
44TH IAD CONFERENCE
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KREMS, AUSTRIA



CONFERENCE BOOK

**Tackling Present & Future Environmental
Challenges of a European Riverscape**

NIEDERÖSTERREICH
Einfach erfrischend.



CONFERENCE MISSION

The 44th IAD conference* is held under the patronage of the Austrian committee of the IAD at the Karl Landsteiner University of Health Sciences in Krems, situated in the beautiful landscape of the Wachau, next to the Danube River. This young university (founded in 2013) has a strong research focus on water quality and health, being a key player in this research field in the Danube River Basin. Here, health is considered in a holistic, transdisciplinary way under the “One Health” concept of the WHO, combining human, animal and environmental health in an ecological context. Thus the conference shall bring together scientists and experts from different disciplines for discussing the present and future environmental challenges of our Danube riverscape.

*This conference was originally planned to be organized by our Ukrainian colleagues at the Institute of Hydrobiology of the National Academy of Sciences in Kyiv, but due to the Russian aggression this became unfortunately impossible. We wish our esteemed colleagues all the best for their future.

TOPICS

- Pollution and health under the “One Health” concept
- Climate change and land-use change impacts on aquatic ecosystems
- Integrated water management – from environmental monitoring to sustainable solutions
- Status and future trends of aquatic species and habitats
- Protected areas and biodiversity conservation
- Floodplain ecology and restoration – constraints and perspectives
- The Human Dimension – rivers as socio-ecological systems
- Riverine landscapes and wetlands
- The Danube River delta and coastal ecosystems

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ISOLATION OF MICROPLASTICS FROM FRESHWATER ASIAN CLAMS *CORBICULA FLUMINEA* (MÜLLER, 1774) IN THE DANUBE RIVER

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During the Joint Danube Survey 4 in 2019, we investigated plastic debris in Danube River, from Germany to the Black Sea (more than 2,000 km of the river stretch). The main aim of the study was to categorize and to quantify microplastic particles in living systems. Freshwater Asian clams *Corbicula fluminea* (Müller, 1774) was used as test organism. Individuals were collected from 23 sites using a hand net (ap. 25 cm× 25 cm, mesh size 500 µm). In order to isolate plastic particles, the samples were digested by alkaline method, using a KOH 10% solution and incubation at 65 °C for 12 h. The digested samples were filtrated through a glass microfiber filters, with 0.5 µm mesh size. Collected particles were photographed and categorized based on the size and coloration. Particles were counted manually, photographed using Nikon SMZ 745T Stereomicroscope and measured in program ImageJ. In 216 examined specimens a total of 1,998 microplastic particles were isolated with an average of 5.59 ± 3.71 fibrils and 4.37 ± 2.46 fragments per organism; or 40.77 ± 73.75 fibrils and 25.84 ± 33.17 fragments per g body weight. Dominant microplastic particles were between 0.4 and 0.5 mm in diameter (characterized as medium-sized), with an average length $0.43 \text{ mm} \pm 0.26$ in the Danube and $0.49 \text{ mm} \pm 0.26$ in the tributaries. In order to confirm chemical composition of isolated microliter, 46 particles of the hard plastic from 14 sampling sites were analyzed using Nicolet iN10 Fourier transform infrared microscope with micro ATR accessory and cooled MCT detector, using 128 scans at resolution of 4 cm^{-1} . Analyses revealed presence of five different types of polymers, with the domination of polyethylene-terephthalate.