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**19th International Conference
on Chemistry and the Environment**
Belgrade, Serbia, June 8-12, 2025

Environmental Chemistry for Sustainability

E-Book of Abstracts

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**19th International Conference on Chemistry
and the Environment - ICCE 2025**

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Published by

Serbian Chemical Society

Karnegijeva 4/III, 11000 Beograd, Srbija

tel./fax: +381 11 3370 467; www.shd.org.rs, E-mail: office@shd.org.rs

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Prepress

Research and Development Centre of Printing Engineering, Belgrade

ISBN 978-86-7132-088-7 (pdf file)

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Dear participants, welcome to Belgrade!

On behalf of the Division of Chemistry and the Environment (DCE) (<https://www.euchems.eu/divisions/chemistry-and-the-environment-2/>) of the European Association of the Chemical Societies (EuChemS) (<https://www.euchems.eu/>), the Serbian Chemical Society (<https://www.shd.org.rs/en/>), and the local organizing committee, it is our great pleasure and privilege to warmly welcome you to the 19th International Conference on Chemistry and the Environment (ICCE 2025).

This prestigious event, which gathers nearly 350 participants from across the globe is hosted by the Serbian Chemical Society with the support of the University of Belgrade and the University of Novi Sad.

At a time when continued scientific progress is essential to ensure a healthy environment and a sustainable future, ICCE 2025 addresses key challenges and emerging developments, advances knowledge and inspires action through the lens of Environmental Chemistry. In addition to the main program running in fourteen parallel sessions, ICCE 2025 will feature four pre-conference satellite events, each dedicated to current research priorities and strategic environmental topics and EuChemS DCE Career Award lecture by Terry Frank Bidleman from Sweden. The scientific program includes seven plenary lectures including two Distinguished Lectures from the American Chemical Society, and fourteen keynote lectures that introduce parallel sessions, comprising 175 oral and 156 poster presentations. A Special Editorial Panel Discussion, with editors from leading international scientific journals, will provide valuable insight into the evolving landscape of scientific publishing.

ICCE 2025 provides an excellent platform for networking, exchange of ideas and collaboration. Our collective mission is to deepen understanding of pollutant's cycling, and their fate and effects in the environment, while advancing pollution prevention and waste management. The latest developments in environmental analysis, pollution monitoring and risk assessment directly impact societal response to environmental challenges, which inevitably focus on various sustainability strategies. To be effective, these responses must be supported by excellent knowledge-based tools and societal inspiration, both offered by ICCE 2025.

We hope that you will not only enjoy the rich scientific program but also take-home memorable experiences from Serbia!

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Acknowledgements

The organizers of ICCE 2025 in Belgrade, Serbia extend their heartfelt gratitude to the many individuals and organizations whose generous support and dedication made this conference possible. We are especially thankful to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, our main supporter, for co-financing the event and helping us bring together the international environmental chemistry community. Our sincere appreciation also goes to all other supporters and sponsors who contributed in various ways to the success of ICCE 2025.

Special thanks to the Evertéa Foundation, which generously provided registration grants to a number of students and early-career researchers from around the world who would otherwise not have had the opportunity to attend. Additionally, the best oral and poster presentations will be recognized and awarded by the Local Organizing Committee, with Springer eBook vouchers as prizes.

Roland Kallenborn, EuChemS DCE Chairman, Antonio Marcomini, previous ICCE 2023 Chairman and Philippe Garrigues, Editor-in-Chief of *Environmental Science and Pollution Research* provided us with valuable guidance in shaping the format and structure of this year's conference in line with the ICCE tradition. The input of all EuChemS DCE members was instrumental in refining the scientific program, selecting invited speakers, and ensuring a robust and fair abstract review process. We deeply appreciate the support of our colleagues from partner associations as George Cobb, John Giesy and Virender Kumar Sharma from Division on Environmental Chemistry of the American Chemical Society (ACSEnv), Roberto Terzano, Hemda Garelick and Melanie Kah from International Union of Pure and Applied Chemistry (IUPAC) and Takeshi Nakano from Japan Society for Environmental Chemistry for helping us to make this event remarkable.

Company "Congrexpo" d.o.o., our professional conference organizer, led by Mrs. Olivera Popović, manages all logistics and technical coordination with dedication and professionalism. The Hotel M team, under the direction of Mrs. Jelena Jakovljević, ensures a welcoming and pleasant experience for all participants in the warm and familiar setting of one of Belgrade's most established congress venues. A very special "thank you" goes to our volunteers Slaven Tenodi, Tijana Marijanović, Sanja Vasiljević, Dušan Rakić, Marija Simić, Katarina Stojanović, Marija Kovačević, Ana Lazić, and Lazar Popović.

We thank all the participants for their oral and poster presentations which make the ICCE2025 shining!

Professor Ivana Ivančev-Tumbas,
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Monitoring and statistical analysis of different classes of contaminants in sediments and biota near the Po Delta

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Pollution from organic and inorganic contaminants is a global problem that damages ecosystems and spreads to all environmental compartments. In recent years, many governments have been interested in climate change and environmental contamination and their effects on human health [1]. One of the latest interventions was the drafting of the Watchlist that includes a greater number of pollutants than all the regulations previously released [2].

In order to assess the possible contamination of transitional waters, this work collected three-year data for different classes of contaminants, evaluating the contamination due to the presence of pollutants in the waters close to the Po Delta. The monitored contaminant classes include polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), organochlorine pesticides and metals (Al, V, Cr, Mn, Fe, Ni, Cu, Zn, Ba, Pb, Hg, Cd and As). The matrices considered to verify the contamination of this area were sediments and biota, which were sampled in coastal and offshore zones in the Northern Adriatic Sea near the Po Delta. Surface sediments were collected within the first 2 cm of the seabed, while the bivalve species *Chamelea gallina* and *Ruditapes philippinarum* were sampled in the coastal zone; *Mytilus galloprovincialis* and *Squalus acanthias* were collected in the offshore zone.

Subsequently, statistical analysis was performed; principal component analysis (PCA) was used to reduce dimensionality and identify key components explaining variability in the sediment and biota datasets. Analysis of variance (ANOVA) was used to assess significant differences between coastal and offshore zones for individual principal components and contaminant concentrations. Tamhane test was used to assess pairwise differences between species and variability in the accumulation of different chemicals.

The results show a statistically significant difference, with higher concentrations of metals and PAHs in the sediments collected from the coastal area, indicating a significantly higher level of pollution compared to the offshore area. A different distribution and composition of PAHs and heavy metals between the two areas also emerged. Furthermore, statistically significant results were found regarding the accumulation of PAHs and metals among the different biota species sampled, with higher concentrations in bivalves than in squalus.

In addition, of particular interest is the evidence of a different bioaccumulation within the same class of molluscs, sampled in different areas, with higher concentrations of PAHs and metals in the coastal areas compared to the offshore areas.

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