

## DETERMINATION OF NATURAL RADIOACTIVITY LEVEL IN SOME MILK SAMPLES CONSUMED IN EASTERN BLACK SEA REGION OF TURKEY

*S. AKBULUT<sup>a</sup>, H. BALTAŞ<sup>a</sup>, N. DAMLA<sup>b</sup>, S. KAYA<sup>b</sup>, U. ÇEVİK<sup>b</sup> and N.T.  
OKUMUŞOĞLU<sup>a</sup>*

*<sup>a</sup>Rize University, Faculty of Arts and Sciences, Department of Physics,  
53100 Rize, Turkey*

*<sup>b</sup>Karadeniz Technical University, Department of Physics,  
61080 Trabzon, Turkey*

*Corresponding authors: Tlf: 0546 879 97 47 – 0505 499 25 40  
E-mail address : s.akb@ktu.edu.tr (S. AKBULUT) – hbaltas01@ktu.edu.tr*

The radioactivity concentrations of the some cow milks consumed in Rize, Çayeli, Pazar, Ardeşen and Hopa cities have been measured by a well-calibrated high-purity germanium detector. Also, the average concentrations of naturally occurring radionuclides in milks were used to calculate the annual effective dose equivalent. The average activity values of <sup>226</sup>Ra, <sup>232</sup>Th, <sup>137</sup>Cs and <sup>40</sup>K were obtained as 3.6±0.2 Bq/l, 1.5±0.1 Bq/l, 0.5±0.1 Bq/l and 30.1±1.2 Bq/l, respectively. These values are comparable with the concentrations reported in other countries. The effective doses due to these radionuclides ingestion by milk consumption were estimated for the Eastern Black Sea population of Turkey. The estimated effective doses were evaluated to be 23.9µSv y<sup>-1</sup>, 8.4 µSv Sv y<sup>-1</sup>, 0.1µSv Sv y<sup>-1</sup> and 4.5 for <sup>226</sup>Ra, <sup>232</sup>Th, <sup>137</sup>Cs and <sup>40</sup>K, respectively.

**Key Words:** Natural Radioactivity, Milk, Gamma Spectrometer, Activity Concentration