

Research of radon content in natural waters in Tbilisi and Kartli artesian basins

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Radioactivity has not been created by humans; it represents the component of the environment, like the surface of the earth, rocks, atmosphere, human body, nutrition etc.

In the present work it is given the part of results of complex researches of radon content in drinking water.

For the researching of the surface water there have been chosen 44 control points (Bulachauri, Bodorna, Mtskheta, Misaktsieli, Betania, Kodjori, Oqrokana etc.) located on the territories of Kartli and Tbilisi artesian basins situated in the north and south of Tbilisi city. Over 500 samples of surface water were collected and studied during the research process. Studies have been carried out by using of alpha-spectrometric method (by using detector RAD7).

It has been established that in surface waters in Tbilisi Artesian Basin the radon content is changed in a rather wide range, in particular: in the first type of spring water (selected directly in the spring location) from very low (2.7 Bq/L) up to 100 Bq/L and above (163 Bq/L), with average value of 72.3 Bq/L; in the second type of spring water (selected sufficiently far from spring site) changed in the range of 0.1 Bq/L - 35.8 Bq/L, with average value of 8.4 Bq/L; the change in river water is 0.1 - 7.0 Bq/L, with average value of 2.2 Bq/L.

Radon content in surface waters in Kartli Artesian Basin is in the range of: for the first type of spring water 3.3 Bq/L - 16.6 Bq/L, with average value of 9.5 Bq/L; in the second type of spring water 0.5 Bq/L - 10.3 Bq/L, with average value of 5.4 Bq/L; In well of waters - 1.1-11.4 Bq/L, with average value of 6.9 Bq/L; in artesian waters - 1.1-12.2 Bq/L, with average value of 5.7 Bq/L; in river and reservoir waters - 0.2-0.4 Bq/L.

It was shown that the majority of the investigated control points on values of radon concentration in surface waters was in the groups with above typical (3 - 10 Bq/L) or high (10 - 30 Bq/L) values of radon activity. Moreover, the radon concentration in spring waters in Tbilisi Artesian basin is significantly higher than in Kartli Artesian basin (for example, for the first type of spring water more than 6 times).

The analysis has been carried out and shown, that the results obtained at the study of two artesian basins may be related to the geological features of the marked territories. There has been carried out comparison of our results with literary data.

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