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CHARACTERISTICS OF SOIL IN THE AREAS ADJACENT TO THE PORTS OF THE BLACK SEA COAST

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Abstract

As a result, over the past half-century technogenesis was "pollution of the biosphere", while accumulating medium has become the soil. If the environmental assessment of the urban area one of the most informative sites is studying the soil cover, accumulating dirt that come over an extended period. The soil is the most sensitive indicator of contamination in the landscape due to its material composition and physico-chemical parameters.

On the territory of the Odessa region, there are 4 major seaports of Ukraine, which are created and improved specialized complexes for processing of iron-ore concentrate, fertilizer and sulfur.

Samples of soil, which took away from the areas of ports Yuzhny, Chernomorsk and Odessa, were analyzed for metals and toxic elements.

Keywords: soil pollution by port territory, toxic elements, heavy metals

Relevance. Increasing concentrations of toxic chemicals in the atmosphere, ground and surface waters in urban vegetation in the end is reflected in urban soils is an important indicator in the landscape occurring geochemical processes.

As a result, over the past half-century technogenesis was "pollution of the biosphere", while accumulating medium has become the soil.

In the abundance of the chemical elements in soils of settlements has had a clear impact human activities. To a large extent influenced processes technogenesis soils increased concentrations of elements such as Zn, Pb and others.

If the environmental assessment of the urban area one of the most informative sites is studying the soil cover, accumulating dirt that come over an extended period. The soil is the most sensitive indicator of contamination in the landscape due to its material composition and physico-chemical parameters. Soil cover acts as a biological sink, a destroyer and a converter of various contaminants. Being at the crossroads of migration routes of pollutants, soil absorb most of aerosols, dust, suspended air particles, therefore characterize the ecological state of the urban landscape. Risk of soil contamination by heavy metals is determined by - the role of the contaminated soil as a source of secondary pollution of the surface air layer and its direct contact with the person; - The significance of the degree of contamination of the soil as an indicator of air pollution; - Epidemiological significance of contaminated soil with heavy metals.

In large cities and industrial emissions as a result of many years of pollutants in the atmosphere around the companies formed an increased soil contamination by heavy metals area.

On the territory of the Odessa region, there are 4 major sea ports of Ukraine, which are created and improved specialized complexes recycling of iron-ore concentrate, fertilizer and sulfur.

Ports as transport companies for handling dust-raising freight from one mode of transport to another, their storage and temporary storage, have a negative impact on the production environment, soil, agricultural land, residential zone nearby localities.

Flows of dust-raising bulk cargoes (coal, sulfur, ores, concentrates, pellets, minerals, fertilizers, etc.), Passing through the ports of Odessa region, regardless of the sender's country, mode of transport delivery, technology overload, warehousing, storage and loading on ships, characterized main feature - a tendency to dusting, which is accompanied by the risk of air pollution, landscape and soil.

Loads are mixtures and complex compounds, many of which have substantial components of pollutants terrain and soil characteristics.

Samples of soil, which took away from the areas of ports Yuzhny, Chernomorsk and Odessa, were analyzed for metals and toxic elements.

Samples were 12 elements, including highly toxic elements (As, Co, Cr, Ni).

The findings suggest that in the analyzed samples indicated concentrations of Ni in excess of 15-35 times Chernomorsk (15,942-35,460 mg / kg), in Odessa - in the 5-15 times (5.654 - 14.190 mg / kg). The increased nickel content in the studied soil samples is due to the proximity of study sites to places overload and storage of ores.

In determining Mn and Fe content in soil samples taken at different points in Chernomorsk, found that their concentration increases as it approaches the loading and unloading area of ore cargoes.

It is particularly important to note that in the analyzed samples revealed very high levels of the toxic element As (arsenic). Some samples of the contents of As and Chernomorsk in Odessa, compared with the standard higher than 1.4 - 2.4 times.

Continued growth in volume gruzopererabotok export-import trade flows exceeding only the ports of Odessa region more than 100 mln. Tons, the emergence of new terminals for transshipment of bulk-bulk dusty cargo leads to the daily, monthly and yearly increase in the degree of human impact on the environment and eco-geochemical field situation. The main pollutants from the atmosphere of the ports and port regions that are suspended particulate-aerozoli, dust of different composition accommodating trace heavy metals gradually settles on the soil of agricultural, recreational and residential areas on the surface of plants.

With bulk cargoes being shipped, transshipped in store, the ports get thousands of tons of dust, including invisible, "flying", and with it - vapor and gases deposited on the dust particles that are harmful to the health of people living near ports.

Conclusions

The study of soils and their chemical composition in areas of active transshipment and bulk of work on the territory adjacent to the port city of Odessa, the Yuzhny and Chernomorsk, has shown that there is accumulation of heavy metals and other polluting elements and substances in the upper layers of the soil, which leads to an increase in the environmental load soil.

Carried out comparative characteristics for real-chemical composition of the soil near port areas of the Odessa region, showing the difference in environmental and geochemical status of port areas, agricultural lands, recreational areas and recreation areas, gardens.

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