

DETERMINATION OF RADIOACTIVITY CONCENTRATIONS IN SOIL SAMPLES AND DOSE ASSESSMENT FOR GÜMÜŞHANE PROVINCE, TURKEY

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The main objective of this study is to determine natural and ^{137}Cs radionuclides in soil samples collected from the province of Gümüşhane. In all a total of 62 soil samples were analyzed. The concentrations of radionuclides in soil samples were determined by a high-purity germanium (HPGE) detector. The activity concentrations in soil samples varied in the range of 1.23 -120.34. Bq kg⁻¹ for ^{226}Ra , -1.86-159.5 Bq kg⁻¹ for ^{232}Th and 50.89-1222.84 Bq kg⁻¹ for ^{40}K . Cesium-137 activity concentration was measured in soil samples and it was found that the concentration ranged from 0.1 to 21.47 Bq kg⁻¹. Obtained values show that the mean radium equivalent activity (R_{aeq}) were from 7.45 to 434 Bqkg⁻¹. The gamma absorbed dose rates in air were in the range of 3.7-202.9 nGy h⁻¹, with an arithmetic mean of 61. nGy h⁻¹, while the annual effective dose rates were determined to be in the range of 4.67-248.8 mSv y⁻¹. External hazard index (H_{ex}) for the soil samples were in the range of 0.02-1.19.

DETERMINATION OF TRABZON IN DRINKING WATER NETWORK AND AROUND THE RADIOACTIVITY LEVELS

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This study intends to radiologically assess the drinking waters Trabzon province in Turkey. In this study was to measure the radioactivity concentrations in the water and soil sample taken from the drinking water networks of the provinces and districts of Trabzon. Radionuclide activity concentrations in water and soil samples were measured by gamma spectrometry. Total absorbed external gamma doses and corresponding annual effective dose equivalents were calculated from the measured ^{238}U , ^{232}Th , ^{40}K and ^{137}Cs activity concentrations of water samples and soil samples. All results are compared with international limits and results from other countries. It was understood that the annual effective dose equivalents obtained do not pose a threat to human health in Trabzon province drinking water Networks.