

Modern Biotechnologies in the Sustainable Development of the Danube Delta”-STANDArD2, a platform for dialogue and collaboration

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Following the previous editions of the conference “Modern Biotechnologies in the Sustainable Development of the Danube Delta” (STANDARD), organised by the National Institute for Research and Development for Biological Sciences in the framework of the ESFRI pan-European distributed research infrastructure DANUBIUS-RI, whose Hub is located in the Natural Laboratory of the Danube Delta, a new edition—this time under the acronym STANDARD2—was launched as a welcome continuation of this scientific initiative.

The event was organized by the Romanian Society for Bioengineering and Biotechnology (SRBB), founded in 1990 and affiliated with the European Federation of Biotechnology (FEB). STANDARD2 was organized in collaboration with the National Institute for Research and Development for Biological Sciences (INCDSB) and with the support of the Center for Functional Genetics, the Institute of Genetics, Physiology, and Plant Protection, State University of Moldova, Research Institute of the University of Bucharest (ICUB), CRIOMECH S.A., Banca Comercială Română S.A, International Centre for Genetic Engineering and Biotechnology (ICGEB). Hosting STANDARD2 in the area where the DANUBIUS-RI Center Hub will be established represents a symbolic step toward strengthening connections with the global scientific community. The international conference brought together researchers, innovators, and decision-makers to address modern biotechnological solutions dedicated to one of Europe’s most valuable ecosystems. At the same time, it marked the launch of a sustained platform for dialogue and collaboration, intended to support biodiversity protection, stimulate the local bioeconomy, and foster the sustainable development of the wider Danube region.

The Danube River Basin is home to more than 16 million people and spans approximately 2 million square kilometres. It has long served as a vital link across Central Europe and as a frontier between the European Union, the Balkans, and the Black Sea region. The basin is, however, facing pressing environmental and public health challenges. The river is extensively used for drinking water, irrigation, industry, fisheries, tourism, power generation, and navigation, while also receiving significant volumes of wastewater. As a result, water quality and quantity issues have intensified, and the region is experiencing a decline in biodiversity. Similar pressures are evident in the Black Sea, where wastewater discharges, coastal oil pollution, and the erosion of fish stocks and other biodiversity are key concerns.

Recognizing the Danube Delta as a unique European ecological treasure implies acknowledging that its preservation and restoration are matters of shared European responsibility. Damage to its biodiversity is not the result of isolated actions, but of cumulative human impact across the continent.

The themes of the conference reflect the need to deepen cross-border knowledge on complex issues such as climate change, ecosystem degradation, and pollution—challenges that require integrated, multidisciplinary, and transdisciplinary approaches. The five scientific topics addressed were:

1. Biotechnologies in aquatic and terrestrial ecosystems
2. Applied biotechnologies in environmental rehabilitation
3. Interconnections between biotechnologies, human health, natural products, and personalized medicine & nutrition
4. Sustainable development, biodiversity, and bioresources for the bioeconomy
5. Ecosystem status monitoring (including remote sensing, in situ observation stations, platforms, etc.)

These thematic areas aim to advance integrated and transdisciplinary knowledge.

The conference also sought to bring together established experts and early-career researchers, bridging generations to promote the exchange of ideas and good practices, and to inspire new directions in biotechnological research and innovation for the Danube Delta and beyond.