

CONTENT OF HEAVY METALS IN THE SOIL–PLANT SYSTEM ON THE ALAT MUD VOLCANO (AZERBAIJAN)

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The paper presents the results of studying the diversity of plant communities found on the territory of the Alat mud volcano (40°05'2.85" N, 49°1'99.42" E, Azerbaijan), as well as an assessment of the migration of heavy metals in the system of the soil – dominant plant species. In key areas from the top of the volcano to its base, a geobotanical description was carried out using the Brown-Blangued method, dominant plant species and soil samples were selected, including those in the root layer of the soil. The content of Cd, Co, Cr, Cu, Fe, Mn, Al, Ni, Pb, and Zn was determined by inductively coupled plasma emission spectroscopy in soil and plant samples. It has been established that the flora and vegetation of the volcano, in comparison with the surrounding cenoflora, is characterized by a lower species richness (11 species) and taxonomic diversity; the total projective cover in plant communities does not exceed 25%. In the plant communities on the territory of the mud volcano, there are mainly salt-tolerant species belonging to typical halophytes. With an increase from the base to the crater of the volcano, a change in dominants and a change in the phytocenotic role of the species present are observed. In the surface layer of the soil (0–20 cm), the metal concentrations in the key areas are located in a decreasing series: Fe > Al > Mn > Zn > Cr > Pb > Cu > Ni > Co > Cd. Despite the high degree of salinization of the territory of the mud volcano, the concentrations of most metals do not exceed their average content of the Earth's crust, with the exception of Zn and Cd. The dominant plant species [*Caroxylon dendroides* (= *Salsola dendroides*), *Suaeda microphylla*, *Caroxylon nodulosum* (= *Salsola nodulosa*)] are characterized by species specificity in the absorption of the studied metals and are characterized by weak migration of elements from the soil into the plant; the coefficients of biological accumulation do not exceed 0.3, i.e. these species are typical exceptions.

Keywords: mud volcano, heavy metals, biological absorption coefficient, flora, plant groups, saltwort, ephemera

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