

EMEC 22

22nd European Meeting on
Environmental Chemistry

BOOK of ABSTRACTS

5 – 8 December, 2022,
Ljubljana, Slovenia



Univerza v Ljubljani
Zdravstvena fakulteta



ASSOCIATION OF
CHEMISTRY AND THE
ENVIRONMENT





University of Ljubljana
Faculty of Health Sciences



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Environmental Chemistry**

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**Book of Abstracts: 22nd European Meeting on Environmental Chemistry
5-8 December 2022, Ljubljana, Slovenia**

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**22nd EUROPEAN MEETING ON
ENVIRONMENTAL CHEMISTRY
PROGRAMME**

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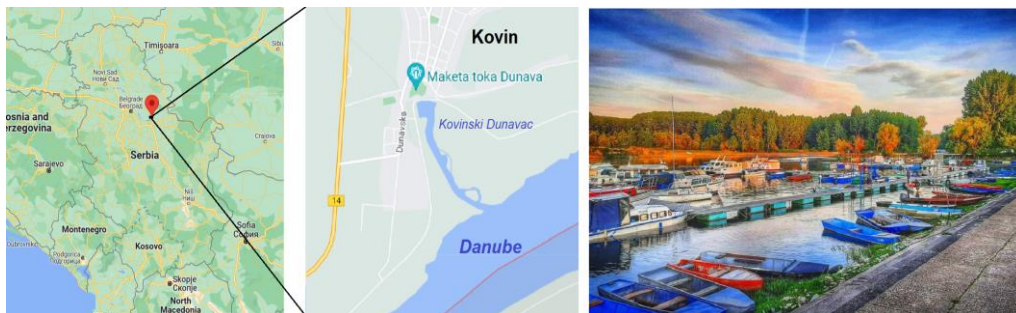
Session Topic	Poster Title	Presenting Author	Board Number
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Occurrence, Distribution Pattern and Origin of Polycyclic Aromatic Hydrocarbons in the River Marina Sediments of the Kovin Dunavac (Kovin, Serbia)

K. Antić^{1,}, I. Kojić², T. Šolević Knudsen¹*

(1) University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Department of Chemistry, Njegoševa 12, 11000 Belgrade, Serbia, (2) University of Belgrade, Innovation Center of the Faculty of Chemistry, Studentski trg 12-16, 11000 Belgrade, Serbia

*katarina.antic@ihm.bg.ac.rs



Kovin is a small city in Serbia, located on the banks of the Danube River, 50 km east from Belgrade. The Danube passes through the municipality of Kovin in a length of 46 kilometres, creating beautiful meanders, river islands and backwaters. An arm of the Danube, Dunavac is a 1800 m long natural shelter for smaller river crafts. This marina has a capacity to accommodate 100 smaller nautical vehicles. Considering the fact that many boats in this marina are using diesel engines, pollution of this small water body with petroleum pollutants is a real threat.

The aim of this study was analysis of the occurrence, abundance, distribution and origin of polycyclic aromatic hydrocarbons (PAHs) in sediments of the Kovin Dunavac.

A composite sediment sample from the Kovin Dunavac was extracted in a Soxhlet apparatus with dichloromethane as a solvent. The extract was cleaned up and fractionated using column chromatography. In the fraction of aromatic hydrocarbons, PAHs were analysed by gas chromatography – mass spectrometry (GC-MS) in a selected ion monitoring (SIM) mode. The ions monitored were: $m/z = 128$ (naphthalene), $m/z = 152$ (acenaphthylene), $m/z = 154$ (acenaphthene), $m/z = 166$ (fluorene), $m/z = 178$ (phenanthrene and anthracene), $m/z = 202$ (fluoranthene and pyrene), $m/z = 228$ (benzo[a]anthracene and chrysene), $m/z = 234$ (retene), $m/z = 252$ (benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[j]fluoranthene, benzo[e]pyrene and benzo[a]pyrene), $m/z = 192$ (methylphenanthrenes and methyl anthracene); and $m/z = 184$ (dibenzotiofene).

The PAHs were quantified against four

perdeuterated PAHs as internal standards, and their concentrations were expressed in mg kg^{-1} of a dry sediment. Using these quantified values, numerous PAHs diagnostic ratios were calculated.

The results showed that the total PAHs were present in a concentration of 2.6 mg kg^{-1} of a dry sediment. Although this concentration was higher than the threshold value for sediments, this result, however, did not indicate a significant pollution of the investigated sediment with PAHs [1].

The PAH profile of the investigated soil sample was dominated by 3-, and 4-ring PAHs. Additionally, parent compounds were more abundant than their alkylated homologues.

Numerous PAHs diagnostic ratio revealed that these compounds in the sample investigated originated from multiple sources. According to these results, it was concluded that the dominant pollution sources of the sediment in the Kovin Dunavac were petrogenic (diesel vehicular source) and pyrogenic (grass, wood, and coal combustion).

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References

[1] RS Official Gazette (2010). The regulation on the program for the systematic monitoring of soil quality, soil degradation risk assessment indicators and methodology for the development of remediation programs (No. 88/2010) (in Serbian).



EMEC22 – 22nd European Meeting on Environmental Chemistry took place in Ljubljana, Slovenia between the 5th and the 8th of December 2022. It was organised by the Faculty of Health Sciences, University of Ljubljana, Slovenia, on behalf of the Association of Chemistry and the Environment (ACE).

This period is traditionally reserved for EMEC conferences – previous conferences took place all over Europe:

2021 Novi Sad, Serbia | 2020 cancelled due to Covid19 | 2019 Lodz, Poland | 2018 Clermont Ferrand, France | 2017 Porto, Portugal | 2016 Inverness, UK | 2015 Torino, Italy | 2014 Brno, Czech Republic | 2013 Budva, Montenegro | 2012 Moscow, Russia | 2011 Clermont Ferrand, France | 2010 Portorož, Slovenia | 2009 Limoges, France | 2008 Girona, Spain | 2007 Inverness, UK | 2006 Brno, Czech Republic | 2005 Belgrade, Serbia | 2004 Bari, Italy | 2003 Plymouth, UK | 2002 Geneva, Switzerland | 2001 Dijon, France | 2000 Nancy, France

The main objectives of EMEC conferences are to bring together scientists, senior and early-career, working in the field of environmental chemistry and related disciplines to report on the latest advances in their fields in the form of oral and poster presentations and rich scientific discussions. Social events between the scientific sessions provide a great opportunity to develop networks among researchers.

EMEC22 included a rich scientific programme, including sessions on Solid matrices, Water, Atmosphere, Sustainable development, and One health. Additionally, social events – Get together, Gala dinner, tours to Bled, Ljubljana and Ljubljana Castle, as well as Early-Career Researcher workshop and social, provided ample opportunity for informal friendly and scientific exchanges, and hopefully long-lasting friendships and collaborations. This Book of Abstracts contains abstracts of works presented in oral and poster presentations at EMEC22, as well as abstracts of renowned plenary speakers and cutting-edge keynote lectures.