Distribution of arsenic and uranium between lake waters and sediments in saline lakes in south Mongolia.

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The health risks associated with toxic chemicals in saline lake become environmental problems (Barber et al. 2009). In saline lakes, the dissolved matters are enriched in solutions because of the evaporation of lake water. The enrichments result in the formation of the contaminated lake water and salts deposits containing high levels of the toxic chemicals (Barber et al. 2009).

The toxic elements distribution between the sediments and lake water are essential for the understandings of the enrichment processes and the mobility of toxic species in surrounding environments. In present study, we investigated the distribution processes of arsenic and uranium by analyzing the lake waters, suspended matters and sediments in saline lakes (Olgoi, Boon Tsagaan and Orog lake) in south Mongolia.

The solid and liquid samples from the lake waters were separated by centrifugation. The solid phases were measured by XRD. Morgan and Tao extraction were conducted for solid phases and the extracts were analyzed by ICP-OES and ICP-MS. XRD profile shows that each sample has authigenic minerals, including calcite and Monohydrocalcite. The extraction experiment showed that arsenic and uranium are distributed into calcium carbonates rather than amorphous iron oxide.

