IJIAET International Journal of Innovative Analyses and Emerging Technology

| eISSN: 27924025 | http://openaccessjournals.eu | Volume: 1 Issue: 4

Scientific Substantiation of Microbiological, Hydrobiological and Parasitological Indicators of the Aquatic Environment in Open Water Basins

Sagdullayeva Gulandom Ulyanovna

Bukhara State Medical Institute, Department of Medical Biology

ABSTRACT: At the same time, there were some problems - providing the population with high-quality drinking water, covering the cultural and household needs of the population, minimizing the risk of diseases associated with the water factor, and constantly improving the efficiency, safety and reliability of water use of the population. During the years of Independence, the Republic of Uzbekistan has achieved some success in protecting public health and reducing diseases, including those transmitted by water.

Keywords: Exogenous chemicals, Sanitary and epidemiological monitoring, Salmonella, urban areas, soil Classification, remediation, released soils.

The state of soils in urbanized territories and their impact on the health of the population is currently of great interest both in Uzbekistan and abroad. Soil, in contrast to air and water environments, is most strongly influenced by urban pressure, quickly absorbs pollutants and transforms them very slowly [1]. Assessment of soil quality is important for the characterization of the ecological and hygienic state of the territory, since it is the initial link in the food chain, a source of secondary air and water pollution, as well as an integral indicator of the environmental well-being of the environment. At the same time, the qualitative analysis of soils is complicated by the specifics of soil formation in the urban environment, in which an important role is played by: the presence of bulk and alluvial soils; the inclusion of construction and household debris in the upper horizons; growth of the profile upwards due to the constant introduction of various materials and intensive Aeolian deposition.

In one of the American journals, the quality of soil is described as three pillars-sustainable biological productivity, the absence of soil toxigenicity in relation to the media in contact with it, and ensuring the health of plants and animals. This concept tries to balance the multiple use of soil (for example, for agricultural production, recycling and reclamation of waste, urban development, forests, recreation and recreation areas) in order to preserve the quality of the environment [2].

All this leads to a reduction in biodiversity, microflora and soil mesofauna, structural changes, an increase in the number of pathogens, the accumulation of pollutants, changes in the acid-base balance and degradation of ecosystems as a whole [3]. The biological activity of sealed soils is low, there are changes in the microbiological environment of the studied soils, manifested in a change in the composition of microorganisms. The content of the nitrogen-fixing microorganism Azotobacter chrococcum can serve as an indicator of contamination - Azotobacter is able to maintain its viability for a long time even in conditions of soil sealing. The suppression of nitrification processes in the soils of sealed territories indicates their low potential self-cleaning ability [4].

The concentration of harmful elements in the soil has now increased significantly as a result of human activity (emissions from industrial enterprises and heat stations, traffic, etc.). At the initial stage of development, or in conditions of heavy pollution, or without caring for green areas, the level of organic carbon in the soil decreases, and their fertility also decreases. In parks, the soil is compacted due to recreational load. Cleaning leaves from lawns reduces the return of carbon to the soil [5].

Exogenous chemicals from the soil enter the human body and have an adverse effect not only in direct human contact with the soil (manual earthwork, walking barefoot, children playing in sandboxes, etc.), which pollute the skin, mucous membranes of the eyes, upper respiratory tract, but also in the indirect entry of ECV into the human body through contact with the soil environment. In addition, soil particles can enter the human body through metabolic chains.

It is known that reservoirs as natural-climatic objects have become part of the landscape of different countries of the planet. These water bodies are notable for their impact on many natural processes of nature, primarily hydrometeorological factors. At present, the use of reservoirs as a source of economic, drinking and cultural needs of the population is a matter of time, and the role of these water sources is invaluable for irrigation purposes during the vegetation period. According to the World Health Organization (WHO), 89% of people have access to safe drinking

ISSN 27924025 (online), Published under Volume: 1 Issue: 4 in September2021

water, while 68% have used water for targeted sanitation services. Disruption of hygienic and microbiological indicators of water use leads to an increase in the number of diarrhea among the world's population. Among the countries of Africa and Southeast Asia, 60% of deaths are due to intestinal diseases caused by non-compliance with the rules of water resources, sanitation and hygiene.

Therefore, the scientific substantiation of the effectiveness of the use of water in hygienically and microbiologically safe reservoirs and the development of a mechanism of microbiological monitoring is one of the most pressing issues to be addressed today.

In order to scientifically substantiate the effectiveness of reservoir water use in the world and to develop a mechanism for microbiological monitoring, a number of studies, including a comparative description of the microbial composition of water in different reservoirs depending on the seasons, seasonal dynamics of reservoir chemical composition, as well as microorganisms by evaluating their interaction with its parameters. Scientific substantiation of hydrobiological and parasitological quality indicators of water of different types of reservoirs, scientific substantiation of water use efficiency and development of a mechanism of microbiological monitoring of water of different types of reservoirs, taking into account the study of microbial, hydrobiological, parasitological and chemical composition of water on the efficiency of use of reservoirs, substantiation of its level of pathogenic and conditionally pathogenic microorganisms, mineralization of water ng change, the lack of developments in the mechanism of microbiological monitoring of reservoir water, all the importance of the chosen direction of scientific research, the development of a set of health measures aimed at preventing this situation and providing clean drinking water.

Today, one of the important tasks is to improve the health care system in the country, to develop measures for early diagnosis and prevention of infectious diseases. The Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021 states that improving the convenience and quality of medical services, strengthening the material and technical base of medical institutions, further reforming the emergency care system, strengthening family health, maternity and protection of childhood, provision of the population with quality drinking water ... ». It is necessary to strengthen public health, reduce risk factors for various infectious and non-communicable diseases, develop a mechanism to prevent pollution of reservoir water, improve scientifically and economically justified standards of chemical composition of water bodies, improve efficient and safe use of water.

Purpose of research

Scientific justification of the value of microbiological, hydrobiological and parasitological indicators for assessing the water quality of open reservoirs, depending on their use (drinking and recreational purposes).

Sanitary and epidemiological monitoring of bacterial contamination of water bodies is one of the links in the system of social and hygienic monitoring of the environment and serves as a fundamental basis for the development of anti-epidemic and preventive measures in relation to water-related diseases of intestinal infections (7).

Problems of sanitary and epidemiological safety of water use in Uzbekistan are caused by a wide range of reasons related to anthropogenic pollution of water sources, insufficient sanitary and technical reliability of water supply systems, and a shortage of good-quality drinking water (8).

In modern conditions, the health of the population is largely determined by the impact of environmental factors. Specialists in the field of health and environmental protection currently give priority to the state of the water environment, since various infectious human diseases are associated with the conditions of water use of the population (9). At the same time, Uzbekistan does not have a unified concept for assessing microbial risk in the occurrence of water-related OKI (12). There are General who recommendations based on direct detection of pathogenic bacteria.

In connection with the use of surface water for drinking and recreational purposes, their sanitary and bacteriological characteristics deserve close attention. It is shown that as a result of intensive contamination of the hydrosphere, a significant change in the properties of bacteria, including pathogenic ones, can occur, and then former saprophytes can show aggressive qualities (10). In addition, waste water from municipal sewage systems and biotechnological industries is released into open reservoirs, which also leads to changes in the typical properties of microorganisms and contributes to the development of an imbalance in the microflora of water bodies with a characteristic increase in the number of potentially pathogenic bacteria and the expansion of their species spectrum (11).

When compiling the characteristics of sanitary and epidemiological safety of water bodies, the main attention is focused on the indication of lactose-positive intestinal bacteria, whereas the lactose trait is one of the most unstable in the taxonomy of the Enterobacteriaceae family, compared with glucose fermentation and oxidase activity (13). The loss of the lactose trait leads to a distortion of information about the epidemic safety of water use when monitoring according to existing standards. Moreover, the indication of coliform bacteria for lactose fermentation deliberately excludes lactose-negative species of the Enterobacteriaceae family, including pathogenic (Salmonella, Shigella) and

ISSN 27924025 (online), Published under Volume: 1 Issue: 4 in September2021

potentially pathogenic (Klebsiella, Proteus, Enterobacter, hafnii, Citrobacter, Serratia, etc.), thereby allowing their presence in water (4). Therefore, if the bacterial composition of water meets the existing regulatory requirements, outbreaks of OKI associated with water consumption are registered (5). At the same time, unjustifiably little attention is paid to assessing the level of microbial contamination of water bodies from epidemiological and sanitary-hygienic positions, and the disproportion observed in the structure of the microbial community of reservoirs is not taken into account (14).

Under the influence of pollutants and adverse factors of the aquatic environment, pathogenic bacteria, in particular Salmonella, can pass into a sublethal state, which manifests itself in their temporary inability to grow on nutrient media. In addition, there are no reliable methods for isolating pathogenic enterobacteria from the aquatic environment. In the future, under favorable conditions, the properties of stressed bacteria can be restored, which creates an epidemic danger of water use.

Conclusion

In this study, we will use a multivariate All this makes it necessary to constantly improve the regulatory and methodological documents to ensure effective sanitary and epidemiological monitoring of bacterial contamination of water bodies, primarily for drinking and recreational purposes.

All of the above indicates that to assess the microbial risk in drinking water use, it is necessary to select an indicator, the reliability of which in determining the epidemic safety of intestinal infections transmitted by water should be scientifically justified.

REFERENCES

1. Zabelina O.N., Zlyvko A.S. The biological activity of the soil sealed urban areas. *Uspekhi sovremennogo estestvoznaniya.* 2015; (5): 167-70.
2. Stroganova M.N., Mjagkova A.D., Prokof'eva T.V Development of theoretical bases of environmental assessment of urban soil ecosystems. Stroganova M.N., Myagkova A.D., Prokof'eva T.V *Informatsionnyy byulleten 'RFFI.* Biologiya, Meditsinskaya nauka 4. Research report № 96-04-48465
3. Vodyanitskiy Yu.N. Organic matter in urban soils (literature review). *Pochvovedenie.* 2015; (8): 921- 31.
4. Hursthouse A., Tognarelli D., Marsan F., Martini C., Madrid L., Diaz-Barrientos E. Metal content of surface soils in parks and allotments from three European cities: initial pilot study results. *Land Contamination and Reclamation.* 2004; (12 (3)): 189-196.
5. Uchvatov VP. Of research/R and D report. Geochemistry of heavy metals in natural and man-made landscapes of some regions of European Russia. *Informatsionnyy byulleten ' RFFI.* Nauki o Zemle 6. Nomer granta: 96-05-650961998. Moscow; 1998.
6. Federal Service for Supervision of Consumer Rights Protection and Human Welfare. On the state sanitary and epidemiological welfare of the population in the Russian Federation in 2013. State report. Moscow; 2014.
7. Almatov B.I., Nuralieva N.The A. Comparative description of microbiological and chemical composition of water of different types of reservoirs / / "actual problems of determining the degree of purity of water bodies in the Republic of Uzbekistan". Republican scientific and practical conference. - Khiva, 2016. - Fuck you.12-14.
8. Almatov B.I. Sravnitelnaya characteristic microbnogo landscape prob Vody raznikh tipov vodokhranshsh Uzbekistan / / "actual problems of determining the degree of purity of the waters of the waters of the Republic of Uzbekistan". Republican scientific and practical conference. - Khiva, 2016. - Fuck you.14-15.
9. Nuraliev N. The A., Almatov B.I., Ginnatullina E.What? Pokazateli gidrobiologicheskogo analiza kachestva VOD obyektov pitevogo I rekreasionnogo naznacheniya " / "actual problems of determining the degree of purity of water bodies in the Republic of Uzbekistan". Republican scientific and practical conference. - Khiva, 2016. - Fuck you.103-106.
10. Mukhamedov I.Location, Khujaeva Sh.The A., Almatov B.I., Mamatkulav I.The X., Nuraliev N.The A. Guide to clinical microbiology / / physician specialists. - Tashkent, "new generation of the century", 2016. - 632 s.
11. Chabukdhara M., Nema A.K. Heavy metals assessment in urban soil around industrial clusters in Ghaziabad, India: Probabilistic health risk approach. *Ecotoxicol. Environ. Saf* 2013; 87: 57-64.
12. Belozertseva I.A., Lopatina D.N. Anthropogenic impact on the soil of the urbanized territories of Siberia. *Fundamental'nye issledovaniya.* 2015; (2): 5397-403.

ISSN 27924025 (online), Published under Volume: 1 Issue: 4 in September2021