

DETERMINATION OF RADIOACTIVITY LEVELS OF SALT MINERALS ON THE MARKET

*Z. Yüksel , M. Ç. Tufan
lazeynphysics@hotmail.com*

Human beings have been continuously exposed to natural radioactive rays since its existence in the world. From the end of 19th century, besides natural sources, mankind has been exposed inevitably by artificial radioactive sources with the development of technology. Radiation has beneficial effects on human beings but also can harmful consequences if overexposed. Therefore, it is important for both public and governmental institutions to know the radioactivity levels particularly in foodstuffs for human health. There have been rumours among the public that the level of radioactivity in salt minerals exported from abroad is high. In this study, the radioactivity levels of imported and domestic salts on the market shelves have been determined by applied new method. The basic principle of this method is to detect the gamma rays originating from artificial and natural radioactive nuclei in the same sample at different times.

DETERMINATION OF NATURAL AND ARTIFICIAL RADIOACTIVITY CONCENTRATIONS IN SOIL SAMPLES COLLECTED FROM THE VICINITY OF KELKIT-GÜMÜŞHANE

*Selim Kaya, Ali Kaya, Salih Mustafa Karabıdak, Necati Çelik
selimkaya@gumushane.edu.tr*

The main objective of this study is to determine natural (^{226}Ra , ^{232}Th and ^{40}K) and artificial (^{137}Cs) radionuclides in soil samples collected from the vicinity of Şiran, Köse and Kelkit districts in the province of Gümüşhane. In all a total of 21 soil samples were analyzed. The concentrations of radionuclides in soil samples were determined by a high-purity germanium (HPGE) detector. It was found that the activity concentrations ranged from 5.8 to 40.24 Bq kg⁻¹ for ^{226}Ra , from 11.1 to 50.31 Bq kg⁻¹ for ^{232}Th and from 202.91 to 1137.41 Bq kg⁻¹ for ^{40}K . Besides naturally occurring radionuclides, ^{137}Cs activity concentration was measured in soil samples and it was found that the concentration ranged from 0.47 to 11.83 Bq kg⁻¹. Obtained values show that the mean radium equivalent activity (Raeq) were from 39 to 165 Bqkg⁻¹. It was observed that the obtained activity concentration results were below the mean values for Turkey.