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The relationship of the mobility of Ca and Sr in soils to their content in meadow plants

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Despite the fact that the compounds of strontium have weak toxicity, the high level of this trace element in soil and groundwater is associated with the risk of manifestation of several bone and joint pathologies. The aim of this work was to compare the Calcium (Ca) - Strontium (Sr) relationships in the soil-plant complex of the meadow landscape of East Transbaikalia and to find the peculiarity of connect of the mobility of Ca and Sr in soils and their content in plants. The sampling territory belongs to the forest-steppe areas of the High-Amur Midlands. Calcium and Sr in soils were determined by AAS in flame and electrothermal atomization. The content of this chemical elements in plants (hay harvest) were measured by means of AAS. Methodological aspects of the research are reflected in the publication [1-3]. The results of sequential fractionation of Sr and Ca in 10 soil samples showed that irrespective of soil (the control or endemic areas), the Sr content in soil correlated with the concentration of trace elements in harvests of plants (r = +0,904). This affects the nature of the extraction of Sr from soils with various solvents. In the study of biogenic migration of Sr and Ca in the landscapes of Eastern Transbaikalia found the high positive correlation between concentrations of Sr in plants and the content of trace elements, extractable acetate-ammonium buffer (r = +0,974). For Ca r = +0,711. Strontium is the most intensively accumulated by the leaves of the willow among meadow plants. The obtained data can be used to fast assess the content of Sr in the harvests of meadow plants, which is necessary to determine the ecological status of the territories on Sr level (without mineralization of plant material by means of acids).

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