Nat. Volatiles & Essent. Oils, 2021; 8(4): 9685-9691

NVEO
Natural Volatiles &
Essential Oils

Analysis Of Family Types Of Naviculaceae West In Some Water Reservoirs' Algoflories Of Fergana Valley

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Abstract: the article reveals data on the distribution of family species of Naviculaceae West in some reservoirs of the Fergana Valley. A comparative analysis of the number of species of the family Naviculaceae in the algoflora of the water reservoirs of the Fergana Valley and the features of the family members and their distribution in the reservoirs are described.

Keywords: reservoir, algoflora, family, category, analysis.

Introduction

It is crucial to assess the current position of the algoflora of water reservoirs of Uzbekistan, substantiation of the importance of water sources in the formation of the taxonomic composition of the reservoir algoflora, disclosure of the impact of anthropogenic factors on changes in the composition of water reservoirs, creation and implementation of electronic database of algoflora as well. Water reservoirs between different water reservoirs play an important role in the formation, distribution and development of algoflora. In particular, the presence of turbulent movement in the reservoir facilitates the vertical movement of species, especially plankton-benthos, justifies important laws in the distribution of algae at depth, as well as the influence of low-velocity turbulent movement in different ecological groups. This fact makes it even more common in the surface layers of reservoirs, although the thallus of the Naviculaceae family is covered with a siliceous shell. In addition, the diversity of algoflora is high as the water in the reservoir is fresh.

Analysis and Results

418 species of algoflora of Andijan reservoir, 267 species of algoflora of Eskier reservoir, 186 species of algoflora of Karkidon reservoir, 198 species of algoflora of Chartak reservoir were identified. The Naviculaceae family led with a large number of species in these reservoirs. The number of species of the family Naviculaceae in the algjflora of some reservoirs of the Fergana Valley was analyzed.

Naviculaceae West family, Bacillariophyta, Pennatophyceae, belonging to the order Raphinales, is one of the most widespread leading families in the algjflora of the Fergana Valley water reservoirs, especially the Navicula, Gymbella, Pinnularia families belonging to this family are distinguished by a large number of species.

The Naviculaceae family in the algoflora of the Andijan Reservoir was consisted of 48 species and ranked second after the Oscillatoriaceae family with 11.48% (Table 1).

The algoflora of the Eskier Reservoir, the Naviculaceae family was consisted of 25 species, ranking second after the Oscillatoriaceae family at 9.36% (Table 1).

The Naviculaceae family of algoflora of the Karkidon Reservoir consisted of 23 species, ranking first with 12.36% (Table 1).

The algoflora of the Chartak Reservoir, the Naviculaceae family was consisted of 18 species and ranked second after the Oscillatoriaceae family with 9.09% (Table 1).

Table 1 The number of species of the family Naviculaceae in some reservoirs of the Fergana Valley

Research areas	Number of species	in% of total algoflora
Andijan reservoir	48	11,48
Eskier reservoir	25	9,36
Karkidon Reservoir	23	12,36
Chartak Reservoir	18	9,09

The taxonomic composition of the family Naviculaceae in the algoflora of some water reservoirs of the Fergana Valley, indicator-saprobic zones, seasonal dynamics of species and ecological groups are given in Table 2.

Table 2 Analysis of the Naviculaceae family in the Reservoirs of the Fergana Valley

№	Name of taxons	Saprobligic zones	Species during the seasons				Ctenoterm (k-cryophilic, m-mesophilic, t-thermophilic)	Evriterm
			spring	summer	autumn	winter		
	Family – Naviculaceae West. Species – Diploneis Ehr.							
1	D. finnica (Ehr.) Cl.		+		+		k	
2	D. parma Cl.	o	+		+	+	k	
3	D. subovalis Cl.		+		+		k	
	Sort – Stauroneis Ehr.							
4	S. anceps Ehr.	o	+	+	+	+		+
5	S. schulzii Jouse			+			t	
	Sort – Navicula Bory.							
6	N. cari Ehr.		+	+			m	
7	N. cincta (Ehr.) Kuetz.	β-α	+	+			m	
8	N. cryptocephala Kuetz.		+	+	+	+		+
9	N. cuspidate Kuetz.	β	+	+	+		m	
10	N. dicephala (Ehr.) W. Sm.	o-β	+	+	+		m	
11	N. hasta Pant.	α	+	+			m	
12	N. hustedtii Krass.			+	+		m	
13	N. pupula Kuetz.	β	+	+	+		m	
14	N. radiosa Kuetz.		+	+	+	+		+
15	N. rhynchocephala Kuetz.	α		+	+		m	
16	N. vulpina Kuetz.	α	+	+	+		m	
	Sort – Anomoeoneis Pfitz.							
17	A. follis (Ehr.) Cl.		+		+	+	k	
18	A. sphaerophora (Kuetz.) Pfitz.	o	+	+	+		m	

	Sort – Pinnularia Ehr.							
19	P. appendiculata (Ag.) Cl.				+		k	
20	P. fasciata (Lagerh.) Hust.		+	+	+		m	
21	P. interrupta W. Sm.	o		+	+		m	
22	P. molaris Grun.	o	+		+		k	
	Sort – Neidium Pfitz.							
23	N. dilatatum (Ehr.) Cl.				+		k	
24	N. prodictum (W. Sm.) Cl.		+		+		k	
	Sort – Caloneis Cl.							
25	C. amphisbaena (Bory.) Cl.		+		+	+	k	
26	C. bacillum (Grun.) Mer.		+	+	+		m	
27	C. pulchra Messik		+				m	
	Sort – Gyrosigma Hass.							
28	G. acuminatum (Kuetz.) Rabenh.	o	+	+	+		m	
29	G. attenuatum (Kuetz.) Rabenh.		+	+			m	
30	G. kuetzingii (Grun.) Cl.	o	+	+	+	+		+
	Sort – Amphora (Ehr.) Cl.							
31	A. altaica Poretz.	o	+	+	+		m	
32	A. ovalis Kuetz.		+	+	+		m	
33	A. veneta Kuetz.	o	+	+	+		m	
	Sort – Didymosphenia M. Schmid.							
34	D. geminata (Lyngb.) M. Schmid.	o	+		+	+	k	
	Sort – Gomphonema Ag.							
35	G. acuminatum Ehr.		+	+	+		m	
36	G. augur Ehr.	β	+	+	+		m	
37	G. constrictum Ehr.		+	+	+		m	
38	G. longiceps Ehr.		+		+	+	k	

39	G. olivaceum (Lyngb.) Kuetz.	β	+	+	+		m	
40	G. sphaerophorum Ehr.		+	+	+		m	
	Sort – Cymbella Ag.							
41	C. affinis Kuetz.	o	+		+	+	k	
42	C. angustata (W.Sm.) Cl.		+	+	+		m	
43	C. austriliaca A.S.		+	+	+	+		+
44	C. delicatula Kuetz.		+	+		+	k	
45	C. lanceolata (Ehr.) V.H.	α-β	+		+		k	
46	C. parva (W. Sm.) Cl.			+	+			+
47	C. sinuate Greg.		+	+	+		m	
48	C. ventricosa Kuetz.		+		+		m	

The taxonomic composition of algoflora in water reservoirs, their amount, biomass varies under the influence of seasonal changes and environmental factors [2, 4]. Algoflora is dominated by species that have the largest amount and biomass at any time of the season [3, 5]. The dominant species of a particular watershed are constant in the samples, but there are changes in their number and biomass. Dominant species are distinguished by their adaptability to all ecological environments in water bodies and their suitability for the eurythermal group [6]. Among the algae are cosmopolitan species, most of which are dominant species [3, 4, 7].

Description of the dominant species belonging to the family Naviculaceae from the division Bacillariophyta:

Navicula cryptocephala Kuetz. - common in plankton, in all parts of the reservoir, more common when the water temperature is 18-22 oC. The amount was 680 thousand cells / liter in spring, 180 thousand cells / liter in summer and 710 thousand cells / liter in autumn.

Gomphonema constricta Ehr. - common in plankton, in all parts of the reservoir, when the water temperature is 18-20 oC. The amount was 820 thousand cells / liter in spring, 160 thousand cells / liter in summer and 910 thousand cells / liter in autumn.

Currently, there are several systems for biological indexation of contaminated water, and in algeology, the determination of the saprobiological level of water is yielding effective results. Algoflora species are indicator organisms that are sensitive to changes in the environment. Identification of indicator-saprob species and their distribution provides an opportunity for biological analysis of water quality and ecological-sanitary status of water bodies. According to Vasser, [1] water reservoirs are divided into poly-, meso and oligosaprobic zones depending on the contamination of some parts of it

with organic matter. The fact that the algoflora in the Fergana Valley belongs to the mesosaprob (zones α and β) and oligosaprob groups, which are indicator-saprob species, shows that the level of water pollution in the reservoir is not high. In particular, representatives of the Naviculaceae family were the leaders in the composition of algoflora in terms of indicator-saprob species.

Conclusion

In fact, the number of species of the Naviculaceae family in the algoflora of the Fergana Valley reservoirs is higher than that of other families indicates that all ecological conditions are sufficient for the representatives of this family in the water reservoirs of Uzbekistan. In particular, these family species also lead in the composition of river algoflora, which feeds reservoirs. This situation indicates that the algae flora of the reservoir is related to the algoflora of the water sources to which it is discharged. The richness of species of this family shows that the Fergana Valley reservoirs are an algal region of special importance in Uzbekistan. Species belonging to the family Naviculaceae are algae resistant to factors such as water temperature, clarity, depth of the water basin, its coastal and middle and pre-dam conditions, pH, mineralization. It also adapts quickly to river, reservoir or lake conditions of water bodies. The highest occurrence of algoflora in terms of vertical distribution in the reservoir occurred at depths of 0.5–3–5 m. At a depth of 20-25 meters of the reservoir, the number and quantity of species were decreased in all sections. Underwater, mainly Bacillariophyta division species have been identified, which is due to the presence of a siliceous shell in their thallus.

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