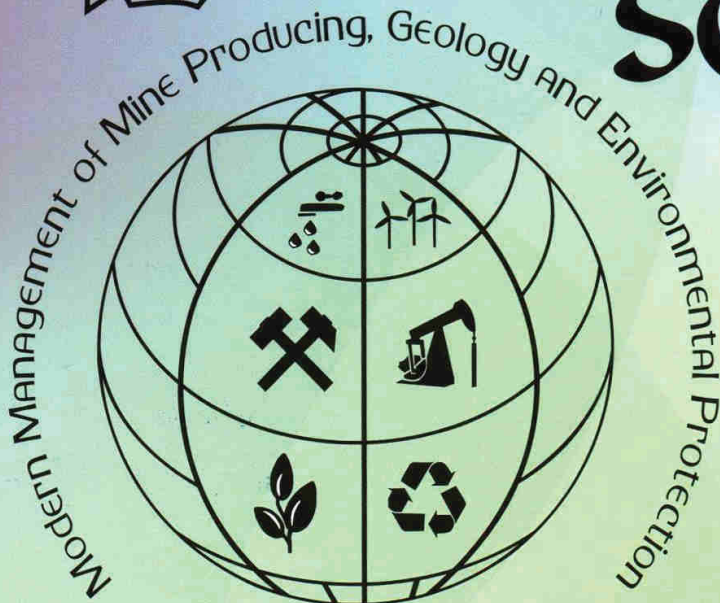


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DETERMINATION OF POLYCYCLIC AROMATIC HYDROCARBONS IN AIR OF ALMATY BY GAS CHROMATOGRAPHY-MASS-SPECTROMETRY METHOD

Nassiba Baimatova, Madi Abilev, Bulat Kenessov

Air pollution in Almaty is one of the major problems of a large and growing city. Poor air quality has a direct negative impact on human health. In general, air pollution consists of particulate matter, BTEX, phenol and its derivatives, and polycyclic aromatic hydrocarbons. PAHs are characterized by their high bioaccumulation capacity, carcinogenic and mutagenic properties. The main source of PAHs in the air is transport (more than 80%). The accumulation of PAHs in air of Almaty is due to poor air circulation because of temperature inversions caused by the location of the city in close proximity to the mountains. It is very important to use powerful analytical tools and techniques when determining a complex mixture of polycyclic aromatic hydrocarbons in ambient air. Gas chromatography coupled with mass spectrometry is one of the most reliable and accurate methods of analysis nowadays. As a result, a method for the determination of PAHs by GC/MS in the air of Almaty, taking into account climatic characteristics of the city, was optimized, recommendations for further monitoring of ambient air in the city to control the content of PAHs were given, and also a quantitative determination of these hazardous air pollutants was carried out.

Keywords: air pollution, polycyclic aromatic hydrocarbons, gas chromatography-mass spectrometry, environmental monitoring