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PP-11**Special Aspects of Express Identification the State of Natural Objects Using Conductometric Method**V.M. Loboichenko

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Changing of environmental conditions has a significant effect on the living organisms and human being. In recent days contaminations make a great contribution to these changes, which whether directly or indirectly connect to human-made activity. Early detection of these changes, it its turn, helps to minimize possible negative effects on environment and human being or helps to prevent them.

Parameters that characterize state of natural objects are quite diverse. These can be physical, chemical, biological and other indexes.

A set of certain parameters is an individual characteristic of object and it allows to perform identification of its state or object directly. Qualitative or quantitative composition, pH, electrical conductivity, presence of microorganisms and others can be such characteristic. Both a set of parameters and individual indexes measured in a direct manner or got by calculation can be used for identification.

Determination of parameters is a time consuming; it needs special materials and equipment. Reagents for research can be dangerous for environment and human beings.

This demonstrates that further search and development of new method of analysis is currently important within the conception of «green chemistry».

Previously it was proposed to perform identification using the coefficient of identification and specific electrical conductivity of water sample. Jointly they are like individual characteristic of water sample [1]. Coefficient of identification is a calculated value obtained as slope of curve of back electrical conductivity-dilution ratio relationship. Additional reagents, except distilled water, for dilution of initial sample are not required that makes this approach is ecologically green.

The aim of this paper is an approbation of proposed approach using direct coulometry for express identification of the state of soil.

The subject of research was a part of territory affected by spoil disposal. Reference sample was the same soil taken out of this man-made feature. Research was carried out on 12 districts. Analysis of soil-water extracts was done and coefficients of identification for a variety of samples were calculated. S_r does not exceed 5 % for all measurements.

Obtained data are volatile between 100 and 1000 $\mu\text{S}/\text{cm}$ for the values of conductivity and from 1 to 14 of identification coefficient. This proves significant changes in the state of soil under study and as a consequence anthropogenic impact, different qualitative and quantitative composition of soil. Stability of state was identified only for reference sample. It was shown that discussed approach is expressive, total time of individual measurement is 15 - 20 min, and it belongs to the methods of «green chemistry».

References

1. A. Vasyukov, V. Loboichenko and S. Bushtec. Identification of bottled natural waters by using direct conductometry. Ecology, Environment and Conservation. - 2016. - Vol. 22 (3). - P. 1171 – 1176. <http://repositsc.nuczu.edu.ua/handle/123456789/1633>.