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**ABSTRACTS
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HPLC ON THE SHORT NARROW-BORE COLUMN AS METHOD OF SERIAL ANALYSIS. PAH IN THE ENVIRONMENT

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Ten-years experience of application of short narrow-bore column (2x75 mm) HPLC with multiwave spectrophotometric detection on "Millichrom A-02" chromatograph ("EcoNova Ltd., Novosibirsk, Russia) for polycyclic aromatic hydrocarbons (PAH) determination in different environments is summarized in the report. A few problems have been solved during this study:

(i) The following conditions of separation were optimized - a choice of mobile and fixed phases, efficiency and selectivity of the system, method for a sample injection; wave lengths set of detector, metrological characteristics of analyses;

(ii) Criteria of accuracy for peaks identification on chromatograms using two parameters - retention time and integral spectral ratio - were developed;

(iii) Databases of identification parameters based on the external standards were created allowing to work without periodical chromatograph calibration;

(iv) Errors of measurements (total and at different stages) were evaluated;

(v) Sampling method including that for the cases of macro- and micro-heterogenic PAH distribution in the objects under consideration was developed;

(vi) Simple and economical method of samples preparation was proposed.

Based on the systematic studies of the PAH pollution of environmental objects firstly performed in Pribaikalie, the following conclusions were made:

PAH are attributed to the specific micro-components in the aerosol chemistry; a level of PAH concentrations in the aerosol sharply changes seasonally, the total summer to winter PAH concentrations ratio in the aerosol ranges from 15 to 250 (1996-2000); it is revealed that in the cities of Pribaikalie, discharges of small boilers and domestic furnaces burning solid fuel as well as discharges of motor transport, are major contributors to the PAH concentration in the near-ground aerosol; in winter time, when "Siberian anticyclone" is established and PAH discharges are highly accumulated in the atmosphere, there is a reliable relationship between level of PAH accumulation in the snow cover and PAH concentration in surrounding air; according to the level of snow cover pollution, areas of scattering of atmospheric discharges from the industrial centres as sources of PAH emission, are distinguished; based on the results of PAH monitoring in snow cover, waters and bottom sediments of the tributaries of Southern Lake Baikal, possible local PAH transportation on Lake Baikal aquatorium is evaluated.

Complex method of PAH examination is intended for including into the system of chemical monitoring of the Lake Baikal region.