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THE EFFECT OF HEAVY METALS ON MITE COMMUNITIES (ACARI- GAMASINA) FROM URBAN PARKS - BUCHAREST, ROMANIA

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Abstract

This paper presents the effect of heavy metal soil pollutants (Pb, Cd, Cu, Zn) on soil mite communities in three urban parks within Bucharest, Romania: Cişmigiu, Unirea and Izvor. For each park, the investigations were based on three transects that were established in relation to the nearest source of air pollution i.e. heavy traffic from the main boulevards. The study was carried out in 2007. 405 soil samples were collected, comprising 14 species of Gamasina. The highest numerical density was recorded in Unirea Park and the lowest in Cişmigiu Park. With reference to measured concentration of heavy metals from soil samples, the concentrations in Cişmigiu Park exceeded the reference permissible values and alert limits (according to National and European legislation) in all three transects. In Unirea Park, these limits were exceeded for Pb concentration in all three transects and for Zn concentration in one of them, transect 3. In Izvor, Pb, Cu and Zn concentrations exceed the reference permissible values and alert limit in transect 2. According to the multivariate analysis, the abundance of mite species was significantly related to humidity, pH, Cd and Cu concentration. pH and soil moisture content were significantly correlated with mite species abundance, the correlation being positive for soil moisture and negative for pH. This analysis indicated a significant negative effect of Cd concentration and a significant positive effect of Cu concentration on mite species abundance.

Key words: mites, pollutant, population, urban

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