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Radionuclide Content of Pasteurized Milk Sold in Mafikeng, South Africa

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Many food animals which are important components of human food chain are effective collectors of radionuclides from the environment particularly contaminated forages, and therefore represent a significant pathway for the transfer of radionuclides to humans. Many important radionuclides are readily transferred to milk thus the product is considered as one of the basic food items recommended for the assessment of radionuclide exposure within a population. The current study aimed at assessing the radionuclide content of commercial milk commonly sold in South Africa in order to set a baseline data for radionuclide concentration of the products. Three popular brands of commercial milk (A, B and C) were sampled, with two samples obtained for each brand. The concentration of individual radionuclide in the milk samples, particularly ^{131}I , ^{137}Cs and ^{235}U was measured by gamma spectroscopy. The results showed that brand A had the highest concentrations of ^{235}U and ^{137}Cs (203 and 324 mBq/L respectively) but the lowest concentration of ^{131}I (6.4 mBq/L). The highest concentration of ^{131}I (148 mBq/L) was detected in brand B whereas both ^{235}U and ^{131}I were not detected in brand C. All the values however were well below the new standard limits for individual radionuclides in milk established by the Japanese Ministry of Health, Labour and Welfare. This study indicates that the commercial milk brands assessed pose no radiation health threat to the consumers.

Country or International Organization

South Africa

Primary author: OLOBATOKE, Roseline (North West University, South Africa)

Co-author: Prof. MATHUTHU, Manny (Center for Applied Radiation Science and Technology (CARST) North West University (Mafikeng))

Presenter: OLOBATOKE, Roseline (North West University, South Africa)

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