

Qualitative and Quantitative Composition of Biodiversity in the Ponds Based on the Species Composition of Algae

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ANNOTATION

Among the complex of anthropogenic factors, one of the leading places is occupied by the "water factor" associated with pollution of water sources, shortcomings in water purification and disinfection. Discharge of insufficiently treated and untreated wastewater into watercourses predetermines abnormal changes in their chemical composition and degradation of biocenoses. Municipal wastewater contaminated with organic and nitrogen-phosphorus-containing compounds, as well as bacteria and viruses, also contribute to the pollution of water bodies.

The main factor affecting the change in the quality indicator of water bodies is municipal wastewater. In the treatment facilities of Bukhara, about 20 thousand m³ of wastewater, which will lead to a change in the chemical and biological composition of water? At the same time, there is no complete picture of the distribution of algae and their role in determining the ecological and sanitary state of biological ponds of the treatment plant in Bukhara, which prompted us to study these important problems.

The species composition of the algae flora of ponds in different regions of Uzbekistan and Central Asia is different. These reservoirs differ in area, depth, mineralization, nutrition, location, composition of prevailing species.

So in the biological ponds of purification plants in the city of Bukhara in early spring, late autumn and in winter, the algae found are peculiar to the mountain and northern water bodies proper. In the spring, summer and early autumn, the more thermophilic forms of algae developed.

RESULTS AND DISCUSSION

The study of the qualitative and quantitative composition of algae in the ponds of the Kalgan Chirchik fish farm in the Tashkent region, as well as the periodicity of its development for the seasons of the year, was studied by P.N. Saksen also identified 522 taxa, of which blue-green - 87, golden -6, diatoms -209, dinophyte -6, euglene -37, yellow-green -4, green -172. In the list of algae found in the Kalgan Chirchik fishery, 56 species of algae are similar to our studies.

Since, for example, *Merismopedia punctata*, *Gomphosphaeria lacustris*, *Pediastrum duplex*, *P. simplex*, *Tetraedron minimum*, *Ankistrodesmus densus*, *Scenedesmus acuminatus*, *Pandorina morum* and others were also found in the spring, summer and autumn of the biological ponds of the purification facilities in Bukhara.

Thus, after algalization, the phytoplankton and phytobenthic groups were enriched in qualitative and quantitative terms of the biological ponds of the purification plant in the city of Bukhara. The increase in the species composition of algae up to 357 taxa and their adaptation in bioproducts allowed continuing work on revealing the role of algae in wastewater treatment.

Algae are mostly composed of alpha-beta-mesosaprobies. The content of dissolved oxygen in water is one of the important factors of water self-purification. As the amount of dissolved oxygen increases, the self-cleaning process accelerates. In the spring period, when the temperature of water and solar energy rises in biological ponds, intensive development of phytoplankton is observed. As microalgae develop in water, the amount of dissolved oxygen increases to 3.0-4.0 mg / l. reduces the amount of organic substances in BOD₅ to 44.0-50.8 mg O₂ / l.

On the basis of 520 algological samples collected biological ponds of the city of Bukhara and as a result of treatment 357 algal taxa, belonging to 5 systematic groups, were found; blue-green - 105, diatoms - 100, dinophytes - 10, euglenic - 30, green - 112. The highest occurrence is observed by the predominance of green algae, then blue-green and diatom algae. A small number is euglenic and dinophyte. As can be seen species diversity of bioproducts is great.

Algae of biological ponds largely determine the appearance of phytoplankton in various water bodies. The difference in the species composition of algae in biological ponds of purification plants from other bioproducts in Uzbekistan and Central Asia is not surprising, since the hydrological and hydrochemical characteristics of water bodies affect the composition of the flora. The level of development of phytoplankton in biological ponds of sewage treatment plants is much more common from other ponds in Uzbekistan and Central Asia.

With the development of introduced organisms in biological ponds, favorable conditions are gradually created for many accompanying species of hydrobionts. Some introduced algae gave active development in ponds. This contributed to a decrease in the organic content of water and gave rise to an increase in the amount of oxygen dissolved in water. In the coastal parts in all ponds, there were often accumulations of filamentous algae consisting of the waters of the genera *Stigeolonium*, *Cladophora*, *Spirogyra* and others. Along with them occasionally came across blue-green, diatoms and other algae. Among them, *Oscillatoria tenuis*, *O. sancta*, *Phormidium foveolarum lungbya aestuari* and others were distinguished.

Fouling was observed on the surface of various underwater objects (branches, boards, stones) consisting of *Stigeolonium tenue*, along with them the threads *Oscillatoria brevis*, *O. irrigua*, *O. limosa*, *O. tenuis* and on the surface of filaments epiphytic species of diatoms *Cocconeis placentula*, *Navicula tryptocophala* and much more.

According to saprobity, the first place is occupied by β -mesosaprob of 84 species and forms, or 38.1%, of which blue-green -32, diatom-12, euglena 10, green -30. α -mesosaprob is only 41

taxa, of which green algae occupy the first place -14, then blue-green and diatoms have 10 species, and euglena 7.

Polysaprobic of only 36 species and varieties is 16.3%. Diatom algae are the most abundant here, 10 green and euglena are 9 species, blue-green.

Saprobies is -28 species of algae, of which blue-green-8, diatomaceous 6, euglenic -4, green -10.

Table 1 Saprobic algae found in water biological ponds of treatment facilities

Algae departments	Saprogenic algae					Total saprobic species
	x	o	β	α	p	
Cyanophyta	1	2	5	7	2	17
Bacillariophyta	1	8	35	9	-	53
Dinophyta	-	-	-	-	-	-
Euglenophyta	-	-	7	-	2	9
Chlorophyta	-	5	16	5	1	27
Total	2	15	63	21	5	106

Note: x-xenosaprob, o-oligosaprob, β -beta-mezasaprob, α -alpha-mesosaprob, p-polysaprob
Alpha-beta mesosaprob of only 21 taxa, blue-green 3, diatoms 6, euglenic 5, green -7.
Mesosaprob only 5 species, of which diatoms -4, green -1.

The remaining saprobic, such as oligo-beta mesosaprob, alpha-mesosaprob, polysaprob, meso-oligosaprob, oligo-mezasaprob and others are contained in one or two species.

To understand the dynamics of phytoplankton, a clear representation of both the seasonal periodicity and the distribution of populations of mass species of algae is necessary. The dominant are the dominant, giving in this or that period a large number and number of phytoplankton. The composition of the dominant species of algae in different types of water bodies located in different regions varies, changing with environmental factors such as temperature, sunlight, biogenes, mineralization of water, transparency of hydrogen ions (pH), gas content and others.

CONCLUSION

1. In biological ponds of treatment facilities there are 21 dominant species, most of which belong to the blue-green 8 species, then green 7, diatoms 4, euglenic 2 species.
2. The main factors favouring the development of predominant species in biological ponds of treatment facilities are the temperature of water and air, mineralization, nutrients, transparency and other environmental factors.
3. In the composition of the dominant species of algae there is no one that would dominate in all seasons of the year, but most of the predominant species are registered in the spring, summer and autumn, in the winter dominants are not found.
4. Most of the prevailing species of biological pond treatment facilities similar to the flora of other ponds in Uzbekistan.
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8. Most of the prevailing species of biological pond treatment facilities similar to the flora of other ponds in Uzbekistan.

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