Application of Chemometry to the Comparison of Atmospheric Precipitation Pollution Profiles in Urban and Ecologically Protected Areas**

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Discriminant analysis has been applied to assess a possibility of distinguishing between polluted and non-polluted sites by comparing pollutants’ concentration in rainwater samples. Two discriminant functions related to pH, F, NO₃, K⁺, Cl⁻, and Mg²⁺ were generated. On the basis of PCA results and source apportionment techniques, three major sources of pollutants in two monitored sites (Poznań and Wielkopolski National Park, WNP divided into WNP–P (precipitation) and WNP–T (throughfall)) in central part of Poland have been distinguished. These sites differ in respect to urbanization characteristics. The sources of pollutants in each site have been defined and pollution level has been quantitatively assessed as follows: anthropogenic origin (WNP–P – 23%; Poznań – 55%), soil and dust particles (WNP–P – 35%; Poznań – 10%), sea salt aerosols (WNP–P – 7%; Poznań – 17%). Also chemical composition of the above materials and their contribution to the total contents of cations and anions have been determined by calculating Absolute Principal Components Scores (APCS) and estimating daily variations in mass and concentration. In general, contribution of SO₄²⁻ and NO₃ in the municipal area was twice as high as in the ecologically protected area.

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