



## **The influence of natural factors on the concentrations of chemical elements in urban soils**

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The statistically treated results of more than 10 000 soil samples analyses for 25 elements were used during the work preparing.

For estimating the total influence of natural factors on the global level we could consider the average concentrations in urban soils (the Clarke numbers of urban soils) with the average concentrations in the Earth crust and Earth soils. The analysis showed the heredity of general properties of elements concentrations from the Earth crust. However the higher concentrations of As, Cd, Cs, Mo, N, S, Ti and V in the soils of cities are explained by the combined effects of processes of soil formation and human impact, and Zn, Pb, Ba, Sr, Ca, Hg, B – by the prevailing human impact.

On the regional level the natural factors influence was estimated by the comparing of soils of cities with the equal technogenic impact and number of population, but located in different geographical and climate zones. The common conformities with law were not found out, but the mentioned factors had an effect on the elements concentrations.

The valuation of natural factors influence in the soils of one city was carried out by comparison the urban landscapes soils, which differ only in one characteristic. Geomorphologic peculiarities had the doubtless influence on the background concentrations of Pb, Sr, Ag, Zn, Yb, Co, Sn, Cr. etc., but in every case the connection of maximum and minimum background concentrations of the specific elements with the certain geomorphologic structures depended on number of building storeys, location of industrial zones, parks, etc.

The certain associations of plants were also affected the background elements concentrations in soils of several cities.

The increased concentrations of elements were more often detected – other things being equal – in the landscapes with mixed decorative fruit and berry plant association (u, Pb, Co, Mn, Ti, Sr), less often – with agricultural fruit and berry plant association (Zn, Ag, Sn, Ba, Cr). In parks with just decorative kinds of plants the increased concentrations of V and Sc were indentified. The traffic intensity could also have some influence in this case.

As can be seen from the above, even in the most technogenic-transformed soils the natural factors have impact on their geochemical characteristic, especially on the global level.

Natural factors, which are changing within one city, have fairly large impact. So that, the geochemical landscapes mapping is necessary for the estimation of urban ecological situation.