

Selected examples of applications of active moss biomonitoring in air pollution assessment

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The use of biological indicators *biomonitoring) is an alternative method to classical air quality monitoring. The study aimed to evaluate air pollution in urban areas using active moss biomonitoring. The examples involved the analysis of air pollution by elements and polycyclic aromatic hydrocarbons (PAHs). Experiments were performed during the launching of fireworks on New Year's Eve, the activity of a car workshop, the comparison of pollution from the smoke of tobacco products, and long-term biomonitoring.

We used *Pleurozium schreberi*, *Sphagnum fallax* and *Dicranum polysetum* mosses to conduct biomonitoring studies. Analytes were determined by flame atomic absorption spectrometry, inductively coupled plasma mass spectrometry, and gas chromatography-mass spectrometry.

The presented examples indicate the importance of measuring vital parameters of mosses. For elements, the difference in concentrations between environments depends on the type of element and its source. The contamination of PAHs showed a seasonal variation, and the main sources of pollution were road traffic and combustion processes.

Mosses are sensitive biomonitors of point sources of pollutants, emitting heavy metals and PAHs into the air. Human activity indicates the importance of performing biomonitoring studies analyzing air quality, and thus provides opportunities to make the public aware of their impact on atmospheric aerosol contamination.

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