

## **Mobility of natural and artificial isotopes in the floodplain biogeocoenose (near impact zone of KMCC)**

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Studies of natural and artificial isotopes' mobility in major components of biogeocenose in close vicinity to Krasnoyarsk Mining-Chemical Complex (KMCC) in so called near impact zone (approximately 25 km downstream of the reactor cooling water discharge point) have been carried since 1997. The study has included various components of floodplain biogeocoenose: water, alluvial soils, sediments, riverside macrophytes, and their rhizosphere.

The specific activities of natural and artificial isotopes of gross rhizosphere and soil samples and in their granulometric fractions and chemical fractions were studied. Main characteristics of the distribution of the specific activities of isotopes with distance from KMCC were revealed. It has been shown that main part of the isotopes concentrated in most fine and most coarse granulometric fractions of the soil and the rhizosphere.

It was shown that isotope <sup>90</sup>Sr is in the most movable form, and it is bonded more strongly by the rhizosphere than by the soils. Isotopes <sup>137</sup>Cs and <sup>60</sup>Co is in the most bonded form in the soil and the rhizosphere. For isotopes Eu and in some degree for <sup>60</sup>Co and <sup>90</sup>Sr affinity with organic fraction were shown. Main part of <sup>238</sup>U and <sup>234</sup>U isotopes were revealed in residuals fractions.

First data of riverside macrophytes chemical fractionation have shown that isotopes in plants are associated significantly with exchangeable fraction, with biomass organic matter, and in less degree with adsorbed fraction.

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