

Dear Readers,

We are delighted to welcome you to this special issue of the *Hacettepe Journal of Biology and Chemistry*. This edition, titled “Breaking Boundaries: Exploring the Next Wave in Advanced CBRN Technologies,” highlights important studies in the field of CBRN research, offering solutions to some of today’s critical challenges.

The field of Chemical, Biological, Radiological, and Nuclear (CBRN) science is advancing rapidly, with significant impacts on global security, healthcare, and the environment. This issue features carefully reviewed articles on topics such as chemical and biological defense strategies, radiological safety, medical solutions, and computational models. These studies underline the importance of collaboration across disciplines to tackle modern problems.

CBRN threats are becoming more complex and varied. Geopolitical tensions, technological advances, and easier access to dangerous materials have increased the risks of chemical, biological, radiological, and nuclear incidents. Whether through terrorism or industrial accidents, strong strategies for detection, prevention, and response are more important than ever. Emerging technologies like artificial intelligence (AI), robotics, quantum technology or nanotechnology are changing how we approach defense. For instance, AI can improve detection and prediction systems, while nanotechnology offers new ways for decontamination and protect against hazards. At the same time, these technologies can also be misused, creating new challenges that require innovative solutions.

We hope this issue will not only inform you but also encourage further research and discussion in the CBRN field. We invite you to read the articles, share your thoughts, and contribute to the future of science and technology. We sincerely thank our authors for their valuable work and our Editor-in-Chief, Deniz Türkmen, for bringing this journal to publication.

Warm regards,

Prof. Dr. Adil DENİZLİ
Dr. Veda DUMAN KANTARCIOĞLU