necessary to know the value of α when calculating the thickness of the euphotic layer, an important ecological characteristic of reservoirs. As a result, the determination of α values is one of the current problems in marine optics. α is determined by measuring the irradiance from above with a photometer immersed in water. a is calculated using the formula [7].

$$a\ (D),\ m^2 = [E(H)/E(H_2)]/(H_2 - H_1),\ = H = (H_1 + H_2)/2,\ H_2 > H_1.$$

A review of modern literature sources on the problems of mass intensive cultivation of microalgae was carried out. The main problems hindering the development of the field of biotechnology in our country were analyzed and modern approaches were determined. Currently, the problem of intensive cultivation of microalgae is widely studied not only in the former CIS countries, but also in the USA, Japan, France, Italy, Czechoslovakia, Bulgaria, Russia and other countries [3], [6], [17], [26], [30], [32]. This is due to the wide application of microalgae: the use of cultivated micro-water plants, the use of biomass as a raw material for the production of any valuable substances, as well as the use of assimilation properties of microalgae for reclamation. water environment. The effectiveness of the development of these areas is determined by optimizing the processes of controlled cultivation of algae cells and, accordingly, ensuring their potentially high production characteristics [8].

Research Methodology

The experimental method used in this study is the determination of water hardness, residual chlorine in water, ammonia in water, and nitrite group in water using a titration method. This experiment involves using an indicator and titration method with $AgNO_3$ solution to determine residual chlorine levels in water samples, with Trilon-1 to determine water hardness levels in tested samples, adding zinc and Nessler's reagent to a water sample and the presence of nitrite groups in the tested water sample based on color changes observed during titration process.

Analyses and Results

Experiment 1: water hardness was determined. For this we take 50 ml of tested water. We put 6-7 drops of chrome dark violet indicator on it. Mix well and add 5 ml of acetate buffer solution. Then we titrate with 0.05 normal Trilon-1. Until a blue color is formed. How many ml of Trilon-1 have been used when the color is dark blue, and this is an indicator of hardness. According to the test results, the water hardness level is high.

Hardness of ponds: 4.7; 5.4; 4.5 mg/l.

We calculated as follows:

$$4.7 \times 1.0 \times 0.05 \times 1000 \div 50 = 4.7\ mg/l$$

Normal hardness is in the range of 7-10.

Figure 2. Experiment to determine water hardness.

Experiment 2: determination of residual chlorine in water. For this, we take 40 ml of distilled water and 10 ml of tested water, then we drop 15 drops of chromicyanide potassium K_2CrO_4 indicator and titrate with $AgNO_3$ (yellow) solution 0.5 n. We do this until a reddish color is formed.

$$Cl=2\times10\times0.5\times1000\div10=100\ mg/dm^3$$

2 ml of $AgNO_3$ was used and 100 mg/dm^3 of Cl_2 chloride was determined by the formula. The norm should be 350 mg/dm^3.

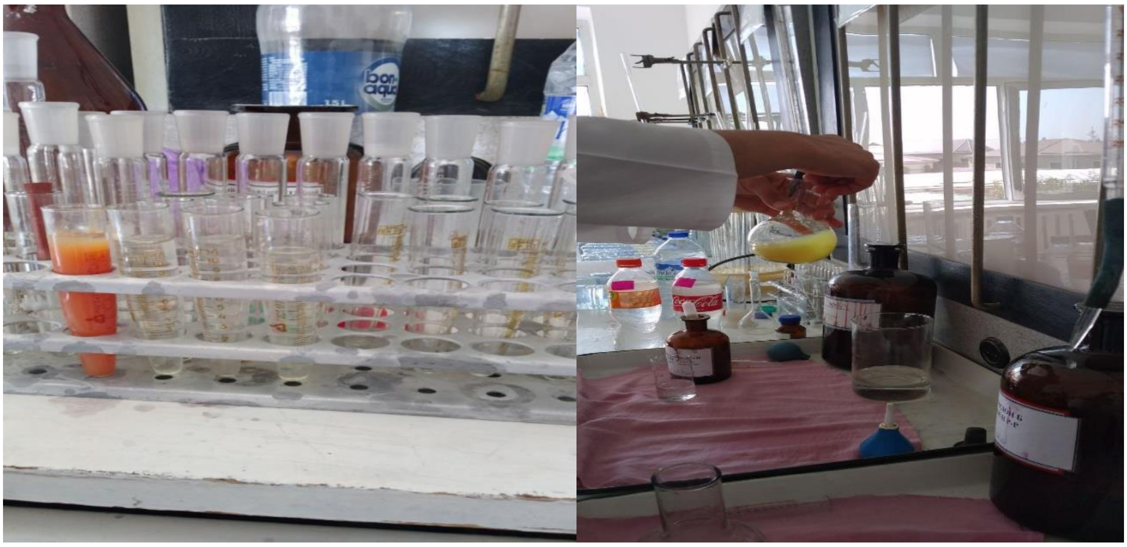

Figure 3. An experiment to determine the nitrite group in water.

Experiment 3: determination of Ammonia in water. Determination of the N_2 group in water. We add 1 ml/l of zinc and 1 ml/l of Nessler's reagent (K_2 Hg $J_4 \times$ NaOH) on 10 ml of tested water. If the water contains NH_3, the water will turn yellow. Otherwise, the color of the water will remain unchanged. NH_3 was not detected in the tested water.

Experiment 4: determination of nitrite group in water. We put reactive Grissa on 10 ml of tested water. We mix a small amount and put it in a water bath with a temperature of 60-70 ℃. The sample turned pink. It was concluded that it contains a nitrite group.

Conclusions

Further development of pond networks, study of hydrochemical composition, use of high-quality, natural nutrients proved to be economically effective. Effective use of the proposed species to increase productivity at the expense of phytoplankton will greatly increase the income of ponds. For this purpose, the expansion of scientific research in this area, obtaining clear results, is of great importance in solving many of the problems facing us.

References:

[1] Rajabov Q., Inoyatov S. “History of Bukhara”, Tashkent: *Tafakkur publishing house*, 2016, p. 460.

[2] Khamrayev I. “Ponds of Bukhara”, Collection of online *scientific-practical conference* on the topic “Bukhara’s place in world culture”, Bukhara, 2020, p. 464.

[3] Collection of legal documents of the Republic of Uzbekistan, Article 70, № 6, 2017, https://lex.uz/docs/3107036.

[4] Hallegraeff G.M. “Ocean Climate Change, Phytoplankton Community Responses, and Harmful Algal Blooms: A Formidable Predictive Challenge”, *Journal of Phycology*, 46(2), 2010, pp. 220-235.

[5] Kamilov B.G., Karimov B.K. “Kormlenie ryb v rybovodstve (illustrivannoe rukovodstvo); Series methodicheskikh posobiy FAO po akvakulture i rybolovstvu”, *Program FAO po obespecheniyu tekhnicheskogo sodeistvia*, Project TCP/Uzb/3103 (D). Tashkent, 2008 pp. 13-15.

[6] Kamilov B.G. and etc. “Rekomendatsii po vyrashivaniyu malkov i secholetkov karpvyx ryb v polikulture v prudax”, Tashkent 2008.

[7] Mankovsky V.I. “Empirical formula for otsenki pokasetlya oslableniya sveta v morskoy vode po glubine vidimosti belogo disca”, Sevastopol. *“Oceanology”*, 1978, pp. 750–753.

[8] Gorbunova S.Yu., Jandareva Ya.D. “Ob effektivnosti ispolzovaniya mikrovodorosley v promyshlennoy biotekhnologii s tselyu melioratsii vodnoy sredy i polucheniya kormov dlya razlichnykh otrasley selskogo hozyaystva”, Sovremennye rybokozyaystvennye i ekologicheskie problemy Azov-Chernomorskogo regiona. Kerch, *“Yugniro”*, 2012, pp. 114-119.

[9] Roziev R. “Ancient pits of Bukhara: Mozi pages”, Bukhara, *“Messenger Digest”*, № 14, 2018, p-6.