ECOLOGY OF ALGAE DEPENDING ON THE SEASON OF THE YEAR IN BUKHARA REGION

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Summary: this article presents the natural composition and seasonal changes in algae treatment facilities of Bukhara region

Keywords: biological ponds, algoflora, waste water, dynamics, algae, bioproduct

Аннотация: В этой статье приведены природный состав и сезонное изменение водорослей очистительных сооружений Бухарского района

Ключевые слова: биопруд, альгофлора, динамика, водоросль, биопродукт

The problem of preserving the environment currently concentrates on the attention of researchers. Rapid population growth, an increase in irrigated agriculture and the development of industries and others led to an unprecedented use of water resources. Along with this, the methods of biochemical wastewater purification from organic and other pollutants using active silt was universally recognized. Their use makes it possible to reduce the content of organic and other substances in wastewater(3).

However, industrial wastewater after their treatment, even by the most modern technology, can all be sources of anthropogenic impact on the natural composition of water bodies. This necessitates the development and implementation of various methods for the post-treatment of wastewater. The biological ponds were used for treatment of biological and biological wastewater treatment plants for household and industrial wastewater treatment. The processes of biological self-purification that take place in them are realized as a result of the vital activity of all groups of organisms entering the ecosystem of the reservoir. Thanks to the vital activity of aquatic organisms, the chemical composition of water is formed, and thus its quality is determined.

Biological ponds have become widespread, both in our country and abroad. They are used for sewage treatment in settlements, they are called biological,

stabilization, oxidative or buffer. The microflora of water bodies serves as the primary oxidizing agent or reducing agent for pollutants entering the reservoir.

Based on the collected 520 algological samples of biological ponds in the city of Bukhara (2010-2018) and as a result of treatment, 357 taxa of algae belonging to 5 systematic groups were found; blue-green - 105, diatoms - 100, dinophytes - 10, euglenic - 30, green – 112[1].

The highest occurrence is observed by the predominance of green algae, followed by blue-green and diatom algae. A small number is euglenic and dinophyte. As can be seen species diversity of bioproducts is great.

Phytoplankton of bioproducts is one of the most important producers of organic matter, on the basis of which the subsequent links of organic life develop. The role of phytoplankton in general, the cycle of consumer substances, abundance, distribution along the reservoir, seasonal periodicity of development and their production capabilities.

In spring (March-May), the water temperature appeared from 8 to 20º C, the air temperature was 15-29º C. In the earlier spring period, the water temperature was still low at 8-14º C. At this time, the composition of the algae was insignificant, it was found mainly cold-water diatoms and concomitant some green algae. Such, for example, Cyclotella operculata, Diatoma vulgare, D. vulgare var.productum, D.elongatum, Synedra ulna, S. pulchella, Stephanodiscus hantzschii, S. astraea var. minutilis, Rhoicopsphenia curvata and others of diatoms, Chlamydomonas ehrenbergii, Ch. reinhardii, Chlorella vulgaris, Scenedesmus guadricauda, Stigeoclonium tenue and others from green algae.

These highest algae were encountered at a water temperature of 8-14 ° C, and are dominant in early spring. Along with them insignificantly found blue-green, like, Microcystis pulverea, Oscillatoria lemmermanii, O. brevis and others. The low temperature in the early spring period probably affects the overall poverty of the composition and amount of phytoplankton.

In April and May, with an increase in water temperature of 18-25 ° C, at an air temperature of 24-29 ° C and increased sunlight and increased transparency, thermophilic representatives of blue-green, green and some euglenic and dinophyte and diatom algae begin to develop.

In May, the diatom complex of phytoplankton decreases, the quantity of green, blue-green, euglenic and some dinophyte algae increases quantitatively. At this time, phytoplankton is enriched with Chlamydomonas globosa, Palmellocystis planctonica, Oocystis marssonii, Coelastrum microporum, Scenedesmus

acuminatus, Ankistrodesmus acicularis, Gomphosphaeria aponina, Coelosphaerium kuetzingianum and others from the greens. Along with it is also distinguished Trachelomonas volvocina, Euglena aculeata, E. caudata, E. bucharica and others from euglenic. Along with them, some heat-loving diatoms appear predominantly; Melosira granulata, Cyclotella kuetzingiana, Cocconeis placentula, Mastogloia baltica, Caloneis amphisbaena, Navicula cryptocephala, Amphora veneta, Nitzshia hungarica, N. linearis and others. Of diatoms appear Glenodinium penardii, G. cospicum, from the pyrrophytic Peridinium cinctum, P. inconspicuum and others.

These above mentioned spring enrichment of green, blue-green and some diatoms and other algae, most of them are dominant in the spring.

Here it should be noted that the smallest amount of algal species differs in the first and second ponds, because the water from the city discharge through the trays falls into the first pond, then into the second. The water is very turbid, the water transparency is 5-10 cm and the detected algae of the first and second pond is 22-30 taxa. In the third pond the amount of algae occurrence is 38-44 taxa.

In spring, only 234 taxa were registered, of which blue-green -66, diatomaceous-70, dinophyte-6, euglenic-18, green-78. Green, then diatom and blue-green, the smallest dinophyte and euglene algae are more abundant.

table 1

SEASONAL ALCOHOL CHANGE IN BIOPRODES OF PURIFICATION FACILITIES IN BUKHARA

№	Microalgae departments	Total species	Number of species			
			Spring	Summer	Autumn	Winter
1	Cyanophyta	105	66	83	67	8
2	Bacillariophyta	100	70	63	77	31
3	Dinophyta	10	6	10	6	-
4	Euglenophyta	30	18	25	22	5
5	Chlorophyta	112	78	87	82	21
	Итого	367	234	267	254	65

Species that occur only in the spring of only 31, of which blue-green - 9, diatoms-8, euglenic -4, green-9.

Such have appeared, as Woloszynski leopoliensis, Nodularia spumigena, N. harveyana, N. horveana f. sphaerocapsa, Oscillatoria chalybea, O. putrida, O. terebriformis, from the blue-green ones; Chlamydomonas nostigama, Ch. atactogama, Heleochloris pallida, Oocystis crassa, Coelastrum reticulatum,

Tetraedron regulare, T. incus, Ankistrodesmus pseudomirabilis var. gracilis, Kirchneriella contorta of the greens; Melosira islandica, Cyclotella comta, Stephanodiscus hantschii, St. astraea var. minutilis, Diploneis smithii, Navicula cincta, Synedra tabulata, Gomphonema constrictum var. capitatum of diatoms; Strombomonas urceolata, Eutreptia lanowii, Euglena aculeata, Colacium vesiculosum from euglene algae. These above mentioned algae were not found in other seasons of the year.

In the summer (June-August) the transition from spring to summer season, at an air temperature of 30-39 ° C, the water temperature was noted at 25-33 ° C. At this time, solar radiation rises, the water transparency varies from 0.4 to 1.2 m, mineralization -1800-2200 mg and others.

At this time, the temperature rises, solar radiation, transparency and others. The phytoplankton complex of the flight season is much richer than the spring season and its components have a longer vegetation period.

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