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**INVESTIGATION OF THE RAILWAY TRANSPORT INFLUENCE ON THE ENVIRONMENT: INGREDIENT CONTAMINATION**

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Railway transport plays an important role in the economic development of Ukraine. It is the leader of freight transportation. But, on the other hand, the railway influence on the environment includes the following negative aspects: ingredient, biological, biocenotic, parametrical and aesthetic pollution. Railway transport is regarded as a source of such dangerous pollutants as heavy metals and polycyclic aromatic hydrocarbons. The investigation data of the railway haul soils indicate the significant levels of HM contamination, which proves the necessity of developing and implementing the methods of mitigating the railway influence on the environment.

The railway transport influence on the environment includes different types of pollution. Changing the landscape, creating an artificial ballast prism, power lines are considered to be the aesthetic pollution. But this pollution type is impossible to avoid. The parametric one involves the negative influence of noise, vibration, electromagnetic waves and artificial light on both humans and animals. The biological pollution (bacteriological, viral and fungal) occurs as a consequence of the passenger traffic. In addition, railway transport contributes to the introduction of alien and invasive plant species, which leads to a change in authentic phytocenoses, which in turn can cause animals and humans poisoning due to the toxic substances migration in the soil-plant-animal-human system. As for the biocenotic pollution, it is related to the reduction of populations and biodiversity. Fragmentation of wildlife habitat, creation of insurmountable barriers for small animals, accidents with animals on the railway, in addition, the other pollution types result in the long term decline of biodiversity.

The ingredient contamination caused by railway operating can be both organic and nonorganic. Polycyclic aromatic hydrocarbons (PAHs) and heavy metals (HM) are regarded as the most dangerous classes of contaminants related to railways. They have an intense harmful influence on the environment, human and animal health and degrading sensitive ecosystems.

The ingress sources of PAHs in the rail sector are different types of fuels, lubricants, transformer oils. Besides, creosote used for impregnating wood ties is a significant source of PAHs.

As for HM, this class of pollutants doesn't have any currently accepted definition, although the HM term is widely used in scientific circles. HM toxicity degree depends on their concentration, chemical species, exposure routes as well as physical data of exposed organisms. The HM danger is aggravated by their almost indefinite persistence in the environment. They are impossible to destroy, only transform from one oxidation state to another. Therefore, HM pollution poses a great potential threat to the environment and human health. Freight loss and abrasion of metal train units, wheels, brakes, rails, pantograph and overhead system (for example, the brake friction results in the Fe, Cu, Mn, Cr, Pb emission; rails – Fe, Mn; wheels – Fe, Mn, Ni, V) are regarded as the main HM ingress sources. Besides, toxic metals can migrate from both wood and ferroconcrete ties. Ballast beds, herbicides, the substances used for rolling stock operation contain HM. If railway is not electrified the fuel combustion in locomotives is one of the intensive sources of HM.

The investigation data of soils from the two zones of the railway haul between the Diivka and 175 km stations (the Prydniprovsk railway) indicate the significant levels of HM contamination. About 94 passenger trains (43 suburban and 51 long-distance ones) get through this haul per day. Freight trains mainly carry iron and manganese ores, coal, scrap metals, oil and oil-products. The first zone of the haul is curve, while the second one is a straight track. The deference of the two zones allows assessing which track section is more polluted and what factors impact the railway soil pollution. The obtained results prove the necessity of developing and implementing the methods of mitigating the railway influence on the environment. Although the track and verge areas must be clear of vegetation, the transition and exclusion zones are completely suitable for carrying out phytoextraction and phytostabilization. Taking into account that the transition zone should be covered with dense grass, the possibility of sowing ryegrass (*Lolium perenne L*) in this zone was investigated. Ryegrass accumulates HM predominantly in its roots, which makes its shoots environmentally safer as food and habitat for animals and insects living in the immediate vicinity of railways.