COMPARATIVE STUDY OF THE RADIONUCLIDE UPTAKE AND DISTRIBUTION WITHIN PLANTS FOR BARLEY AND MAIZE VARIETIES

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Differences in the Cs-134 and Sr-85 uptake by three barley and two maize varieties were investigated in a water culture experiment. The maximum differences were about 30% (for radiocaesium) and 50% (for radiostrontium) for barley varieties. The differences between maize varieties were negligible. The maximum difference between varieties of these two species of crops was approximately 30% for radiocaesium and 170% for radiostrontium with higher radionuclide uptake by maize. All barley varieties accumulate radiocaesium nearly 3.5 times more effectively than radiostrontium, whereas for maize varieties radiocaesium was accumulated about 2 times more effectively. There is a large difference in radionuclide distribution within the plants: the amount of radiocaesium in the green part of plants of both species was approximately 30% of the total, while for radiostrontium it was about 80%. As a result approximately the same amount of these radionuclides were present in the green part of plants, despite the large difference in the uptake of these ra dionuclides by whole plants. It is concluded that crop selection, as a measure to reduce radionuclide contamination of the food chain should not occur without taking into consideration the different radionuclide distributions within the plants.