

## **Bioelectronic System for Continuous Monitoring of Cardiac Activity of Benthic Invertebrates for the Assessment of a Surface Water Quality**

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**Abstract :** The objective assessment of ecological state of water ecosystems is impossible without the use of biological methods of the environmental monitoring capable in the integrated look to reveal negative for biota changes of quality of water as habitats. Considerable interest for the development of such methods of environmental quality control represents biomarker approach. Measuring systems, by means of which register cardiac activity characteristics, received the name of bioelectronic. Bioelectronic systems are information and measuring systems in which animals (namely, benthic invertebrates) are directly included in structure of primary converters, being an integral part of electronic system of registration of these or those physiological or behavioural biomarkers. As physiological biomarkers various characteristics of cardiac activity of selected invertebrates have been used in bioelectronic system. Changes in cardiac activity are considered as integrative measures of the physiological condition of organisms, which reflect the state of the environment of their dwelling. Greatest successes in the development of tools of biological methods and technologies of an assessment of surface water quality in real time. Essential advantage of bioindication of water quality by such tool is a possibility of an integrated assessment of biological effects of pollution on biota and also the expressness of such method and used approaches. In the report the practical experience of authors in biomonitoring and bioindication of an ecological condition of sea, brackish- and freshwater areas is discussed. Authors note that the method of non-invasive cardiac activity monitoring of selected invertebrates can be used not only for the advancement of biomonitoring, but also is useful in decision of general problems of comparative physiology of the invertebrates.

**Keywords :** benthic invertebrates, physiological state, heart rate monitoring, water quality assessment

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