

METHODS OF EFFECTIVE DISINFECTION OF DRINKING WATER AMONG THE POPULATION

Elmurodova Lenara Khudayberdi qizi

*Assistant Department of Hygiene, Samarkand State
Medical University*

lenaraelmurodova97@gmail.com

Bo'riyeva Maftuna Shuxrat qizi

Student Samarkand State Medical University

boriyevamaftuna92@gmail.com

Abstract: Nowadays, drinking water, its pollution and treatment of contaminated water and disinfection of waste water are one of the urgent problems. This article describes the issues of providing the population of the republic with clean drinking water and the use of existing waste water. Proposals and recommendations have been developed regarding the rational use of existing water resources and elimination of existing deficiencies.

Key words: purification of drinking water, organoleptic properties, water chlorination, normal dose chlorination, excessive chlorination, adsorption, coagulation, aluminum sulfate.

Enter: Implementation of hygienic requirements for providing the population with high-quality drinking water depends on the main indicators of the samples taken for laboratory examination. This is done by checking water network facilities from a sanitary point of view, including monitoring the sanitary condition of local waters. The water factor causes a number of infectious diseases (typhoid, paratyphoid, smallpox, cholera, hepatitis, tuberculosis, anthrax, amebiasis, helminthosis, etc.), non-infectious diseases (Urov's disease, endemic goiter, endemic fluorosis and caries, water-nitrate methaemoglobinemia, etc.) is of great importance in the spread and origin. In order to protect the water supplied to consumers from accidental or regular contamination, it is necessary to protect it by organizing sanitary protection zones and installing hermetic fastening devices of the water network system.

Materials and methods. The quality of drinking water sent to consumers is evaluated according to its composition and characteristics in the places indicated below: at water intake points, before supplying water from water supply sources to networks, and in the distribution network. The quality of the water supplied to the network must meet the following hygienic requirements, regardless of the nature of the water source, the use of methods to improve its quality, and the peculiarities of the construction of the water network pipes. 1) it should be safe from the epidemic point

of view: 2) it should be harmless in terms of its chemical composition; 3) to have pleasant organoleptic properties; 4) radiation and 5) should be safe from parasitological point of view.

Study results: Currently, water chlorination is the most widely used method in the Republic in order to provide the population with clean and high-quality drinking water. Currently, water distributed to the population, regardless of whether it is water from an open reservoir or ground water, must be chlorinated. When chlorine compounds and ozone are used to disinfect drinking water, their residual amounts must be determined every hour.

Reagents	Place of control	Amount of residue in mg.l	Contact time of the reagent with water
Chlorine residue	After fresh water storage tanks	0.2-0.5	After at least 30 minutes
Ozone residue	After the mixing chamber	0.1-0.3	After at least 12 minutes

Water chlorination is usually carried out using calcium hypochlorite $\text{Ca}(\text{ClO})_2$, which contains up to 70% active chlorine. Two methods of chlorination are used: normal dose chlorination and high dose chlorination - over chlorination. In the following years, a new method of water chlorination was developed. A specially prepared sodium chloride solution, highly mineralized ground water or sea water can be used as an electrolyte. In this case, hypochlorite is obtained by electrolysis at the water supply station and used for water disinfection, which in turn is an economically efficient method. In order to achieve the above-mentioned quality in water treatment, it is advisable to use the adsorption method, which is based on the separation of harmful components, when the mineral content changes a little during water preparation. At the same time, adsorption and absorption, which preserve the chemical composition and improve water quality, differ in how one substance is distributed to another. During absorption, absorption and diffusion of the substance occur throughout the entire volume of the absorbent. During adsorption, solid, liquid or gaseous sorbate accumulates in the solid part of the adsorbent (solid or liquid surface). The adsorption process consists of three stages:

- transfer of substances in solution to the surface of adsorbent grains (outer diffusion region);
- adsorption process;

Sanitary assessment of drinking water quality improvement by coagulation method.

Correct selection of the optimal dose of coagulant plays a decisive role in the process of water coagulation. The optimal dosage of the coagulant is selected in a

laboratory method. To select the optimal dose, a 5% aluminum sulfate solution is taken, one milliliter of the solution contains 50 mg of the substance. If 39.6 mg of $Al_2(SO_4)_3$ solution corresponds to each degree of water alkalinity, 0.8 ml of 5% aluminum sulfate solution corresponds to 1 liter. So X ml of 5% $Al_2(SO_4)_3$ solution:

$$X = \frac{39,6}{50} = 0.79 \text{ ml } 5\% \text{ } Al_2(SO_4)_3;$$

Determination of the approximate dose of the coagulant is carried out as follows: for this, 10 tubes are taken. 1l of tested water is placed in each flask. Then each degree of alkalinity is added as needed. Determination of the approximate dose of the coagulant is carried out as follows: for this, 10 tubes are taken. 1l of tested water is placed in each flask. Then each degree of alkalinity is added as needed.

Flasks	Calculation amount of coagulant in %	Flasks	Calculation amount of coagulant in %
1	100	2	90
3	80	4	70
5	60	6	50
7	40	8	30
9	20	10	10

Coagulation is carried out with purified aluminum sulfate. Soda water is used for alkalization. The purification technology does not ensure a sufficiently stable quality of drinking water, as an increase in organic substances is observed from time to time in the source water. Attempts to increase the dose of coagulant (aluminum sulfate) do not give the desired effect, on the contrary, the concentration of residual aluminum in water increases. This situation caused the need to develop a more efficient technology that meets modern requirements based on the characteristics of the natural water composition - modernization of production.

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