

ASSESSMENT OF SELECTED RARE EARTH ELEMENTS, Hf, Th, U IN THE DONETSK REGION USING MOSS BAGS TECHNIQUE

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To assess the accumulation of rare earth elements, Hf, Zr, Th, and U in moss species the active moss biomonitoring technique was applied in the Donetsk region. Moss bags with the *Ceratodon purpureus* and *Brachythecium campestre* species were exposed for six months in the surroundings of two parks, two steelworks, and a power station. The concentrations of 12 elements (Sc, La, Ce, Nd, Sm, Tb, Yb, Eu, Hf, Zr, Th and U) were determined in the moss transplants by neutron activation analysis. The degree of ambient contamination has been studied using the relative accumulation factor, contamination factor, pollution load index and enrichment factor. Geochemical indices –ternary plot of Sc–La–Th, ratios of normalized concentrations of light rare earth elements and heavy rare earth elements, possible anomalies of Eu, and chondrite normalized rare earth element curves were used to prove the geochemical origin of rare earth elements. The chondrite-normalized rare earth element patterns of both moss species showed light rare earth elements enrichment and a negative Eu anomaly.

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