

RADIOACTIVITY CONCENTRATIONS OF ^{226}Ra , ^{232}Th , ^{137}Cs AND ^{40}K , RADIONUCLIDES FOR SOIL AND MOSS SAMPLES AROUND GUMUSHANE, TURKEY

S. KAYA^{a*}, S. M. KARABIDAK^a, B.KOZ^b, A. KARA^a N. DAMLA^a and U. ÇEVİK^a

^a*Karadeniz Technical University, Faculty of Arts and Science, Department of
Physics*

61080 Trabzon, Turkey

^b*Giresun University, Faculty of Arts and Science, Department of Biology
28100 Giresun, Turkey*

*Corresponding author. Tel/Fax: +90 533 5142083/ +90 462 3253195
E-mail address: selim-kaya-29@hotmail.com (S. KAYA)*

The concentrations of natural radionuclides in soil and moss samples around Gümüşhane, Turkey were determined by a well-calibrated high-purity germanium detector. It was found that activity concentrations ranged from 16.15 to 151.80 Bq kg⁻¹ for ^{226}Ra , from 9.10 to 35.84 Bq kg⁻¹ for ^{232}Th and from 236.83 to 1059.11 Bq kg⁻¹ for ^{40}K . Besides naturally occurring radionuclides, ^{137}Cs activity concentration was measured in soil and moss samples and it was found that ^{137}Cs activity concentration ranged from 7.17 to 40.04 Bq kg⁻¹ with for soil, and from 12.42 to 496.89 Bq kg⁻¹ for moss samples. Obtained values shows that the mean radium equivalent activity for soil and moss samples were 92 Bq.kg⁻¹ and 165 Bq.kg⁻¹, respectively. Raeq values of the measured samples are lower than the limit value of 370 Bq kg⁻¹, equivalent to a gamma dose of 1.5 mSv.y⁻¹.

Keywords: Natural Radioactivity, Soil and Moss, Gamma Spectrometer, Activity Concentration