

INVESTIGATION OF CHANNELS  
OF Cs-137 AND K TRANSFER FROM SOIL  
TO PLANT UNDER NATURAL CONDITIONS  
WITH OPTICAL AND GAMMA SPECTROMETRY

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S u m m a r y

The aim of this work is to investigate the channels of transfer of Cs and potassium from soil to plants under natural conditions. Different rapidly maturing plants were grown simultaneously at the same experimental sites under natural conditions at the Chernobyl Exclusion Zone. Roots of the plants were side by side in soil. During two seasons, we selected samples of the plants and soils several times every season. After every selection, the contents of  $^{137}\text{Cs}$  and K in the plant and in the soil solution extracted from the samples of soils were measured. Experimental data are analyzed. All the investigated plants at all our experimental sites uptake  $^{137}\text{Cs}$  mainly via low-affinity cation channels at any composition of the soil solution and the soil humidity. The plant uptakes potassium mainly via low-affinity cation channels if the plant has enough potassium. At the potassium starvation, the plant uses also the high-affinity potassium channel for the potassium uptake. There is the high discrimination against  $^{137}\text{Cs}$  in this case.