

Determination of dispersion halo of polluting the environment chemical elements with bioindicators

H. HUTSAVA^{1*}, M. BARYSEVICH²

¹Institute of Radiobiology of NAS of Belarus, Fedyuninsky 4, Gomel, Belarus (*correspondence: guzewa@mail.ru)

²Scientific Research Instit. of Fire Safety and Emergencies, Soltysa 183a, Minsk, Belarus (rbic@tut.by)

In connection with the study of environmental pollution with the release of dispersion halos of certain chemical elements and their compounds, bioindication with the use of certain plant species (dominants and edificators) is important.

The possibility of using the bioindication method in assessing the risk of accumulation of heavy metals and radionuclides in various types of biocenoses has been studied. For this, the content of heavy metals was determined in the prevailing plant species of each experimental area. According to the degree of accumulation by plants, metals can be divided into the following groups: strongly accumulated (Fe, Mn, Zn), weakly accumulated (Cu, Ni, Pb), very weakly accumulated (V, Cd, As). Particular interest was the group of highly toxic (Pb and Cd) and radioactive (Sr and U) elements.

Selected plants with a strong ability to accumulate heavy metals. The plants were graded according to the degree of accumulation of metals:

iron (Fe) – *Acer negundo* (402.0 mg/kg);
manganese (Mn) – *Dactylis glomerata* (140.3 mg/kg);
zinc (Zn) – *Acer negundo* (55.4 mg/kg), *Dactylis glomerata* (43.6 mg/kg);
copper (Cu) – *Acer negundo* (16.7 mg/kg), *Dactylis glomerata* (11.8 mg/kg);
lead (Pb) – *Capsella bursa-pastoris* (3.36 mg/kg), *Achillea millefolium* (3,18 mg/kg);
chromium (Cr) – *Taraxacum officinale* (3.18 mg/kg), *Prunus domestica* (2.38 mg/kg);
vanadium (V) – *Taraxacum officinale* (1.03 mg/kg), *Hordeum vulgare* (0.73 mg/kg);
cadmium (Cd) – *Prunus domestica* (0.71 mg/kg);
arsenic (As) – *Acer negundo* (0.063 mg/kg), *Capsella bursa-pastoris* (0.044 mg/kg);
uranium (U) – *Taraxacum officinale* (0.038 mg/kg), *Achillea millefolium* (0.018 mg/kg).

The greatest ability to accumulate strontium, including ⁹⁰Sr, have *Oenothera biennis* (49.9 mg/kg), *Achillea millefolium* (36.7 mg/kg). Lead accumulation by these species is 10 times less.