ECOLOGICAL ASSESSMENT OF AIR TECHNOGENIC ENVIRONMENT POLLUTION IN DNIPROPETROVSK INDUSTRIAL REGION

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Comparative assessment of maximum one time concentrations and $MPC_{m.o.t.}$ approve air pollution with nitrogen dioxide, carbon oxide, sulphuretted hydrogen and phenol. Atmosphere pollution estimated over average regarding to accepted gradation on index IPA. Joint soil pollution with heavy metals near metallurgical plants assessed as «moderate threatening». The biotesting of the soil samples taken near metallurgical and by-product coke plants in Dnipropetrovsk and Dniprodzerzinsk cities was made. The decreasing in 4-day radish sprouts mass from 15 to 45% was fixed due to biotesting of soil technogenic pollution.

Atmosphere, soils, plants, aerosols, heavy metals, index of pollution, biotesting.

Now there are about 150 substances emitted into the atmosphere from factories and vehicles in large quantities and are regarded as toxicants for the biosphere objects. The main gases and aerosols that have toxic effects on the biological components of ecosystems in industrial regions include sulphur dioxides, nitrogen, heavy metals, etc [1]. The oxidation of SO2 is two ways: 1) using homogeneous reactions in the gas phase with the formation of strong oxidizing agents due to photochemical reactions; 2) heterogeneous, with preliminary absorption drops in clouds, fog, rain and subsequent liquid oxidation. Heterogeneous oxidation is carried out after the diffusion of sulfur angku in aerosol and rain water drops. It passes or catalytically, using metal ion - pollutants (e.g. Mn and Fe). The nitric oxide is oxidized to nitrogen dioxide. Nitrogen dioxide comes in a variety of photochemical reaction and is removed from the atmosphere with precipitation in the form of nitric acid [4].

The most harmful effect of air pollution is observed near sources of emission of fumes and gases. This causes a reduction in growth forest and agricultural plants, deterioration in the quality of food crops.

The most negative consequences associated with loss of man-made dust, which contains compounds of heavy metals are the main factors of soil phytotoxicity [6]. The vast majority of aerotechnology emissions (nearly 80 %) are in the industrial city of Dnepropetrovsk, Dneprodzerzhinsk and Krivoy Rog [1].

The aim of the research is a comprehensive environmental assessment aerotechnology pollution in the area of metallurgical and coke-chemical production cities of Dnipropetrovsk and Dnipropetrovsk.

Materials and methods research. Current information using a network of fixed stations in the cities of Dnipropetrovsk (NAM) and Dnipropetrovsk (RS) fixed laboratory evaluation of air pollution system Rosgidromet. For the assessment of atmospheric pollution laboratory use, rapid and automatic control methods. The data obtained background monitoring of the investigated substances in the atmospheric air are compared by different techniques. Today Dnipropetrovsk regional center for Hydrometeorology conducts sampling of atmospheric air at six fixed stations, Dnepropetrovsk, and four in the, Dneprodzerzhinsk.

Conclusions

1. Comparison of the maximum one-time concentration Gdcm.R. evidence of pollution by nitrogen dioxide, carbon monoxide, hydrogen sulfide and phenol.

2. According to the accepted levels of air pollution index - API rated above average.

3. The indicator Zc contamination of soils with heavy metals near the steel mills assessed as "moderately threatening".

4. Biotesting of technogenic pollution of soils revealed a discount in the mass of shoots of satirically shoots of radish from 15 to 45 %.

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