

Taxonomical and Comparative Analysis of the Algoflora of Some Reservoirs of the Fergana Valley

Muattarhon Yuldashova¹, Adolathon Solieva², Mamurakhon Madaminova³,
Mukhabbat Asadova³, Akramjon Turgunov⁴, Hikmatillo Turgunov⁴

¹The Department of Botany and Biotechnology of Fergana State University

²Lecturer, Ferghana Medical Institute of Public Health

³Lecturer, Federal State University

⁴Master's Student, Federal State University

Abstract The article considers some natural and artificial reservoirs of the Fergana Valley (Shakhimardansay River, Kolykubbon Lakes, Yetti Kul, Karkidon Reservoir, Big Fergana Main Canal, North Fergana Main Canal, South Fergana Main Canal, Namanganbalyk LLC, fishing). farms, a taxonomic analysis of the species composition of the algal flora for the period from 2010 to 2022 is described. 625 species and varieties of algae were found in 7 sections. Of these, Bacillariophyta (398 mA) - 72.93%, Rhodophyta (2) - 0.65%, Chlorophyta (98) - 5.10%, Cyanophyta (101) - 14.33%, Pyrrophyta (6) - 2, 55%, Euglenophyta - (14) - 3.82% and Chrysophyta - (6) - 1.27% formation of various species and varieties.

Keywords Algoflora, Taxonomy, Environment, Stream, Various species and varieties, Reservoir, Ecology, Natural environment, Algae

1. Introduction

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

"Seven Lakes" with a total area of 40 hectares, located in the Tashlak region, Kolykubbon, the pearl of the Shakhimardansay river valley, the total length of which is 112 km, starting from the Pamir-Alay mountain ranges; from fish farms: 1st fish farm LLC Namanganbalyk with a lake area of 2000 ha; 2nd lake: the fish farm LLC "Damkol", established in the village of Avval, Fergana region; 3rd lake: fish farm LLC "Orifjon Kelazhaghi", established in the village of Yormazor, Fergana; from reservoirs: "Karkidon reservoir", located in the Kuva region; from channels: total length 350 km, starting from the Narin and Karadarya valleys. The Big Ferghana Main Canal (water transmission 211 m³/sec, irrigated area 213.7 thousand), with a total length of 162.05 km, starting from the Norindarya basin. The algoflora of the Northern Fergana Canal (water-carrying capacity 103 m³/s, irrigated area 127.3 thousand) and the Southern Fergana main canal (water-carrying capacity 85 m³/s, irrigated area 75.8 thousand) with a total length of 120 km, starting from were studied the Shakhrikhandarya valley.

According to geomorphological features, water bodies are divided into streams. Observation points were established

along the banks of the rivers of reservoirs to collect samples of algae.

When studying the general condition of algae, 625 species and varieties were found in 7 divisions. Of these, Bacillariophyta (398) - 72.93%, Rhodophyta (2) - 0.65%, Chlorophyta (98) - 5.10%, Cyanophyta (101) - 14.33%, Pyrrophyta (6) - 2.55 %, Euglenophyta - (14) - 3.82%. and Chrysophyta - (6) - 1.27% different species and varieties.

Shakhimardansay river: A taxonomic analysis of the species composition of the algoflora of the Shakhimardansay River with a total length of 112 km, starting from the Pamir-Alay mountain ranges, showed that the algoflora of the river has a rather complex composition. There are 7 divisions, 15 classes, 20 orders, 36 families, 308 species and types of algae (239 species, 64 variations, 5 forms) belonging to 77 families. Among them are Cyanophyta - 22, Chrysophyta - 1, Bacillariophyta - 236, Pyrrophyta - 3, Euglenophyta - 4, Chlorophyta - 40, Rhodophyta - 2 species and species. Species have been identified using identifiers.

Lake Kolykubbon. A taxonomic analysis of the species composition of the algoflora of the reservoir of Lake Kolykubbon, which is considered a landmark of the Ferghana Valley, is described. At the same time, 27 species and types of algae were found in 15 categories, 11 families, 8 orders, 6 classes, which amounted to 24 species, 2 varieties and 1 form. Of these, Bacillariophyta (20) - 74.07%, Chlorophyta (6) - 22.23% and Cyanophyta (1) - 3.7%.

Accordingly, based on the taxonomic analysis of the species composition of algae in the basin, 34 species and

species were identified in 15 families, 9 families, 7 orders and 5 classes.

"Seven lakes" "Seven Lakes" with a total area of 40 hectares, located in the Toshlok district.

In the village of Yetti Kul in the Tashlak district of the city of Margilan, there are Seven Lakes belonging to the farm "Nur" (hence the name), which receive water from ditches. This lake partially supplies water to the local crops of this village. The water in the lake decreases in summer - to the height of a person, i.e. up to 2 meters (in the case of deep places), increases in November-December, i.e. up to 3-4 meters.

As a result of our algological research, it was found that only in April in the fish lake Seven Lakes, 34 species and species of algae were found (25 species, 8 variations, 1 form).

During the work in the fishery, 34 species were encountered, which belong to 5 sites (Cyanophyta - 3, Bacillariophyta - 28, Pyrrophyta - 1, Euglenophyta - 1, Chlorophyta - 1 species and various species).

North Ferghana main canal (SFMC). The total length from the bed of the Narindarya river is 162.05 km. The algoflora of the North Fergana main canal was studied (water-carrying capacity 103 m³/sec, irrigation area 127.3 thousand people).

Taxonomic analysis of the species composition of the algal flora of the North Fergana main canal showed that the algoflora of the canal has a unique composition. There are 6 divisions, 13 classes, 20 orders, 32 families, 168 species and varieties (123 species, 34 variations, 11 forms) of algae belonging to 57 families. Of these, Cyanophyta - 20, Chrysophyta - 1, Bacillariophyta - 134, Pyrrophyta - 5, Euglenophyta - 3, Chlorophyta - 5, various species and varieties have formed.

According to the taxonomic structure of the algae of the North Fergana Main Canal, 134 algae are leaders among the divisions of Bacillariophyta algae and account for 79.76% of the total number of species and species (98 species, 33 varieties, 3 forms).

In the following places Cyanophyta - 12 species out of 20 species and varieties, 8 variations (11.91%); Chlorophyta - 5 (2.97%); Representatives of Pyrrophyta - 5 (2.97%), Euglenophyta - 3 (1.79%) were noted. The number of species and types of Chrysophyta algae is small (1; 0.60%).

South Fergana main canal (SFMC). The algoflora of the South Fergana main canal (water-carrying capacity of 85 m³/sec, irrigation area of 75.8 thousand) with a total length of 120 km, starting from the Shakhrikhandarya basin, was studied.

Taxonomic analysis of the species composition of the algoflora of the South Fergana main canal showed a certain complexity, i.e., 54 variants, 7 - form). Among them are Cyanophyta - 31, Chrysophyta - 2, Bacillariophyta - 155, Pyrrophyta - 2, Euglenophyta - 10, Chlorophyta - 15 different species.

Big Ferghana main canal (KFMK). Its total length is 350 km, starting from the valleys of the Norin and Karadarya rivers. The algoflora of the Great Ferghana Main Canal was

studied (water-carrying capacity 211 m³/sec, irrigation area 213.7 thousand people).

Taxonomic analysis of the species composition of the algal flora of the Great Fergana Main Canal showed that the algoflora of the canal has a unique composition. Within 35 families, 6 divisions, 10 classes, 17 orders, 28 families, 100 species and varieties (78 species, 14 variations, 8 forms) of algae were identified. Among them are Cyanophyta - 11, Chrysophyta - 1, Bacillariophyta - 78, Pyrrophyta - 4, Euglenophyta - 3, Chlorophyta - 3 species.

According to the taxonomic structure of KFMK algae, among the divisions of Bacillariophyta algae, 78 algae are leaders and account for 78% of the total number of different species and varieties. (62 - species, 13 - variations, 3 - forms).

Cyanophyta - 11 (3 forms, 11%) in the following places; Chlorophytes - 2 (3%); Representatives of Pyrrophyta - 3 (4%), Euglenophyta - 2 (3%) sections were observed. Number of different species and varieties. Algae Chrysophyta is small (1; 1%).

The main reason for the small number of species in this area is Karadarya, the water in it is extremely muddy. Samples were taken from the banks and from a depth of 3-5 cm, where the water is clear.

To the fish farm of Namanganbalyk LLC: In 2020-2022, water bodies for the fish farm of Namanganbalyk LLC, with a total area of 2000 hectares, belonging to the territory of the Namangan region, were surveyed.

According to the taxonomic analysis of algae, among the divisions of Bacillariophyta algae, 49 algae are leaders and make up 42.98% of the total number of different species and varieties. (35 - species, 12 - variations, 2 - forms).

Cyanophyta - 48 (9 forms, 42.10%); Chlorophyta - 8 (7.01%); Representatives of Pyrrophyta - 2 (1.75%), Euglenophyta - 7 (6.14%) were noted. The number of species and varieties of Chrysophyta algae is small (1; 0.87%).

In the village of Avval, Fergana district, Fergana region, a fishing enterprise Damkul LLC was created.

As a result of our algological studies, only in April of this year, 30 species and varieties of algae (28 species, 1 variation, 1 form) were found in the fishing lake Damkul.

Thus, based on the taxonomic analysis of the species composition of middle river algae, 30 species and varieties were identified, which include 16 genera, 8 families, 4 orders and 3 classes. Algae by the number of species and varieties include the following species Bacillariophyta (27), Chlorophyta (2) and Cyanophyta (1).

The fishing farm LLC "Arifjon Kelazhagi" in the village of Yermazar was founded in the city of Fergana.

As a result of our algological research in April, 30 species and varieties of algae (28 species, 1 variation, 1 form) were found in the Yormazar fish lake.

Thus, based on the taxonomic analysis of the species composition of middle river algae, 30 species and varieties of 16 genera, 8 families, 4 orders, and 3 classes have been identified.

Algae include Bacillariophyta (27), Chlorophyta (2) and Cyanophyta (1).

"Karkidon reservoir". The Karkidon reservoir is located in the Fergana region. The reservoir was put into operation in 1963 and has a water volume of 212 million m³. Its average depth is 65.7 m, in some places it reaches 100 m. At low tide, it is at least 17 meters. The Karkidon reservoir receives water from the South Fergana Canal near the village of Talmazar. The water from the reservoir again overflows into the South Fergana Canal, the height of the overflow dam in the reservoir is 75 meters.

In general, according to the results of the taxonomic and comparative analysis of the algaeflora of the Karkidon reservoir, located in the Kuva district of the Fergana Valley, it was found that the algaeflora of the reservoir has a somewhat complex composition. When studying the general condition of algae, 6 divisions, 9 classes, 12 orders, 29 families, 186 species and types (175 species, 7 variations, 4 forms) belonging to 64 families were identified. Among them are Cyanophyta - 44, Chrysophyta - 4, Bacillariophyta - 52, Pyrrophyta - 6, Euglenophyta - 10, Chlorophyta - 70 different species and varieties.

2. Conclusions

The taxonomic analysis for the period 2010-2022 is described. 625 species and varieties of algae were found in 7 sections. Of these, Bacillariophyta (398) - 72.93%, Rhodophyta (2) - 0.65%, Chlorophyta (98) - 5.10%, Cyanophyta (101) - 14.33%, Pyrrophyta (6) - 2.55%, Euglenophyta - (14) - 3.82%. and Chrysophyta - (6) - 1.27% different species and varieties.

A comparative study of the algal flora of different water bodies makes it possible to determine the species order and development of algae under the influence of various

environmental factors. In this regard, a comparison of the algal floras of some different reservoirs of the Fergana Valley was carried out and the relationships between them were identified.

REFERENCES

- [1] Алимжанова Х.А., Шаимкулова М.А. Альгофлора реки Акбууры и ее значение в оценке качества воды. – Ташкент, Фан, 2008. – 17– 20, 34 - 37 с.
- [2] Определитель пресноводных водорослей СССР. Вып. I. 1951; II. 1953; III. 1954; IV. 1951; VI. 1954; VII. 1955; VIII. 1959; X. (1) 1986; XI. 1982; XII.
- [3] Музафаров А.М. Флора водорослей водоемов Средней Азии. – Ташкент: Изд-во Наука. 1965. – 580 с.
- [4] Эргашев А.Э. Закономерности развития и распределения альгофлоры в искусственных водоёмах Средней Азии. - Ташкент: Фан, 1976. -360с.
- [5] Юлдашева Муаттархон and Давронжон Саминжонов. Taxonomical and ecological analysis of the large Fergana channel algaeflora in the spring season // doi.org/10.47100/conferences.v1i1.1321." research support center conferences. -C. 119-124.
- [6] Юлдашева М., Тўлкинов А. The south Fergana canal in the spring season taxonomic and ecological properties of algaeflora // doi. org/10.47100/Conferences. v1i1. 1322 // Research support center conferences. – 2021. – С. 124-129.
- [7] Yuldasheva M., Soliyeva A. Taxonomy and ecology of spring season algaeflora of the north Fergana channel // Конференции. – 2021. – С. 129-134.
- [8] Фарғона водийси каналларидан фойдаланиш бошқармаси маълумотлари.