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### **Soil pollution with heavy metals and *Plantago major L.* on the territory adjacent to airfields**

*The content of heavy metals in soils and medicinal plants which were collected in the territory, adjacent to airfield "Zhulyany" in Kiev region, airfield in Nizhyn, Chernihiv region. Established technological factors concentrations of heavy metals in soil samples and intensity of migration of pollutants from soil to plants using biological absorption coefficient.*

The urgency of the issue of determining the degree of pollution with heavy metals is determined that the pollutants have a negative impact not only on the components of the biosphere, but also on health.

Wild grasses are a valuable natural resource that plays an important role in the functioning of natural ecosystems and are a source of plant food and medicinal plant.

Among the pollutants, which in large quantities released into the environment and can accumulate plants, especially a group of heavy metals because research and resource harvesting plant material must be accompanied by a chemical analysis for contaminants.

For long-acting sources of pollution is a significant increase in gross content of microelements. Soil contamination accumulates while neutralizes the toxins through complicated adsorption processes. The study of environmental pollution toxicants - an important area of research because of accumulation of heavy metals in soil and plants - one of the indicators of air pollution.

To establish the degree of contamination of soils with heavy metals and plantain (*Plantago major L.*) were taken soil samples and plantain leaves. Samples were collected on the territory adjacent to the airport, "Juliani" Kyiv region and Nijinsky airfield Chernihiv region.

Plantain collected on doslidzhuvalnyh territories with the requirements set out in pharmacognosy [1] and methods of sampling of soil and plants [2].

The content of heavy metals (Cd, Zn, Pb, Cu) in soil was determined using 1N HCl in plants - HNO<sub>3</sub> (1: 1) atomic absorption spectrophotometer C-115 [2]. To assess the contamination of soils used technological factor concentration COP [3].

To determine the intensity of migration of heavy metals from soil to plants used for biological absorption coefficient KBP [4].

The analysis of heavy metals in samples of soil and plantain collected near the airport "Juliani" Nijinsky and airfield are shown in Tables 1 - 2.

*Table 1*

Analysis of heavy metal content in soil samples

Place soil sampling	Cu		Zn		Pb		Cd	
	mg/kg	Kc	mg/kg	Kc	mg/kg	Kc	mg/kg	Kc
airport "Zhulyany"	5,37	0,26	12,8	0,26	12,68	1,27	0,34	0,68

Nijinsky airfield	2,4	0,12	19,46	0,4	12,7	1,3	0,17	0,34
Background content	20	–	50	–	10	–	0,5	–
MPC 55	–	100	–	32	–	3	–	

Table 2

*Analysis of heavy metals in samples Plantago major L.*

Place of sampling	Cu (мг/кг)		Zn (мг/кг)		Pb (мг/кг)		Cd (мг/кг)	
	1x	К6П	1x	К6П	1x	К6П	1x	К6П
airport "Zhulyany"	5,93	1,1	27,9	2,1	4,22	0,33	0,6	1,76
Nijinsky airfield	8,34	3,4	28,52	1,4	6,94	0,54	0,52	3
MPC	5,0	–	10,0	–	0,5	–	0,03 –	

Where 1x - element content in ash plants

The research found that the content of Zn, Pb and Cd in soil samples did not exceed the norm. Because Ks calculation found that the figure for Cu, Zn and Cd does not exceed one and varies between 0,12-0,68, that vyuhovuyutsya these elements from the soil. Only Pb COP > 1, and And so is the process of accumulation.

The results showed that the content of heavy metals in plant material exceeds the maximum dopustyni concentration, it indicates a high level of accumulation of metal ions. Heavy metals accumulate in intensity plantain are as follows: Cu > Zn > Cd > Pb. Property plantain accumulate heavy metals can be used as one of the methods phytomonitoring environment.

### References

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