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SYSTEMATIC ANALYSIS OF CYANOPHYTA, DINOPHYTA AND CHRYSOPHYTA IN ALGAL FLORA OF ESKIYER WATER RESERVOIR

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Abstract:

Results of research on taxonomical composition of algal flora of the Eskiyer water reservoirs, situated in the territory of Fergana Valley of Uzbekistan are presented. In the article it was given Systematic analysis of Dinophyta and Chrysophyta branches. In this branch it was reported less spreading the reasons of water-grasses in water reservoir. In an analysis there were notes in comparision with other branch water-grasses' species.

Keywords: Algal flora, water reservoirs, taxonomic units, species.

INTRODUCTION

A taxonomic structure of algal flora of the water reservoirs in Uzbekistanwere studied by a number of algologists [1, 2, 5, 6, 7]. Today theoretical and practical issues of algology in Uzbekistan is being studied in a number of reservoirs.Considerable attention is currently being focused on investigation of algal flora of reservoirs in Fergana valley. A number of researcheswere conducted from 2015 to 2020 on identification and wide-range analysis of species structure of such algal flora as in Eskiyer reservoir as (Namangan region, Yangikurgan district) (Fig. 1). Modern taxonomic structure of algal flora and it thoroug analysis are important for composing of the list alga of Uzbekistan. Description of axonomic units of algal flora and inventory of local biodiversity are base for monitoring studies. Generally recognized methods of algology were used during studies, focused on definition of taxonomic structure of these reservoirs [3, 4]. Species included in the algal flora were identified using classical [5, 8, 9) and the modern [7] determinants of algae.

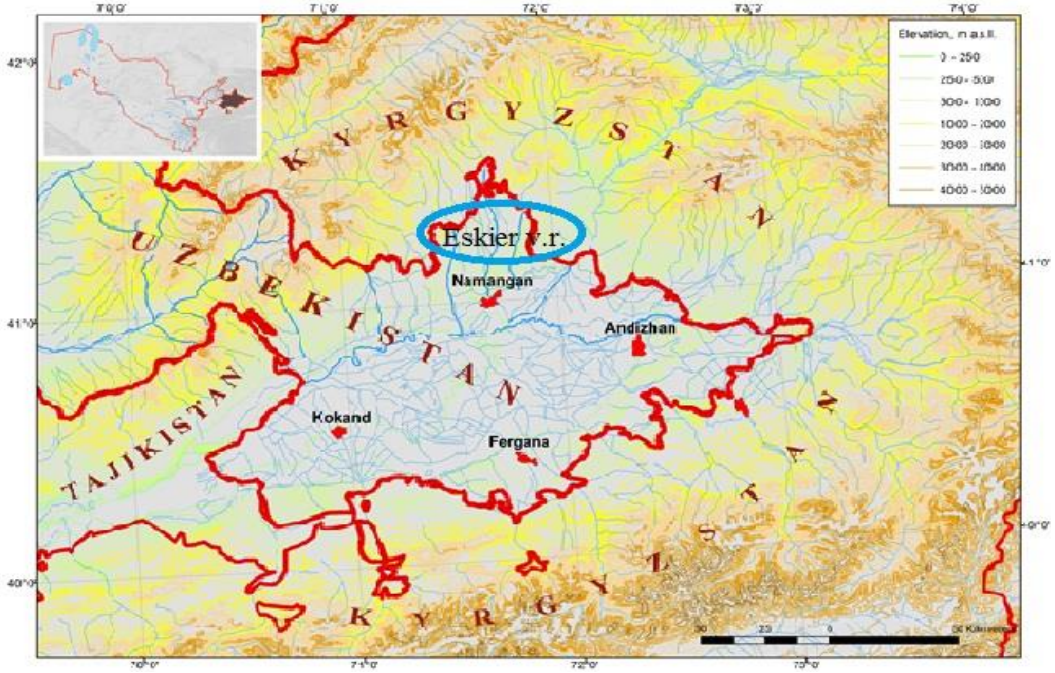

Fig. 1. The location of the research area in Namangan region of Uzbekistan.

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MATHERIALS AND METHODS

Generally recognized methods of algology were used during studies, focused on definition of taxonomic structure of these reservoirs [4]. Species included in the algal flora were identified using classical [3, 7, 8] and the modern [5, 6] determinants of algae. For taxonomic, seasonal and quantitative investigation of algal flora, algal samples were collected from 17 observation points which were set in five places of reservoirs. Seasonal collection of the algal samples in Eskiyer water reservoir (EWR) was conducted within the period from 2015 to 2020.

RESULTS AND DISCUSSION

During the research, the taxonomic units of algal flora of EWR were studied for the first time. As a result, 267 species and subspecies were identified in EWR (Table 1).

In EWR, the temperature of the water in spring ranged from 12-14 to 22˚C, with transparency from 0.5-1 meters to 1.6 meters, pH 7.3-8.2, mineralization 650-1300 mg/l. The temperature in summer ranges from 20-25 to 32 ˚C, transparency from 0,8-1,5 to 2-2,3 meters, pH 7.1-8.3, mineralization 880-1600 mg/l. The temperature in autumn ranges from 26-16-14 ˚C, transparency from 0,8-1 to 1.5 meters, pH 7.6-8.5, mineralization 780-1300 mg/l and in winter it is +6, +5, +4 ˚C, transparency from 1.5 to 2 meters, pH 6.8-7.3, mineralization 620 -1200 mg/l.

Table 1. Taxonomic analysis of the algal flora of Eskiyer water reservoir's

Divisions	Number of taxon							
	classes	orders	families	genera	species	species sorts: varia-tions	species sorts: forms	Total:
Cyanophyta	2	3	10	14	51	2	7	60
Xanthophyta	1	1	1	1	4	-	-	4
Chrysophyta	1	2	3	3	9	1	-	10
Bacillario-phyta	2	4	8	24	76	-	-	76
Dinophyta	1	1	1	3	18	-	-	18
Euglenophyta	1	1	2	4	26	-	-	26
Chlorophyta	2	3	13	26	72	1	-	73
Total: 7	10	15	38	75	256	4	7	267

According to determined branches of algal flora component, it indicates that Cyanophyta branch water-grasses 60 species, Chrysophyta branch 10 species, Euglenophyta branch 26 species, Chlorophyta branch 73 species.

In resulting systematic analyzing there is Cyanophyta branch 60 species (22,5%) water-grasses, they depend on 2 classes, 3 orders, 10 family, 14 genera (2 Table).

Chroococcophyceae class comprises 1 orders, 5 family, 6 genera, 23 species. Chroococcales order includes, Merismopediaceae Elenk. family, Merismopedia (Meyen) Elenk. genera (4 species) and Microcystidaceae Elenk. family, Microcystis (Kuetz.) Elenk. genera (5 species), Aphanothece (Naeg.) Elenk. genera (2 species), Gloeocapsaceae Elenk. family, Gloeocapsa (Kuetz.) Hollerb. genera (5 species), Coelosphaeriaceae Elenk. family, Coelosphaerium (Naeg.) genera (3 species), Gomphosphaeriaceae Elenk. family, Gomphosphaeria Kuetz. genera (4 species).

Hormogoniophyceae class contains 2 orders, 5 family, 8 genera, 37 species. Nostocales order includes Anabaenaceae Elenk. family Anabaena Bory. genera (8 species), Cylindrospermum Kuetz. genera (1 species), Nodulariaceae Elenk. family, Nodularia Mert. genera (1 species), Scytonemataceae Kuetz. Elenk. family, Tolypothrix Kuetz. genera (2 species), Rivulariaceae (Menegh.) Elenk family, Calothrix Ag. genera (2 species). Oscillatoriales order includes Oscillatoriaceae

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(Kirchn.) Elenk. family, Oscillatoria Vauch. genera (16 species), Phormidium Kuetz. genera (4 species), Lyngbya Ag. genera (3 species).

Table 2. Systematic analysis of algal flora in Cyanophyta branch

Systematic singulars and their number				
class	order	family	genera	species and species sorts number
Chroococcophyceae	Chroococcales	*Merismopediaceae* Elenk.	*Merismopedia* (Meyen.) Elenk.	4
		Microcystidaceae Elenk.	*Microcystis* (Kuetz.) Elenk. *Aphanothece* (Naeg.) Elenk.	5 2
		Gloeocapsaceae Elenk.	*Gloeocapsa* (Kuetz.) Hollerb.	5
		Coelosphaeriaceae Elenk.	*Coelosphaerium* (Naeg.) Elenk.	3
		Gomphosphaeria-ceae Elenk.	*Gomphosphaeria* Kuetz.	4
Hormogoniophyceae	Nostocales	*Anabaenaceae* Elenk.	*Anabaena* Bory *Cylindrospermum* Kuetz.	8 1
		Nodulariaceae Elenk.	*Nodularia* Mert.	1
		Scytonemataceae Kuetz. Elenk.	*Tolypothrix* Kuetz.	2
		Rivulariaceae (Menegh.) Elenk.	*Calothrix* Ag.	2
	Oscillato-riales	*Oscillatoriaceae* (Kirchn.) Elenk.	*Oscillatoria* Vauch. *Phormidium* Kuetz. *Lyngbya* Ag.	16 4 3
Total:2	3	10	14	60

From *Cyanophyta* branch, if *Oscillatoriales* order *Oscillatoriaceae* (Kirchn.) Elenk. family organizes 23 species, they led in algoflora with species number of majority.

According to analysis results, there is few in comparision with number of water-grasses species are due to Dinophyta and Chrysophyta branches which determined algal flora from Eskiyer water reservoir. In this branch water-grasses were analysed with tacsonomic.

Water reservoir of Dinophyta branch determined total 18 species (6,7%), they are 1 class, 1 order, 1 family, 3 genera. Dinophyceae class, Peridiniales order, *Peridiniaceae Pauls* family, *Glenodinium* (Ehr.) Stein. Genera 6 species, *Peridinium Ehr.* genera 6 species, *Ceratium Schrauk* genera 6 species and species sorts were determined. Systematic analysis of Dinophyta branch were given in 3 Table.

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Table 3. Systematic analysis of algal flora in Dinophyta branch

Systematic singulars and their number				
class	order	family	genera	species and species sorts number
Dinophyceae	Peridiniales	*Peridiniaceae* Pauls.	*Glenodinium* Ehr. *Peridinium* Ehr. *Ceratium* Schrauk	6 6 6
Total:	1	1	3	18

While doing systematic analysis of Chrysophyta branch water-grasses,10 species (1,1%) determined, they are determined 1 class, 2 order, 3 family, 3 genera (4 Table).

Table 4. Systematic analysis of algal flora in Chrysophyta branch

Systematic singulars and their number				
class	order	family	genera	species and species sorts number
Chrysomona-dineae	Chromulinadales	*Chrysapsidaceae* Pasch.	*Chrysapsis* Pasch.	2
		Euchromulinaceae Pasch.	*Chromulina* Cienk.	3
	Ochromonadales	*Euochromonadaceae* Pasch.	*Dinobryon* Ehr.	5
Total: 1	2	3	3	10

Chrysomonadineae class, Chromulinadales order, *Chrysapsidaceae* Pasch. family, *Chrysapsis* Pasch. genera 2 species and *Euchromulinaceae* Pasch. family, *Chromulina* Cienk. genera 3 species. Ochromonadale order, 5 species genera owing to Euochromonadaceae Pasch family from *Dinobryon* Ehr. genera determined.

The basic part of algal flora of Eskiyer water reservoir being organized Chlorophyta (27,3%), Bacillariophyta (27,3%) and Cyanophyta (22,5%), Euglenophyta (9,7%) branches water-grasses. There are algal flora of water-grasses 10,5% due to Chrysophyta and Dinophyta branches.

CONCLUSION

In algoflora component of Eskiyer water reservoir, Cyanophyta branch water-grasses are peculiar reasons having seen much in comparision with other branch water-grasses, this branch water-grasses are adaptable with all ecological conditions, it preserves living activity in seasonal changes, not only water reservoir, but it has also spread all water basins widely, it lives other branch water-grasses of species in communication, in Eskiyer water reservoir these branch water-grasses are much seen which above information affirms.

In algal flora component of Eskiyer water reservoir, Dinophyta and Chrysophyta branches water-grasses are peculiar reasons having less in comparision with other branch water-grasses, firstly this branch water-grasses no adaptation with all ecological conditions of environment, secondly their living activity stops the hottest and coldest months of year, thirdly They have spread urgent flowing water basins in comparision with reservoir, fourthly they are seen separately no living contact with other branch species. Besides, according to the world, if it is known 72000 species of water-grasses, Dinophyta 600 species, and Chrysophyta branch water-grasses organizes 500 species such as few species by comparing. In Eskiyer water reservoir, this branch water-grasses being seen less above information confirmed.

REFERENCES

1. Ergashev A. E. 1974: Vodorosli Chimkurganskogo vodokhranilisha / Al'goflora iskusstvennykh vodoyemov Sredney Azii. Tashkent: Fan, S. 129-133.
2. Ergashev A. E. 1979: Opredelitel' protokokkovykh vodorosley Sredney Azii. V 3-kh t. Tashkent: Fan, T. 1. 344 s.

World Bulletin of Social Sciences (WBSS)
Available Online at: https://www.scholarexpress.net
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3. Kiselev I. A. 1954: Pirofitovyye vodorosli / Opredelitel' presnovodnykh vodorosley SSSR. V 8-i t. M.: Sovetskaya nauka, T. 6. 212 s.
4. Kiselev I. A. 1956: Metody issledovaniya planktona / Zhizn' presnykh vod SSSR. V 4-kh t. – M. -L.: AN SSSR, T. 4. 265 s.
5. Khalilov S., Shoyakubov R. Sh., Temirov A, Kozirakhimova N. K., Tojibayev Sh. J. 2012: Ulotriksovyye vodorosli Uzbekistana. Namangan: 260 s.
6. Khalilov S., Shoyakubov R. Sh., Mustafayeva Z. A., Ergasheva Kh. E., Karimov B. K., Tojibayev Sh. J, Alimjanova Kh. A. 2014: Opredelitel' vol'voksovykh vodorosley Uzbekistana. Namangan: 215 s.
7. Muzafarov A. M., Ergashev A. E., Khalilov S. 1987: Opredelitel' sinezelenykh vodorosley Sredney Azii. V 3-kh t. Tashkent: Fan, T. 1. 405 s.
8. Muzafarov A. M., Ergashev A. E., Khalilov S. 1988: Opredelitel' sinezelenykh vodorosley Sredney Azii. V 3-kh t. Tashkent: Fan, T. 2-3.216 s.
9. Temirov A. A. 1995: Dominiruyushchiye vodorosli Kayrakkumskogo vodokhranilishcha / Tezisy nauchnoy konferentsii posvyashchennoy 75-letiyu Tashkentskogo gosudarstvennogo universiteta. Tashkent, S. 94-95.