ON THE RESTORATION OF THE IONIZATION PROPERTIES OF "TETRA" CAVE (TSKALTUBO, GEORGIA)

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Abstract

The cave "Tetra" is located in the northern part of health resort Tskhaltubo. Into 1970-1971 and 1973 summary air alpha- radioactivity on both halls of cave varied from 777 to 7104 Bq/m^3, concentration of positive ions was varied from 3483 to 7290 cm^{-3}, and negative - from 3402 to 5832 cm^{-3}. Taking into account the microclimatic and ionizing properties of cave in the indicated years it was used for treating the patients with respiratory and cardiovascular system.

Unfortunately, during the expedition of 2008 it was discovered, that the special door into the cave was broken up. The tracks of the unsanctioned presence of people were revealed inside the cave. I.e., the natural state of cave was disrupted (sealing, air cleanliness, etc.). As a result in the cave radon content was less than 20 Bq/m^3. Accordingly, concentration of light ions was 250 cm^{-3} for positive and 100 cm^{-3} for negative, which is characteristic for the strongly contaminated industrial cities. The urgent measures for the restoration of the natural therapeutic potential of cave "Tetra" were proposed.

Recently, Agency of Protected Areas of Georgia a number of measures to restore the original state of the cave carried out, which practically led to the restoration of its unique microclimatic and bioclimatic properties.

In particular, the results of expeditionary works 2018 showed that radon content in cave composed 257 Bq/m^3 (or the summary air alpha-radioactivity - 771 Bq/m^3); light ions concentration comprised: 18200-22250 cm^{-3} for positive and 24000-24280 cm^{-3} for negative ions. Thus, the restoration of radioactive and ionizing state of the cave was occurred. So, the cave "Tetra", as in the early years, will be possible to use for therapeutic purposes.

The organization of regular studies of the microclimatic, bioclimatic and ionizing properties of the caves in Georgia is planned.

Key words: Radon, Light Ions, Aerosols, Cave, Speleotherapy