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ASSESSMENT OF THE BIOGEOCHEMICAL STATE OF PLANTS
IN THE GOLD MINING IMPACT ZONE IN EASTERN YAKUTIA

Anna G. Gololobova *

*Institute of Geology of Diamond and Precious Metals,
Siberian Branch of the RAS (IGDPM SB RAS), Yakutsk, Russia*

The influence of anthropogenic factors can lead to disruption of natural flows and redistribution of chemical elements in the environment components. Potentially toxic elements (PTE) enter the environment mainly due to mining activities. And anthropogenic processes leading to environmental pollution run faster than natural ones. At the same time, plants are an integral part of natural and anthropogenic landscapes and the most important link in the biogeochemical cycle of substances. Plants can absorb PTE from the soil, accumulating them in tissues or on the surface of leaves, thus serving as an intermediate link in the “plant–animal–human” chain. Considering the danger of accumulation of PTE by plants, it seems necessary to find out whether the components are present in hazardous and phyto-hazardous concentrations in vegetation. The goal of research is to investigate the characteristics of the content and distribution of PTE in plants in the zone of technogenic impact during the development of mineral deposits using the example of the territory of the license area “Left Khangalas Stream with its tributaries Zimniy and Uzkiy”, located in the Nera-Indigirka interfluve (Eastern Yakutia, Russia). For the biogeochemical characterization of the license area, a total of 33 biosamples were collected during field studies. The sample was based on 8 plant species: larch, Middendorff birch, Siberian dwarf pine, wild rosemary, blueberry, lichen and moss. As a result of biogeochemical characterization, accumulation of P, Mn and Zn was recorded in all types of tested plants. The most effective absorbers are lichen and moss, which can be considered as bioindication objects, and the lowest accumulation is characteristic of lingonberry leaves. High concentrations of trace elements were recorded at monitoring site no 1, namely near the waste dumps.

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* **Corresponding Author:** Anna G. Gololobova, Cand. of Biol. Sci., Laboratory of Geocology and Biogeochemistry, Diamond and Precious Metal Geology Institute SB RAS, Lenin str., 39, Yakutsk, Russia. E-mail: nuta0687@mail.ru