

ANTHELMINTHIC TREATMENT OF SEWAGE ON TREATMENT FACILITIES OF TASHKENT

Karimov M.M. (Republic of Uzbekistan) Email: Karimov542@scientifictext.ru

*Karimov Mirsaid Mirsiddikovich - Student,
MEDICAL PREVENTIVE FACULTY,
TASHKENT MEDICAL ACADEMY, TASHKENT, REPUBLIC OF UZBEKISTAN*

Abstract: in article it is said that the sewage arriving on city sewage treatment plants contains from 3 to 14 eggs of helminthes on 1 l. Mechanical cleaning of economic and household sewage of Tashkent on sewage treatment plants «Salar» and «Bozsu» provides deworming of drains for 70-75% depending on upholding time. At the same time the efficiency of deworming at a biological sewage disposal in the aerotanks and secondary setting tanks averages 99%. Therefore for ensuring overall performance of sewage treatment plants, achievements of full deworming of sewage and their deposit are necessary unloading of the existing treatment facilities and commissioning of two metantanks.

Keywords: sewage treatment plants, waste water, mechanical cleaning, biological cleaning, geohelminthes, deworming, efficiency of cleaning.

ДЕГЕЛЬМИНТИЗАЦИЯ СТОЧНЫХ ВОД НА ОЧИСТНЫХ СООРУЖЕНИЯХ ТАШКЕНТА

Каримов М.М. (Республика Узбекистан)

*Каримов Мирсаид Мирсиддиқович – студент,
медико-профилактический факультет,
Ташкентская медицинская академия, г. Ташкент, Республика Узбекистан*

Аннотация: в статье говорится, что сточные воды, поступающие на городские очистные сооружения, содержат от 3 до 14 яиц гельминтов на 1 л. Механическая очистка хозяйственно-бытовых сточных вод г. Ташкента на очистных сооружениях «Салар» и «Бозсу» обеспечивает дегельминтизацию стоков на 70-75% в зависимости от времени отстаивания. При этом эффективность дегельминтизации при биологической очистке сточных вод в аэротенках и вторичных отстойниках составляет в среднем 99%. Поэтому для обеспечения эффективности работы очистных сооружений, достижения полной дегельминтизации сточных вод и их осадка необходимы разгрузка существующих очистных сооружений и пуск в эксплуатацию двух метантенков.

Ключевые слова: очистные сооружения, сточные воды, механическая очистка, биологическая очистка, геогельминты, дегельминтизация, эффективность очистки.

In recent years in the Republic of Uzbekistan experts pay much attention to monitoring and environmental protection. The solution of this problem, relevant for many countries, demands complex studying of levels of cooperative pollution of atmospheric air, waters, the soil and foodstuff, impact of a complex of the chemicals arriving from these objects on the state of health of the population [1].

The republic, having found the status of the independent state, takes the most active part in the solution of the global problems bound to environmental protection and health of the population [2].

In the Constitution of Uzbekistan there is a series of articles concerning environmental protection and health of the population, the strong legislative and social and legal base for successful realization of nature protection, recreational and sanitary and preventive actions is framed; in the territory of the republic Laws of the Republic of Uzbekistan "About sanitary and epidemiologic wellbeing of the population", "About water and water use", "About protection of public health" work. In recent years development of "The national plans of action of the Republic of Uzbekistan" for environmental protection and health of the population is begun.

Intensive development of the industry promotes, on the one hand, significant increase in volumes of industrial sewage, with another – concentration of a large number of the population in the cities that leads to formation of a significant amount of economic and household sewage [3].

Assays of sewage before cleaning we are took on the main treatment facilities of Tashkent: the «Salar» stations in 7-8 hours in sand traps and primary radial setting tanks, the «Bozsu» station - in lattices and sand traps. For the purpose of studying of deworming of sewage at biological cleaning samples of waste water were taken from aeratenk, secondary setting tanks and also investigated a deposit from a bottom of the second and third steps an aeratenk. Due to the larger fluctuations of quantity of helminthes in sewage at different stages of cleaning on assay took from one to 5 l of waste water depending on the expected finds. Helmintologic researches of assays of sewage and deposits made by a method of sanitary and microbiological water analysis of open reservoirs on a sanitary and indicative and pathogenic microflora. Viability of eggs of geohelminthes determined

by method of cultivation them on wet filters in a thermostat at a temperature of 25-26⁰C within a month. In total 80 assays of sewage were investigated.

As a result of the conducted researches it was established that the crude economic and household sewage contains eggs of an ascaride and pinworms. Specific weight of eggs of ascarides among other types of helminthes is 68%. The amount of eggs of helminthes in sewage within a day sharply fluctuates. At night the amount of eggs of helminthes decreases to 2 in 1 l, in the morning begins to be enlarged and reaches some 4-6 eggs in the afternoon. On average economic and household sewage contains 3-8 eggs in 1 l.

In the course of mechanical cleaning a part of eggs of helminthes (about 8%) settles in sand traps together with a serious mineral suspension. In primary radial setting tanks the bulk of eggs of helminthes is besieged. The efficiency of deworming of waste water depends on time of its upholding. At two working setting tanks with a total amount of 6000 m³ and quantity of drains of 3200 m³ an hour - upholding time 2 hours, efficiency of purification of waste water of eggs of helminthes – about 70%. At three working setting tanks time of upholding is enlarged till 3 o'clock and efficiency of deworming up to 78%.

The further augmentation of time of upholding of waste water slightly increases effect of deworming. The waste water which underwent mechanical cleaning contains on average 1 egg of helminthes in 1 l. In the aerotens economic and household and industrial sewage is exposed to biological cleaning with an active ooze and compressed air. Leaving aerotenk after biological cleaning sewage contain from 15-20 to 30 and more eggs of helminthes in 1 liter. The waste water leaving secondary setting tanks and purified from an active ooze contains 0,03 eggs of helminthes in 1 l (30 eggs in 1 m³). Owing to high fastness of eggs of geohelminthes (ascarides) to various adverse factors of the external environment their death in an aerotenk almost doesn't happen. In secondary setting tanks an active ooze is quickly besieged in the form of flakes. At the same time eggs of helminthes are taken flakes of an active ooze, besieged, and then together with an ooze come back in aerotenk. However, a small part of flakes of an active ooze, and with them and eggs of helminthes, is taken out from secondary setting tanks with the purified waste water. The more carrying out of an active silt, the water more purified it is polluted by eggs of helminthes. On average the purified water contains 1-1,5 mg/l of suspended matters, the amount of eggs of helminthes is 15-30 in 1 m³ of water. The efficiency of deworming of sewage in secondary setting tanks is much higher, than in primary and is 98-99%. The silt admixture from primary setting tanks is decontaminated on silt platforms and in a metantenk. The shop is intended to biological cleaning for extraction from the sewage of the organic substances dissolved and weighed, which remained after mechanical cleaning. The clarified waste water is referred on a decontamination and dumping. After clarification in a secondary setting tank the purified sewage moves on a decontamination sodium hypochlorite.

Thus, the sewage arriving on city treatment facilities contains from 3 to 14 eggs of helminthes on 1 l. Mechanical purification of economic household sewage of Tashkent on treatment facilities «Salar» and «Bozsu» provides anthelminthic treatment of drains for 70-75% depending on upholding time. At the same time the efficiency of anthelminthic treatment at a biological sewage disposal in the aerotens and secondary setting tanks averages 99%. Therefore for ensuring overall performance of treatment facilities, achievements of full deworming of sewage and their deposit are necessary unloading of the existing treatment facilities and commisioning of two metantenks.

References / Список литературы

1. *Alikbayeva L.A.* Scientific bases of ensuring hygienic safety of operation of city treatment facilities from technology of burning of a deposit of sewage: abstract of the thesis of the doctor of medical sciences. St. Petersburg, 2008. 47 p.
2. *Gridneva M.A.* Improvement of abduction and purification of surface sewage of the urbanized territories: abstract of the thesis of the candidate of medical sciences. Samara, 2004. 20 p.
3. *Hanigin I.V.* Hygienic assessment of structure, efficiency of cleaning and decontamination of sewage of the sewerage of Irkutsk: abstract of the thesis of the candidate of medical sciences. St. Petersburg, 1974. 12 p.
- 4.