

VII INTERNATIONAL CONFERENCE

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**«Advanced Agritechnologies, Environmental Engineering and  
Sustainable Development»  
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**«The content of copper and zinc in the natural environment  
components of the park areas of the city of Yelets, Lipetsk region»**

**N V Morgacheva, O A Dubrovina, S V Shcherbatykh and E B Sotnikova**

# Problem statement

The purpose of the work is to determine the content of copper and zinc in the natural environment components of the park areas of the city of Yelets, Lipetsk region.

Research objectives:

1. To select the objects of research.
2. To identify the degree of accumulation of copper and zinc in soil and plants in the park areas of the city of Yelets, Lipetsk region.



# Solution methods

The research was carried out in Yelets on two trial areas (PP): PP No. 1 is forest park area of 29 hectares and PP No. 2 is forest park area of 133ha. PP No. 1 is located within the city limits, from the north-eastern side, experiencing environmental pressure from industrial enterprises and the R-119 Orel –Tambov highway. Forest park zone No.2 is located on the opposite side of the city (in the southwest) in the area of the village of Olshanets, it is characterized by an ecologically clean territory.

Object of research:

The hanging birch (*Betula pendula Roth.*) belongs to the Birch family (*Betulaceae*), is the main forest-forming breed of central Russia.

Creeping wheatgrass (*Elytrigia repens*) grows everywhere on the territory of the Russian Federation.



# Conclusions

1. The database for the ecological and geochemical assessment of the studied territories was formed based on the results of studies of the soil cover of parks and the prevailing tree and plant natural environment components such as the hanging birch (*Betula pendula Roth*) and the creeping wheatgrass (*Elytrigia repens*).
2. Comparative analysis of copper accumulation in the root system of hanging birch (*Betula pendula Roth*) revealed that with an increase in technogenic load basipetal (metal content decreases from leaves to roots) accumulation of copper is observed. With its decrease the differentiation between the accumulation of the element in the leaves and the root system is not so noticeable which is explained by the biological importance of copper for plants and the ability to regulate its absorption. The content of copper in the soil of the analyzed territories is within the MPC.
3. The territory of the park of the 40th anniversary of October is the most polluted with zinc. The highest content of the metal is concentrated in the leaves. The accumulation of zinc in plants is affected, first of all, by the systematic affiliation of the plant.

# Contacts

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