137Cs and 90Sr radionuclides accumulation by dominants and co-dominants of birch-pine forest communities of the Peucedano-Pinetum association

The accumulation of 137Cs and 90Sr radionuclides by dominants and codominants of pine forest communities in the Chernihiv region (Ukraine) was studied. The studied communities belong to the the Peucedano-Pinetum association. Our studies have confirmed the species specificity of the accumulation of 137Cs and 90Sr radionuclides by plants of biotopes of forest ecosystems. According to the indications of the specific activity of 137Cs, the plants form the following row (as they decrease): Pleurozium schreberi – Ptilium crista castrensis – Pinus sylvestris – Betula pendula – Frangula alnus. The decrease in the specific activity of 90Sr is observed in the following order: Frangula alnus – Betula pendula – Ptilium crista castrensis – Pleurozium schreberi – Pinus sylvestris.

The obtained data on the accumulation of 137Cs and 90Sr radionuclides indicate that the accumulation of 90Sr by plants is less intense than that of 137Cs. In the soils of natural ecosystems, the distribution of radiostrontium is similar to the distribution of radioactive cesium. Nevertheless, 90Sr migrates down the soil profile more intensively and its main part is in the root-bearing soil layer. Therefore, the high bioavailability of 90Sr can subsequently cause significant equal accumulations of it by representatives of the vegetation cover of the forest biocenosis.