Taxonomic and Comparative Analysis of Algoflora of Channels of Fergana Valley

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Abstract: In the article, it was determined from the results of taxonomic and comparative analysis of the algoflora of the canals of the Fergana Valley (Big Fergana Main Canal (BFMC), Northern Fergana Main Canal (NFMC, Southern Fergana Main Canal (SFMC) that the algoflora of the canals showed a somewhat complex composition. When we studied the general state of algae, 6 sections, 13 classes, 19 orders, 34 families, 314 species and varieties (218 species, 71 variations, 25 forms) belonging to 72 families were identified. Among them, Cyanophyta - 45, Chrysophyta - 4, Bacillariophyta - 229, Pyrrophyta - 8, Euglenophyta - 12, Chlorophyta - 16 species and species.

Key words: algoflora, taxonomy, environment, stream, various species and varieties, reservoir, ecology, natural environment, algae.

Introduction. The studies were carried out on natural and artificial reservoirs located in the Ferghana Valley: reservoirs, canals, fish farms.

From the results of taxonomic and comparative analysis of algae flora of channels of Fergana valley (BFMC), (NFMC), (SFMC) it was found that the algoflora of channels has a somewhat complex composition. When we studied the general state of algae, 6 sections, 13 classes, 19 orders, 34 families, 314 species and varieties (218 species, 71 variations, 25 forms) belonging to 72 families were identified. Among them, Cyanophyta - 45, Chrysophyta - 4, Bacillariophyta - 229, Pyrrophyta - 8, Euglenophyta - 12, Chlorophyta - 16 species and species formed (Fig. 1).

N⁰	Divisions algae	Types and versions	Childbirth	Variatsia	Forma	%
		versions				
1	Cyanophyta	45	32	-	13	11,91 %
2	Chrysophyta	4	4	-	-	0,60 %)
3	Bacillariophyta	229	152	67	10	79,76 %
4	Euglenophyta	12	10	1	1	1,79%
5	Pyrrophyta	8	7	-	1	2,97%
6	Chlorophyta	16	13	3	-	2,97 %
	Total : 6	314	218	71	25	100%

When we study regions separately by channels:

According to the taxonomic structure of the algae of the **Northern Fergana main channel**, Bacillariophyta - 134 algae are the leaders among the algae divisions and make up 79.76% of the total number of species and species (98 - species, 33 - variations, 3 - forms).

Cyanophyta - 20 (12 species, 11.91%) are in the next places; Chlorophyta - 5 (2.97%); Representatives of Pyrrophyta - 5 (2.97%), Euglenophyta - 3 (1.79%) were observed. The number of species and species of Chrysophyta algae (1; 0.60%) is small (2 - table).

Ng	Divisions algae	Taxonomic units and their number									
		class	order	famil	gener	childbi	variat	form	types	types and	
				у	a	rth	sia	a	and	versions	
									version	%	
									s		
1	Cyanophyta	2	2	4	5	12	-	8	20	11,91 %	
2	Chrysophyta	1	1	1	1	1	-	-	1	0,60%	
3	Bacillariophyta	2	3	8	24	98	33	3	134	79,76%	
4	Pyrrophyta	2	2	2	3	5	-	-	5	2,97%	
5	Euglenophyta	1	1	2	2	3	-	-	3	1,79%	
6	Chlorophyta	3	3	3	3	4	1	-	5	2,97%	
	Total:	11	12	20	38	123	34	11	168	100 %	

Table. 2 - Taxonomic analysis of NFMC algoflora

During the analysis of the taxonomic structure of the algae sections of ShFMK, it was determined that the algae of the Basilariophyta section belong to 2 classes, 3 orders, 8 families, 24 genera and 134 species and species.

According to the taxonomic structure of the algae of the **Southern Fergana main canal**, Bacillariophyta - 155 algae are the leaders among the algae divisions and make up 72.09% of the total number of species and species (107 - species, 41 - variations, 7 - forms).

Cyanophyta - 31 (21 species, 10 variations - 11.91%) are in the next places; Chlorophyta - 15 (13 species, 2 variations, 6.98%); Representatives of Pyrrophyta - 2 (0.93%), Euglenophyta - 10 (9 species, 1 variation - 4.65%) were observed. The number of species and species of Chrysophyta algae (2; 0.93%) is a minority (3 - table).

Ng	Divisions algae	Taxonomic units and their number									
		class	order	famil	gener	childbi	variat	form	types	types a	and
				У	a	rth	sia	а	and	versions	
									version	%	
									S		
1	Cyanophyta	1	3	7	11	21	10	-	31	14,42 %	
2	Chrysophyta	1	2	2	2	2	-	-	2	0,93 %	
3	Bacillariophyta	2	3	8	31	107	41	7	155	72,09 %	
4	Pyrrophyta	2	2	2	2	2	-	-	2	0,93 %	
5	Euglenophyta	1	1	3	5	9	1	-	10	4,65 %	
6	Chlorophyta	5	6	8	10	13	2	-	15	6,98 %	
	Total:	12	17	30	61	154	54	7	215	100 %	

 Table. 3- Taxonomic analysis of the algoflora of SFMC

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During the analysis of the taxonomic structure of the algae sections of ShFMK, it was determined that the algae of the Basilariophyta section belong to 2 classes, 3 orders, 8 families, 31 genera and 155 species and species.

According to the taxonomic structure of the algae of the **Big Fergana Main Canal**, Bacillariophyta - 78 algae are the leaders among the algae sections and make up 78% of the total number of species and species (62 - species, 13 - variations, 3 - forms).

Cyanophyta is in the next places - 11 (8 species, 3 forms) 11.91% of the total species and species; Chlorophyta - 3 (1 variation and 1%); Representatives of Pyrrophyta - 4 (1 form, 2.97%), Euglenophyta - 3 (1 form, 1.79%) were observed. The number of species and types of Chrysophyta algae (1; 1%) is a minority (4 - table).

№	Divisions	Taxonomic units and their number								
	algae	cl	orde	famil	gener	childbirt	variatsi	form	types	types
		a	r	у	a	h	а	а	and	and
		SS							version	version
									s	s
										%
1	Cyanophyta	2	3	3	4	8	-	3	11	11 %
2	Chrysophyta	1	1	1	1	1	-	-	1	1 %
3	Bacillariophyt	2	3	7	23	62	13	3	76	78 %
	a									
4	Pyrrophyta	2	3	3	4	3	-	1	4	4 %
5	Euglenophyta	1	1	2	3	2	-	1	3	3 %
6	Chlorophyta	3	3	3	3	2	1	-	3	3 %
	Total:	11	14	19	38	78	14	8	98	100 %

Table.4-Taxonomic analysis of BFMC algoflora

During the analysis of the taxonomic structure of the algae sections of NFMK, it was determined that the algae of the Basilariophyta section belong to 2 classes, 3 orders, 8 families, 24 genera and 134 species and species.

Accordingly, according to the general taxonomic structure of algae of the channels of the Fergana Valley, Bacillariophyta - 229 algae are the leaders among the algae divisions and make up 79.76% of the total number of species and species (152 - species, 67 - variations, 10 - forms).

Cyanophyta - 20 (12 species, 11.91%) are in the next places; Chlorophyta - 5 (2.97%); Representatives of Pyrrophyta - 5 (2.97%), Euglenophyta - 3 (1.79%) were observed. The number of species and species of Chrysophyta algae is small (1; 0.60%) (Table 2.1).

During the analysis of the taxonomic structure of algae sections of the channels of the Fergana Valley, it was determined that the algae of the Basilariophyta section belong to 2 classes, 3 orders, 8 families, 24 genera and 134 species and species.

212 species and varieties of the Pennatophyceae class were identified, accounting for 96.36%, and 8 species and varieties of the Centrophyceae class accounted for 3.64%. Fragilariaceae (Kuetz.) D.T. belonging to the class Pennatophyceae. (41), (Table 2.2).

Naviculaceae West. (122), *Nitzschiaceae* Hass. (19), *Achnanthaceae* (Kutz.) Grun. (15), families are distinguished by the richness in the number of species and species.

Tabellariaceae Pant (5), *Sosconodiscaceae* Kutz. (8), *Surirelleceae* (Keutz.) Grun. (8), *Eunotiaceae* Kuetz. (1), *Epithemiaceae* Hust. (1) the number of species and varieties of families was determined in small quantities.

Vol 12 Issue 04 2023 ISSN NO: 2230-5807

Naviculaceae West from the systematic units of diatoms. family is leading (122), which is 55.45% of the total number of species and species in this section. The wealth of species is *Navicula* Bory (43), *Cymbella* Ag. (28), *Nitzschia* Hass. (16), *Gomphonema* Ag. (15), *Pinnularia* Ehr. (10), *Amphora* (Ehr.) (10), series are leading. In the remaining categories, the number of species and varieties is 1-6.

Coscinodiscaceae Kuetz of the order Discoidales of the class Centrophyceae. Melosira Ag of the family. (4), Cyclotella Kuetz. The number of species and species in the (3) series is the majority. Stephanodiscus Ehr. only one species was found in the series.

It was determined that the composition of algae belonging to the Cyanophyta section is systematically characterized by 45 species belonging to 13 genera, 8 families, 3 orders and 2 classes. Hormogoniophyceae (33), Chroococcophyceae (12) accounted for 73.33% of the total number of species and types of algae of Cyanophyta division. Oscillatoriaceae (Kirchn.) Elenk by number of total species and species of algae. (22) families dominated.

Oscillatoriaceae (Kirchn.) Elenk, among the groups of algae of the Cyanophyta division. (22), Microcystidaceae Elenk. (6) leads. In the remaining categories, the number of species and varieties is low. (table 2.3).

Based on the systematic analysis of the species composition of algae of the Chlorophyta division, 16 species were identified. They are grouped into 10 genera, 8 families, 5 orders and 4 classes.

Among the algae of the Chlorophyta section, Conjugatophyceae dominates 7 (43.75%) and Ulothrichophyceae 5 (31.25%) classes in terms of the number of species (table 2.4).

Algae of class Chlorococcophyceae 1 (6.25%) take the next place. 3 (18.75%) representatives of the class Siphonocladophyceae occupy the bottom of the total number of species.

The largest number of species can be seen in the family Closteriaceae (3), in the remaining families Desmidiaceae (3) and one algae in others. In the canals of the Fergana valley there are 8 species of Pyrrophyta algae, which belong to 6 genera, 4 families, 4 orders, 2 classes Chroomonas caudata Geitt., Cryptomonas obtorta Conr., Cryptomonas ovate Ehr., Cryptomonas rufescens Skuja, Woloszynskia vera (Lind.) Thompson, Glenodinium gymnodinium Penard, Peridinium cinctum. F. Westii (Lemm) Lef., Hypnodinium sphaericum Klebs species scattered.

Euglenophyta division algae consists of 12 genera, 3 families, 1 order and 1 class, *Trachelomonas oblanga* Lemm., *Trachelamonas oblanga. var. truncata* Lemm., *Trachelomonas scobra* Playf, *Trachelomonas volvocina* Ehr., *Euglena pisciformus* Klebs, *Euglena variabilis* Klebs, *Phacus parvulus* Klebs, *Colacium arbuscula* Stein, *Colacium cyclopicola* (Gickl.) Woronich et Popova, *Colacium vesiculosum* Ehr., *Astasia parvula* Skuja, *Euglenopsis vorax. F. minor* (Skuja) Popova, they made up 1.29% (4) of the total number of species and species.

Chromulina rosanoffii Buetschli, Chromulina freiburgensis Dofl., Ochromonas charkowinsis Marv., Synochromonas pallida Korsch. made up 1.27% of the total species.

Thus, the results of the systematic analysis of the algoflora composition of the Fergana Valley canals water basin show the diversity of the composition and quantity of algae.

Among them are the following: from the Cyanophyta department - *Synechococcus elongatus* Naeg., *Dactylococcopsis rhaphidioides* Hansg *Merismopedia tenuissima* Lemm. From the section Chrysophyta - *Synochromonas pallida* Korsch. there are few species like.

From the section Bacillariophyta – Melosira granulata (Ehr.) Ralfs., Cyclotella stelligera Cl. Et Grun., Stephanodiscus hantzschii Grun., Tetracyclus rupestris (A.Br.) Grun., Tabellaria flocculosa (Roth) Kuetz., Meridion circulare Ag., Diatoma elongatum. var. tenue (Ag.), Diatoma hiemale (Lyngb.) Heib., Fragilaria atomus Hust., Ceratoneis arcus (Ehr.) Kuetz., Synedra actinastroides Lemm., Cocconeis disculus var. diminuta (Pant.) Sheshukova, Rhoicosphenia curvata (Kuetz.) Grun., Mastogloia Smithii var. lacustris Grun., Navicula cincta (Ehr.) Kuetz., Pinnularia fasciata (Largest.) Hust., Gyrosigma scalproides (Rabenh.) Cl., Amphora ovalis. var. pedioculus Kuetz., Cymbella parva

(W. Sm) Cl., *Gomphonema constrictum* Ehr., *Bacillaria paradoxa* Gmelin and others were found a lot.

From the section Pyrrophyta – *Cryptomonas obtorta* Conr, *Peridinium cinctum. F. Westii* (Lemm) Lef. from the Euglenophyta department – *Trachelomonas oblanga* Lemm., *Phacus parvulus* Klebs, *Euglenopsis vorax. F. minor* (Skuja) Popova were found.

From the section Chlorophyta - Chlorella luteoviridis Chodat., Ulothrix zonata Kuetz., Schizomeris Leiblenii Kuetz., Cladophora glomerata (L) Kuetz., Cosmarium trilobulatum Reinsch., Closterium Nordstedtii (Delp), Spirogira calospora Cleve.

It should be noted that 50-60 years ago, researcher A. Ergashev studied the (BFMC), (NFMC) channels from the points we are studying. In addition to A. Ergashev's research, we studied the new requirements of the channels of the Fergana Valley from the beginning of the (BFMC), (NFMC), (SFMC) to the confluence.

A comparative study of the algoflora of different water bodies allows to determine the order of species and the development of algae under the influence of various environmental factors.

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