Link do artykułu:

https://www.sciencedirect.com/science/article/abs/pii/S0341816224001577?via%3Dihub

„A study of natural radioactivity of rock meals used for soil fertilization.”

Abstract:

Granite and basalt meals (rock meals) are regarded as micronutrient fertilizers due to their rich content of macro- and microelements essential for proper development of planta. However, they also are rich in radionuclides which may pose a radioactive hazard to environment, food and people. The aim of this study was to assess the environmental and human exposure to ionizing radiation emitted by natural radioactive isotopes containing in granite and basalt meals increasingly used for soil fertilization. Gamma ray spectrometry was applied in order to determine concertation of radioactive isotopes: ^{40}K, ^{226}Ra and ^{232}Th. Afterwards, radiological hazard parameters were calculated in order to assess health and environmental risks. The obtained results indicated that the average radioactivity concentration of ^{226}Ra, ^{232}Th and ^{40}K of all granite meal samples were higher than their average content in the Earth’s crust. Whereas, basalt meals contained much lower natural radioactive isotopes. Similarly, the radiological hazard indices were higher and exceeded limit values in case of granite meals, thus excluding them from use in fertilization. Basalt meals were characterized by lower values of these indices, suggesting the possibility of their safe use in agriculture as soil fertilizers.