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Wastewater Analysis

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Relevance: Currently, the incomplete provision of wastewater treatment facilities for municipal and industrial industries, their proximity to canals, collectors, river banks and other water bodies, leads to significant pollution of water resources.

On the basis of the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021, paragraph 4.3 reads: defined as strategic tasks [1; 2]. It is important to reduce the impact of municipal wastewater on open water bodies, to carry out scientific research on environmental protection. At the same time, the use of water and aquatic plants in the biological treatment of water is about 80% effective in the treatment of organic contaminants in wastewater, 40% in the physicochemical method and about 30% in the mechanical method [3].

At present, insufficient attention is paid to measures to improve the technology of biological treatment of wastewater from industrial enterprises and utilities.

Resolution of the President of the Republic of Uzbekistan dated February 7, 2017 "On the Action Strategy for further development of the Republic of Uzbekistan"[1]Decree No. 4947, Resolution of the Cabinet of Ministers of May 27, 2013 "On the Program of Actions for Environmental Protection in the Republic of Uzbekistan for 2013-2017" and

No. PQ-2910 of April 20, 2017 “On sewerage in 2017-2021 [4; 5]

The research of this dissertation to a certain extent contributes to the implementation of the decisions of the "On the program of integrated development and modernization of drinking water supply systems" and the normative legal acts related to this activity.

Methods. Methods of wastewater analysis

By determining the pH of wastewater, the alkalinity and acidity of the water were determined by the concentration of hydrogen ions in the pH meter. Today, the modern measuring instrument rH meter is also widely used.

To determine the amount of nitrite and nitrate, we take 50 ml of the sampled wastewater and pour it into a mercury flask. Add a little dissolved water. Add 1 ml of a mixture of naphthalene or (2 ml of 10% grissa) from 1 ml of mixed sulfuric acid. Make up the volume to 100 ml with distilled water. Put on the thermostat for 20 minutes. See you at KFK. Svetofiltirda will be 30 at 540 cuvettes.

[1]1 Decree of the President of the Republic of Uzbekistan dated February 7, 2017 No 4947 "On the Strategy of actions for further development of the Republic of Uzbekistan".

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$$X = \frac{C * 1000}{V} / мг/г$$

The result of the analysis: aerotank, the second point, is determined from the outlet.

To determine the amount of nitrate, pour 10 ml of the resulting water into a cup. Then pour 1 ml of 0.5% solicylate nitrate, put a cup in a porcelain dish in a water bath. Wait until 1 drop of water is left to dissolve. It should not burn. The cup is cooled. After the cup has cooled, mix well in a 1.84 g / cm3 glass container concentrated to 1 ml of seric acid plot. Stand 10 minutes, after 10 minutes pour 10 ml of distilled water into a cup.50 mmtake the mercury into the flask, pour the water from the cup into the flask. Add 10 mg of sodium hydroxide to the water in the flask. We deliver the volume with 50 mg of distilled water. Then we check in KFK

Let's check the number in the graph of the Svetofiltri 400 cuvette 50 ml KFK.

$$x = \frac{C \times 1000}{V} mg / g$$

Our analysis: aerotank, second point, determined from the exit.

To determine the dry residue, we take 100 ml of filtered water and place it in a metal cup, put it in a sand oven and dry it until no water remains. Before pouring the cup of water, dry for 2 hours at a temperature of 105 and cool in an excavator for 20 minutes. Turn on the analgesic scales to heat for 20 minutes. Then we pull. After the water dries, put the sushi cup 105 at a temperature of 2 hours and after cooling, weigh.

$$\frac{(v - b) \times 1000 \times 1000}{V} мг/л$$

In the determination of total nitrogen ammonium (Nesslera's method) take 10 ml of our water and pour it into a flask. Pour a little distilled water. Add 2 ml of Nesslera to 100 ml of distilled water and leave for 10 minutes. In parallel, we also experiment with distilled water. We find the number from KFK from the graph and calculate it by putting it in the formula.

$$\frac{(v-b) \times 1000 \times 1000}{v} \text{ мг/л}$$

Analysis: We come to the first point, the second point, the third point and the fourth point.

Reagents: Preparation of segregated saline125 gramsincrease the volume to 500 mg. Pour 12.5 ml of neslera on it.

$$x = \frac{1 \text{ нуқта} - \text{чиқиш}}{2 \text{ нуқта}} \times 100$$

In the determination of IPC (Soli mora method) we take 5 ml of the water brought for the sample and pour it into a 250 ml flask. After pouring into it 2.5 ml of 0.25 bichromate potassium K2S2O74 gramsWe add AgSO4. Pour 15 ml of concentrated H2SO4 sulfuric acid, leave to cool for 2 minutes and pour 100 ml of distilled water. Then add 15 drops of phenylantyranlovoy acid. The color of our water is dark brown. We titrate with soli mora so that the color of our water turns light blue.

$$x = \frac{(а - б) \times N \times 8 \times 1000}{V} mg / l$$

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K2S2O7 0.25n1.2255 gramsDry thoroughly in a dryer for 10 hours at a temperature of 1050, then thoroughly crushed in a mortar. We deliver 1000 ml of distilled water. Soli moradan49 gramsTake 100 ml flask, add distilled water and 10 ml of H2SO4. A strong solvent is made with 0.25 sol mora, which is called the velocity reaction.

In determining BPK5, take 50 ml of the water brought for the sample1 lpour into a flask. Increase the volume to 1 liter with distilled water. Close the lid and mix well. We obtain a 100 ml flask with 2 lids.1 literpour the water from the flask into 2 flasks.

We analyze the first flask. To it is poured 1 ml of shelognoy reagent, 1 ml of magnesium chloride MnCl2. Shake on March 40. After 5 minutes pour 2: 3 H2SO4 3 ml of sulfuric acid. If the color of our water is orange, we titrate with 0.01 hypo sulfate until it turns light yellow. Then pour 1 ml of 0.5 starch and the color of our water turns blue. Shake until the water turns white.

$$x = \frac{\text{C}\times 00.08\times 1000}{\text{V}}\text{mg / l}$$

The BPK of water is given by the following formula:

*X = (A1-B1) - (A2-B2) / V) * 1000*

*or X = (A1-B1) - (A2-B2) * n*

Here: A1- the concentration of dissolved oxygen in the sample at the beginning of incubation (zero days) is mg / l.

A2- concentration of dissolved oxygen in the sample in the solvent water added at the beginning of incubation (zero days) mg / l.

B1- the concentration of dissolved oxygen in the sample at the end of incubation is mg / l.

B2- the concentration of dissolved oxygen at the end of incubation in the solvent water added to the sample in mg / l.

V- the size of the sample to be determined,1 lml, n-distribution duration when distributed to.

We put the second flask in the thermostat for 5 days. After 5 days, the oxygen is checked in the same way.

$$x = \frac{(\text{а}-\text{б})\times(\text{а}-\text{б})}{\text{V}}\text{mg / l}$$

BPK51 literThe time spent standing in a thermostat in water for 5 days is called incubation. It is said to be the amount of oxygen that goes into the next water.

The most dangerous of polluting organic substances are oils, greases, lubricating compounds, which form a thin film on the surface of the water, impede the exchange of air between water and the atmosphere, reducing the oxygen saturation of water [6; 7; 8; 9].

The results obtained. Analysis of changes in the physical and chemical composition of wastewater in the biological ponds of the Andijan city "Wastewater Treatment Plant" before and after planting pistachios

In order to study the dynamics of growth and development of pistachio plants in the wastewater (before entering the treatment plant) and the level of purification of organic water from organic and mineral substances, experiments were conducted in different variants:

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1. wastewater itself (100%);
2. 2.75% sewage + 25% tap water (3: 1);
3. 50% wastewater + 50% tap water (1: 1).

Once the effluent was prepared for the experiment, its physical properties and chemical composition were determined. The pistachio plant was planted in wastewater prepared in three different variants at a rate of 150 g / m2. In order to study the changes in the physical and chemical composition of wastewater, experiments also included wastewater prepared for each variant [10; 11; 12].

In the laboratory-planted pistachio, i.e. on the first day of the experiment, no change was observed in its morphology. It started to grow in the green state. The experiments lasted 10 days. During this time the pistachio

growth in the plant was high and development was good (reference; Figure 4.1.1).

At the end of the experiments, their total yield was 420 in the first variant, 460 in the second variant, and 500 g / m2 of wet biomass in the third variant. Daily growth rate 1-36.3; 2-39.6; 3-45.3 at the end of the experiment and 1- 265; 2-290; 3-320; grams.

Figure 1. Growth dynamics of pistachio in the laboratory

Experiments show that the sewage coming to the Andijan municipal sewage treatment plant does not affect the growth and development of the pistachio plant, but rather accelerates its growth. The growth of pistachios is also accelerated in undiluted versions of sewage. The reason is that the amount of organic and mineral substances in this water is higher than in other options, which increase its growth, ie without diluting the wastewater with tap water, it is possible to plant a pistachio plant directly on it [13; 14].

The physicochemical composition of the water was determined before sowing the pistachio in the sewer (reference; Table 4.1.1). The table shows that the biochemical consumption of oxygen in wastewater is -

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18 mg / l, and the chemical consumption is -52.3 mg / l. Ammonium nitrogen content in water - 3.2 mg / l, nitrates - 13.5 mg / l, nitrites - 2.03 mg / l, dry matter - 38.4 mg / l, pH-7.5 hashows an increase. The smell is pungent, the color of the water is dark brown. In the liquid version, the amount of the above indicators has decreased to some extent.

During the experiment, changes in the composition of wastewater due to the growth and development of the pistachio plant were identified.

After the fifth day of the experiments, the physicochemical composition of the effluent was determined. The color of the effluent changed to yellow, the odor was significantly reduced, BPK5's experimental-30 lin water decreased to -13.3 mg / l, the amount of dissolved oxygen increased from zero to 3.5 mg / l. XPK content -46.5 mg / l; The amount of ammonium nitrogen decreased by -2.2 mg / l. Nitrate content - 10 mg / g; nitrites -0.03 mg / l; dry residue decreased to -30 mg / l. These values are much higher in the control variant, the water odor is -4.0 points, there is no dissolved oxygen, the biochemical oxygen consumption is -18 mg / l, and the chemical consumption is -52.3 mg / l. The content of ammonium nitrogen in water is 3.2 mg / l, nitrates -13.5 mg / l, nitrites -2.03 mg / l, dry matter -38.4 mg / l, pH - 7.5;.

Conclusion. As mentioned above, the effectiveness of environmental protection and wastewater treatment - the increase in human life expectancy is an environmental factor. As a result of quality wastewater treatment, the biochemical properties and quality of substances in open water basins and groundwater resources, as well as in the soil structure of cultivated and productive crops and plants are improving.

Currently, more than 1,500 subscriptions are serviced at SUE "Suv Oqova" in Andijan. They are based on industrial and residential wastewater.

If pistachios are grown in the biological ponds and ponds of the Wastewater Treatment Plant in the village of Komakay, Andijan region, and a biofilter is created, it is possible not to use other equipment used in the treatment plant for eight months. The main importance of pistachio aquatic plant is that it converts and purifies the wastewater environment into nutrient life, reduces the stench of wastewater, and as a result, the water is purified in moderation.

Based on laboratory experiments, the cost-effectiveness of wastewater treatment by biotechnology is 70-80%.

In calculating the effectiveness of wastewater, first of all, human life expectancy and human health are assessed through the prevention of various diseases transmitted by water and the damage to nature and the environment.

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