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EFFECT OF HEAVY METALS ON THE HUMAN ORGANISM

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ABSTRACT

The urgency of the problem of environmental pollution with heavy metals is explained, first of all, by a wide range of effects on the human body. Heavy metals affect almost all body systems, have toxic, allergic, carcinogenic, gonadotropic properties.

Keywords: Zirabulak mining enterprises, heavy metals, groundwater, water quality, the impact of heavy metals on the human body, toxicity of metals, sourcesof heavy metals.

Enter: Today, D.I. More than 40 elements in Mendeleev's periodic table with an atomic mass greater than 50: vanadium, chromium, manganese, iron, cobalt, nickel, copper, zinc, molybdenum, cadmium, tin, mercury, lead, bismuth - several dozen metals are included.

Currently, detailed information on the danger class of metals has not been fully studied. Direct transport of many heavy metals to the human body and its effects have been studied, but the mechanisms of migration are poorly understood. the mechanisms of accumulation of heavy metals are also poorly known.

LITERATURE ANALYSIS AND METHODOLOGY

The report of the United Nations Environment Program (UNEP) lists seven metals and three semimetallic elements in the list of the most dangerous heavy metals: copper, tin, vanadium, chromium, molybdenum, cobalt, nickel and antimony, arsenic are seleniums.

According to their danger to human health, heavy metals are divided into the following classes:

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Class 1 (the most dangerous): cadmium, mercury, selenium, lead, zinc;

Class: cobalt, nickel, copper, molybdenum, antimony, chromium;

Class 3: barium, vanadium, tungsten, manganese, strontium [6].

Water pollution is a global environmental problem along with freshwater scarcity. In freshwater basins, the amount of anthropogenic compounds in the water composition is increasing, and their toxicity is manifested even at low concentrations for most hydrobiont organisms. The greatest ecological danger is expressed in the problems of environmental pollution with heavy metals. Even important metals such as copper, nickel, zinc, and cobalt have been found to pose a potential threat to living systems when they accumulate in the water environment [5].

There are some types of plants that absorb heavy metals from the soil at a high level. They are called hyperaccumulators (For example, Thlaspi caerulescens, Cardaminopsis halleri, Alyssum tenium, A. lesbiacum, A. murale). If people use plants in this group as food, certain types of heavy metals accumulate in the human body. This situation is usually only dangerous if the plants are harvested in areas with high concentrations of metals in the soil. The absorption of metals by plants depends on the acidity (pH) of the soil. The higher the acidity, the more soluble and mobile metals are, and the higher the probability of their absorption and accumulation in plants [2, 3].

RESULTS

A number of observations were made in order to study the ways in which the human body can be damaged by heavy metals in the area of mining enterprises in the Zirabulok mountain region.

In these areas, the main sources of heavy metal exposure to the human body are drinking water bodies polluted by mining (quarry or mine) dust and industrial waste. Also, the concentration of heavy metals in the soil and their plants Scientific research is also being carried out on the properties of accumulation in the body. Heavy metals can spread to the environment through industrial wastewater, organic waste, waste incineration, transport and energy waste. Depending on whether they are in the form of gas or particles, they can spread from the source to great distances along the wind direction. Metal pollutant aerosols pass from the air to the ground or fall into water bodies and accumulate on their shores. Thus, the air is also a carrier medium for heavy metal pollution.

In assessing the impact of heavy metals on the environment, including the human body, the study of the impact of Zirabulok mining enterprises shows that today the population of Ingichka is not fully provided with centralized water supply . Water for the population is transported in cisterns from the upper parts of the mountain lake.

The mountain lake is saturated due to underground water and atmospheric precipitation, and its level changes depending on the season. Since the lake is located near the wastes of mining enterprises, it was found that the chemical composition of such waters changes [4].

DISCUSSION

Industrial wastewater containing heavy metals is the main source of heavy metal pollution of the hydrosphere. Another way of their spread is the pouring of drainage (waste) water into water bodies [1].

Table 1. Sources of distribution of some heavy metals (according to Manju Mahurpawar, 2015).

Metal	Asosiy manbalar
Arsenic	Industrial dust, use of polluted water in medicine
Cadmium	Industrial dust, smoke, water and food
Chrom	Industrial dust, smoke and contaminated food
Manganese	Industrial dust, smoke
Lead	Industrial dust, smoke and contaminated food
Nickel	Industrial dusts, aerosols
Tin	Medicines, industrial dust
Mercury	Industrial dust, smoke and contaminated food

Taking into account the climatic conditions of the area (in the case of the researched area), including the wind speed and direction, based on the data presented above (Table 1), it can be said that the production industries are an important source of heavy metals that are dangerous for the human body. and their dust.

CONCLUSION

Pollution of the environment, especially the soil cover, with chemical substances occurs under the influence of various factors, and according to the nature of these substances, radioactive elements,

heavy metals (Cd, Pb, Sr, Ni, Hg, etc.) gases and pesticides fall into the soil cover and exert their influence through the "biochain of life" along the soil → plant → animal → human chain.

In the study of the distribution of heavy metals in the environment, including the ways of their transfer to the human body (in the case of Zirabulok mining enterprises), it was found that industrial waste and their dust play an important role.

In the studied area, there is a landfill of metal enrichment factory (MBF) wastes of the mining industry, which occupies a large area, and their direct effects on the surrounding soils, water bodies, and population centers were evaluated ecologically. According to the distribution of heavy metals in this area, important mining industry wastes → water bodies → human chain, its ecological status was studied (Table 2).

Table 2. Environmental assessment of Zirabulok mining wastes and their impact on water bodies

№	Waste occupied area, ga	Geographic coordinates	Condition, formation	Direct impact on the water basin	Use of water reservoir
1.	± 8,9	N39.746205, E65.980562	Somewhat old, MBF waste	Tangasoy stream	In animal husbandry
2.	± 48	N39.755301, E65.965759	Somewhat old, MBF waste	Mountain lake	In the population water supply, drinking water

REFERENCES

1. Sabine Martin. (2009). Human Health Effects of Heavy Metals. *Center for Hazardous Substance Research*. Kansas State University Issue 15, March. 1-6.

2. Tuxtarov B.E., Abdumuminova R.N., Naimova Z.S., Xakimova X.X., Karimov A.A. (2022). Tuproqni og'ir metallar bilan ifloslanishini ekologo-gigienik jihatdan baholash va uni yaxshilash choralarini ishlab chiqish. *Monografiya*. SamDTU. Samarqand. 120 bet.

3. Каримов А.А., Абдумуминова. (2021). Санитарно-гельминтологическое состояние

открытых водных бассейнов на территориях населения восточного Зирабулака. Р.Н. *FUNDAMENTAL SCIENCE AND TECHNOLOGY. Сборник научных статей по материалам VII Международной научно-практической конференции*. Уфа: Изд. НИЦ Вестник науки, 263-268 ст.

4. Позднякова А.И., Герменчук М.Г. (2017). Некоторые аспекты нормирования тяжелых металлов в почвах на основе зарубежного опыта. *Материалы 17-й международной научной конференции «Сахаровские чтения. Экологические проблемы XXI века»* Минск: ИВЦ Минфина 18-19 мая. 167-168.

5. Шилова Н.А. (2014). Влияние тяжелых металлов на представителей пресноводного фито- и зоопланктона в условиях засоления. *автореф. дис. канд.*Саратов. 16-20.