

## Risk assessment cosmic radiation producing sources of radionuclid intake by humans in high latitude areas

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The main concern about radionuclids and radiation are their adverse effects on humans and other organisms. The dose evaluation of natural radioactivity, derived from the decay of nuclei by the bombardment of the Earth by cosmic radiation, producing radionuclids in the Earth's atmosphere and in the Earth's crust have special importance because it's have given the major contribution to the total full-scale population radiation exposure.

During last 5 years cosmogenic radiation contribution to natural radiation background consists 10-20 mcR/h. From current literature data it's known that natural radiation give to population average dose 1,88 mSv/y (0.3 mSv/y from cosmic ray exposure, 0.4 - soils and buildings, 0.37 - food and beverages, 0.8 - air, 0.25 - medical examinations, 0.002 - atomic power stations).

Cosmogenic nuclides produced by the interaction of high energy cosmic radiation with the Earth's atmosphere (e.g.,  $^7\text{Be}$  and  $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{22}\text{Na}$ ) form real contribution to total radioactive dose to populations due to internal exposure, including inhalation and ingestion pathways. For this reason internal doses are readily affected by Arctic environmental influences, including biological, physical, climatic and socio-economic factors.

This paper considers the extent of natural radionuclids contamination of some Arctic food products have been founded (Table 1).

Table 1 Specific radioactivity of vegetables (moisture-free, gamma-spectrometric analyses average data), Bq/kg

Code and sample denomination	Radionuclids activity					
	$^{40}\text{K}$	$^{226}\text{Ra}$	$^{232}\text{Th}$	$^{137}\text{Cs}$	$^{134}\text{Cs}$	$^7\text{Be}$
<b>Rhubarb, leaves</b>	1530±310	<25	<35	<20	15±10	<110
<b>Rhubarb, leafstalk</b>	1160±310	60±40	28±40	<24	11±15	<120
<b>Dill, greens</b>	555±160	40±40	<15	7±10	<10	<120
<b>Dill, stalk</b>	680±210	16±30	44±80	12±36	19±45	<130
<b>Parsley, greens</b>	970±210	<20	<12	<10	<7	<50

There are actual to continue the biological monitoring of the natural radionuclids, including  $^7\text{Be}$ , sources intake by humans because the information on dietary composition which available for the average population in North area and for some heightened risk population groups for health (for example, pensioners, who produced the green vegetables in their summer agricultural areas) practically absent today.