

Antioxidant activity – a promising indicator for determining the integrated water quality index

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Abstract

In analyzing the experimental data on various water samples it has been found out that indications of total antioxidant activity changed discretely from 8.8531 to 1.1611 mg of rutin per 1 liter of water. We identified 15 types of water clusters by frequency of their occurrence, which were then divided into 3 groups, for which the linear regression equation was derived with the coefficient of determination close to 1.

Water molecules are capable of forming a variety of associates, clusters, the values of which depend on the source of water, methods of treatment, pH of the aqueous medium, intensity of redox processes, background radiation, exposure to electromagnetic fields, microwave radiation, corona discharge, acoustic and ultrasonic impact and other factors. The balance equation was derived for the antioxidant activity of water and abiotic parameters of the medium, which served as the basis for creating the integrated index of water quality from the standpoint of contamination by organic substances.