

2<sup>nd</sup> World Congress and Expo on

# Recycling

July 25-27, 2016 Berlin, Germany

## New method for extraction of benzo[a]pyrene from industrial polluted soil

Alina Gimp, Svetlana Sushkova and Tatiana Minkina  
Southern Federal University, Russia

The most significant cancer-causing and mutagenic contaminants group of the environment compounds are polycyclic aromatic hydrocarbons (PAHs). The main marker of soil pollution by PAHs is benzo[a]pyrene. Knowledge of soil contamination with benzo[a]pyrene is needed to minimize the risk of human exposure and environmental contamination. The benzo[a]pyrene content in all environmental matrices and food is under obligatory regulations world-wide. The new method for extraction of benzo[a]pyrene – priority industrial pollutant from industrial polluted soil by subcritical water extraction method from soils is the purpose of the research. Studies were conducted on the soils of monitoring plots subjected to Novochoerkassk Power Station (NPS) emissions. Monitoring plots were established at different distances from the NPS (1.0–20.0 km). It was shown that the use of water in subcritical state as a solvent for benzo[a]pyrene extraction from soil allows to avoid large volumes of organic solvents and to decrease the time of sample preparation. The method of benzo[a]pyrene subcritical water extraction from soil was developed and approved during long-term monitoring researches of technogenic polluted territories. The optimum conditions for benzo[a]pyrene extraction from soil have been determined: The soil is treated by subcritical water at 250°C and 100 atm of pressure for 30 min. Trends in the accumulation of benzo[a]pyrene in soil zones of the thermal power plant influence have been researched over a 4-year period of monitoring observations by subcritical water extraction method. Benzo[a]pyrene accumulation in soils depends on the technogenic emissions to the atmosphere from Novochoerkassk Power Station and on the soil physical and chemical properties.

### Biography

Alina Gimp joined Southern Federal University in 2012. From the first course, she is engaged in research work on studying of accumulation and transformation of organic pollutants in soils and plants. Since 2013, she is a member of the All-Russian Society of Soil Scientists of V V Dokuchayev. In 2014, she is accepted to a position of the laboratory Research Assistant of Department of Soil Science and an assessment of land resources. She has the practical skills of working in field conditions received in expeditions and in the period of field summer as a Practician by methods of sampling of soils, fertilizers, production of plant growing. She is able to use modern field and laboratory equipment. In 2016, she graduated from the university with Bachelor's degree, and she plans to continue with Master's degree in Academy of Biology and Biotechnology of SFEDU.

[gimp1994@mail.ru](mailto:gimp1994@mail.ru)

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