BIOCHEMICAL BASIS OF THE BIOLOGICAL TREATMENT METHOD IN WASTE CLEANING OF WATERS

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https://doi.org/10.5281/zenodo.7954126

Abstract. *This article includes comments and both theoretical and practical information about the biochemical basis of the biological treatment method in the treatment of water from waste.*

Keywords: *wastewater treatment, biochemical method, waste water, microorganism, organic matter, nutrient medium, bacteria, purified water.*

Protection of the environment from anthropogenic influences is currently receiving great attention worldwide. The rapid development of the industry, including the chemical industry, and the increase in the extraction of raw materials, the daily increase in the use of transport, cause a lot of waste to be dumped into the environment.

Pollution of the environment (water, air, soil) leads to disruption of the normal life activity system of the biosphere, climate change, extinction of some species of flora and fauna, deterioration of public health.

At the same time, we are witnessing the development of relevant laws in order to reduce environmental pollution and prevent it as much as possible in our country and in foreign countries. This is evidenced by the implementation of various technological, sanitary-technical, technical, organizational and other measures. The development of industry, the transfer of agriculture to an industrial basis, the rapid growth of cities, and the increase of people lead to an increase in water consumption. Today, industrial enterprises generate wastewater with different composition. Naturally, the creation and implementation of modern cleaning facilities and technologies for cleaning them is one of the important issues of today. At the same time, one of the main problems is reducing the consumption of clean water due to the creation of a closed water chain system in industrial enterprises. For this, taking the necessary practical measures in this area, taking the necessary actions and using biological cleaning methods, and most importantly, deep understanding of the biochemical basis of these methods is of great importance in their appropriate use.

The use of microorganisms (bacteria, algae) to clean wastewater from impurities is the basis of the biochemical method of cleaning. As a result of their vital activity, microorganisms use organic substances as a nutrient medium, and on the basis of this, decomposition of organic substances takes place.

It is important to consider certain conditions for effective biochemical wastewater treatment. For example, compliance with the following conditions includes:

* temperature regime - from +20 to +30oC;
* optimal acidity of the environment - pH from 6.5 to 7.5;
* supply of sufficient oxygen, which significantly improves the process of decomposition of organic matter by microorganisms;

* preliminary removal of toxic substances that have a harmful effect on microorganisms (concentration reduction).

Carrying out cleaning works following these conditions will greatly help in achieving the intended result. In addition to implementing these conditions, it is necessary to understand which biological methods are permissible. In this regard, the author found it necessary to make the following points.

Filter fields. Wastewater periodically fills the fenced areas of the land to the maximum. In addition, water is naturally filtered through soil cavities. Organic compounds are trapped in the soil and decomposed by bacteria, and the treated water is collected by the drainage system.

We know very well that aerotanks are artificial reservoirs that are loaded with sewage, activated sludge and supplied with oxygen. This cleaning is provided by processed activated sludge, which is a special collection of bacteria and protozoa that contribute to the most effective cleaning.

Biofilters are cleaning devices containing special loading materials (crushed stone, stones, expanded clay, plastic). Before the cleaning process begins, microorganisms are grown on the surface of the nutrient, which forms a biofilm. After that, it passes through a biofilter, and sewage compounds remain in the feed material. Here they are decomposed by microorganisms of the biological film. Water in biofilters may undergo additional aeration.

The main advantage of the biochemical treatment method is to get the cleanest water at the outlet. In addition, the cleaning process does not generate waste that requires separate disposal.

The essence of the reactive wastewater treatment and reagent treatment method is the use of chemical reactions to inactivate toxic substances. For example, due to the insoluble precipitation of the latter, it is then removed mechanically.

The question in which cases this method is used can be answered as follows:

* neutralization, which effectively removes pollution from acids and alkalis;
* redox reactions;
* complex formation.

So, the reagent method proves itself in cleaning wastewater from heavy metal ions, petrochemical, mining and other industrial products.

In conclusion, it can be said that working based on the biochemical basis of biological treatment methods is only effective in removing waste from water. In particular, in practical work processes, it helps industry experts to work at a fast pace and get the results of their work faster.

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