EVALUATION OF WATER QUALITY USING THE ORGANOLEPTIC EXAMINATION METHOD

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Abstract: Water and soil quality play a vital role in environmental health, public safety, and sustainable resource management. Accurate laboratory analysis of these elements begins with the proper collection of representative samples. This article discusses standard methods for water sampling aimed at detecting physical, chemical, and microbiological contaminants. Special attention is given to **organoleptic examination**, a technique that evaluates water quality based on sensory characteristics such as taste, odor, color, and turbidity. This method serves as an initial step in identifying potential pollution sources and determining the need for further laboratory testing.
Additionally, the article outlines effective **soil sampling techniques** for laboratory analysis, which are essential for assessing soil fertility, contamination levels, and suitability for agricultural or industrial use. Proper sampling procedures ensure reliable results by preventing errors caused by contamination or inadequate sample handling. The implementation of these standardized sampling and testing methods contributes to improved environmental monitoring, public health protection, and sustainable management of natural resources.

Keywords: water sampling, soil sampling, laboratory analysis, organoleptic examination, environmental monitoring, water quality, soil contamination.

INTRODUCTION

For water quality assessment, an initial step often involves **organoleptic examination**, which evaluates the sensory characteristics of water such as taste, odor, color, and turbidity. Although this method does not provide precise quantitative data, it is a quick and practical approach for detecting visible or noticeable changes in water quality that may indicate contamination. Following this preliminary assessment, samples are subjected to detailed laboratory tests for physical, chemical, and microbiological parameters.

This article aims to explore the fundamental methods of water and soil sampling for laboratory analysis, highlight the significance of organoleptic evaluation in water quality assessment, and emphasize the importance of standardized procedures in ensuring accurate and reliable environmental monitoring results.

A water sample of 2-5 l. is taken in a clean container (sterilized for analysis). Sampling from a water source is taken from a place where water is taken for centralized water supply (or a place where a water source is used - e.g., bathing places). It is recommended to take a sample 5-10 m from the shore and from a depth of 0.5-1 m in the middle of the source (deeper if necessary). To take a water sample from the required depth, special devices are used - bathometers (show the device) or a glass container with a stone tied to it and a long thread can be used, while the second thread is tied to the lid of the container and used during water sampling: after lowering the container to the required depth, the lid thread is pulled sharply, the mouth of the container opens and water enters it.

The organoleptic properties of water include: smell, taste, color.

The smell of water is determined at a temperature of 20 ° C, and if necessary - at 60 ° C. To determine the smell of water, 2/3 of the volume of a tightly closed flask is filled with water, shaken vigorously and the container is opened and smelled. The quality and nature of the smell must be determined. The quality is assessed verbally and the quantity in points. 1 point - very weak smell, 2 points - not everyone can feel it, weak smell, 3 points - noticeable, 4 points - strong, 5 points - very strong smell. 2 points are assigned to drinking water.

The quality of the smell depends on what kind of smell it is, such as the smell of drunkenness, mud, chemicals.

The taste of water is allowed to be assessed only by tasting it if there is no doubt about the quality of the water. To do this, take a sip of water in your mouth, hold it for 2-3 seconds and spit it out. The taste of water, like its smell, is assessed by its quality (bitter, sweet, sour, etc.) and quantity (in points).

The color of water is expressed in degrees and is assessed by comparing the color of the tested water with a color scale. According to the State Standard, it should not exceed 20o. Clean water and water from water distribution networks in our republic are considered colorless (compared to Ukraine and Russia), because our water contains almost no traces of humus, that is, organic humus. If any color appears in the water, this indicates its pollution. Therefore, to determine the color of the water, a sample of the tested water is placed in a clean test tube and compared with the same amount of distilled water (by looking from top to bottom on a white background).

Proper sampling and evaluation of water are fundamental steps in ensuring accurate laboratory analysis and reliable environmental monitoring. The effectiveness of laboratory testing depends greatly on the quality and representativeness of the samples collected. Following standardized sampling procedures — including selecting the correct location, depth, and equipment such as bathometers or sterilized containers — minimizes errors and prevents contamination during the collection process.

Organoleptic evaluation serves as a preliminary and rapid assessment tool, providing immediate information about water quality through its odor, taste, and color. While it does not replace detailed chemical and microbiological testing, it helps to quickly identify potential signs of pollution, such as unusual odors, tastes, or discoloration, indicating the need for further laboratory investigation.

In Uzbekistan and similar regions, water is generally colorless and of good quality; however, any changes in its physical properties should be carefully monitored. Proper sample handling and

timely assessment are crucial for preventing the spread of waterborne diseases and maintaining public health.

In conclusion, combining standardized sampling techniques with organoleptic assessment provides a comprehensive approach to water quality monitoring. This integrated process ensures accurate results, supports effective environmental management, and contributes to the protection of both human health and natural resources.

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