



## LIVING WEALTH

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### Annotation

The oldest chlorophyll-bearing organisms of the planet, which had lived modestly and imperceptibly for many millennia, suddenly acquired wide, but often sad, fame. Today, botanists refer to this type of plant about 1400 species of organisms. The most famous blue-green algae, which develop in large quantities in water bodies, cause "blooming" of water. In the second half of the twentieth century, this "bloom" spread especially widely and was registered in many countries of the world. The "blooming" of water in reservoirs built in the basins of lowland rivers has reached a significant scale.

**Keywords:** biochemical parameters, plant material, protein, cloudy amino acids, carbohydrates, chlorophyll,  $\beta$  - carotene, phosphorus, phosphorus-rich legumes Blue-green algae, various vitamins and minerals.

During the construction of a reservoir, a person sharply reduces the flow rate, water turbulence, reduces water exchange, and creates conditions for the emergence of stagnant zones. From flooded fertile soils and vegetation that has fallen into the flooded zone, the water is enriched with a large amount of nutrients, which in turn changes its hydrochemical suction. All this creates conditions for the growth of algae.

The answer to the question why the biological production of reservoirs is realized in blue-green, least attractive to humans, we find in the biological and physiological-biochemical characteristics of these organisms, which are extremely stable and adapted to environmental conditions.

For example, such facts speak about their amazing stability. Representatives of blue-greens feel great in the water of uranium boilers of nuclear reactors, and within a few days after the explosion of atomic bombs at the test site, they begin to develop intensively even at the epicenter of the explosion. In order to kill them with an electric current, you need to apply a current strength of up to 10 amperes, and a voltage of up to 20 - 30 kilovolts. They are the last to die from the most powerful chemicals, the so-called algicides.

So what is blue-green: good or evil? There is no unequivocal answer to this question, since in one case they are our faithful friends, in the other - our worst enemies. It all depends on the place, time and type of algae. When representatives of blue-greens settle on bare rocks, in deserts and are the founders and pioneers of living things, create conditions for the arrival of other organisms there, we say that they are our friends. Indeed, developing in a reservoir in the desired concentrations, blue-green algae release oxygen, promote aeration of the reservoir, extract a variety of nutrients from it, including nitrogen and



phosphorus. Water bodies prone to moderate "bloom" give a higher catch of fish. This means that the point is not in the blue-greens themselves, but in the steppe of their development.

The danger of excessive accumulation of algae (more than 100 grams per cubic meter of water) is due to the significant self-pollution of the reservoir by the decay products of organic matter. This not only reduces the organoleptic characteristics of water, interferes with the operation of water pipelines, but also poisons the environment with unpleasant odors, causes intestinal and skin diseases, water toxicosis, as well as specific diseases that arise when drinking water from reservoirs prone to "blooming", or fish that ate toxic algae.

By improving the sanitary condition of the reservoir, we will be able to obtain additional amount of valuable organic matter. In terms of biochemical parameters, blue-green can be classified as a valuable plant material. They contain up to 30 - 40% protein, which includes 16 cloudy amino acids, up to 20% carbohydrates, up to 3% chlorophyll, up to 1%  $\beta$  - carotene, 0.8% phosphorus. For comparison, remember that the most phosphorus-rich legumes contain 0.4 - 0.5%. Blue-green algae are rich in various vitamins and minerals.

These plants are found in the plankton of stagnant and slow-flowing waters, they live not only in fresh, but also in salty water bodies. Not a hindrance to them and the complete lack of water.

When compared with cereals, the following picture emerges. The protein content in cereals is approximately 6 - 11%, and with an exceptionally high production culture, they yield up to 40 centners per hectare. Microalgae contain 60 - 68 and more quintals of protein. So, accumulations of blue-green algae are the richest reserves of natural plant materials.

Algae overgrowth will continue and as long as the one-way nutrient enrichment of the water is ongoing, blue-greens will flourish.

Therefore, it is important to increase the extraction of plant products from the reservoir, especially since valuable substances can be obtained from it. So, for example, from a ton of dry algae it is possible to obtain up to 500 kg of amino acid concentrate or a significant amount of individual amino acids essential for humans and animals.

Finally, the removed mass can be used without any processing as organic fertilizers.

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