

Clay Research, Vol. 40, No. 1, pp. 12-18 (2021)

Taxonomical and Chemical Elements Ecological Groups in Plants of the Aral Sea

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Abstract—Two hundred twenty higher plants were established to naturally occur in the territory of the Southern Aralkum, 130 of them were found for the first time; for some plants chemical elements were quantified. There are 5 rare species in the territory under study, to name *Rosa majalis*, *Tulipabiflora*, *Tulipabuhseana*, *Crambeedentula* and *Artemisia austriaca* and one endemic *Atriplexpratovii*. Concentrations of 38 elements as constituents of 24 plant species belonging to different taxons were measured. Rare earth elements were established to accumulate in the plant organs: rhenium was found in the organs of plants under study. Concentrations of 37 elements as constituents of soil were measured. As a consequence, biodiversity and life cycles in the ecosystem were demonstrated to be in close correlation with changes in amounts of chemical elements in the soil within seasons and years to be regulated by adaption processes. 66 plants widespread in the region were divided into groups by soil texture, by salinity resistance, by sensitivity to water content of the soil and by water requirement.

Keywords: Engymes; geochemistry; major and micronutrient elements; soil-plant species ecology.