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Title: (OA3) Leaves of trees as convenient tools for sampling and evaluation of atmospheric dust-In case study of Tashkent city, Uzbekistan

Abstract: Cities of arid zones are oases as a rule. Urban greenery creates favorable microclimate and purifies environment from dangerous air pollutants due accumulating or including them to one's metabolic processes. Dusty air is urgent problem for these areas. A lot of air solid particles precipitate on leave surface of the plants during vegetation, especially it is concern of tomentous leaves. Performed in Tashkent investigations have shown opportunity of dust content evaluation in urban air applying leaves of trees. Leaves of the plane-tree (Platanus orientalis) were subject of inquiry. Sampling was realized in 12 city points at the same time; the points was conditionally sorted on "residential area", "industrial area", "highway", and the others. Leaves were sampled from lower tier. The time sampling was September, 2003 (to first rains). Specified quantitative and qualitative analysis of dust collected from the leaves was made; dust weight on 1 m2 of leave surface and heavy metal concentration in the dust was measured. Besides, heavy metal concentration and water-soluble mineral content in the leaves was investigated. At the same time air pollutant contents was observed in the same points of Tashkent (in observation posts of State hydro meteorological service). As a result of date analysis: 1. It was revealed similar dynamics of average annual dust contents in the air and dust accumulation on leaves of plane-trees in each investigated point of Tashkent; 2. It was revealed similar dynamics of accumulation of heavy metals in leave tissues, in the dust from leave surface and in solid particles in atmosphere in Tashkent in observed points in the city; 3. It was calculated ratio between heavy metal concentrations in air, in dust on leave surface and in leaves tissues in each investigated point of Tashkent; 4. It was shown missing of correlation between chlorophyll concentration in leaves and heavy metal concentration in leaves or in dust collected from leave surface; 5. It was revealed a correlation between dust quantity on the leaves and ratio of chlorophyll A and B, coefficient of the correlation was 0,707; 6. It was detected that foliage, dust on the trees and atmosphere aerosols contain similar percentage of heavy metals (Pb, Cd, Cu and Zn) in each investigated point of the city. It was concluded that leaves of trees are able to serve as convenient natural tools for sampling of aerosols. At that, information about quantitative and qualitative contents of aerosols is analyzed during the all droughty period of the year, from last spring precipitations to the first autumn rains. Such attributes of places for sampling as long-term missing of atmospheric precipitation and windless weather are mandatory requirement for successful of the investigations.

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