

## A LIFE DEDICATED TO COORDINATION CHEMISTRY AND SCIENTIFIC CONTINUITY

(dedicated to the Doctor habilitate Ion Bulhac's 80<sup>th</sup> anniversary)

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On May 11, 2026, the scientific community of chemists marks the 80<sup>th</sup> anniversary of Professor Ion Bulhac, Doctor habilitate in chemistry, a distinguished representative of inorganic and coordination chemistry whose scholarly activity has influenced the development of coordination, macrocyclic, and supramolecular chemistry in the Republic of Moldova.

Born on May 11, 1946, in the Racovăț village of, Soroca district, Dr. hab. Ion Bulhac pursued his academic formation with remarkable dedication, graduating in 1968 from the State Pedagogical Institute of Tiraspol, Faculty of Natural Sciences and Geography, with specialization in biology and chemistry. His doctoral studies at the Institute of Chemistry of the Academy of Sciences of Moldova culminated in the defence of his PhD thesis, entitled "Iron dioximines with pyridine and some derivatives" in the field of inorganic chemistry in 1975 at Dnepropetrovsk State University (Ukraine).

In 1980, he was conferred the scientific-didactic title of Associate Professor and in 2000 he was awarded the degree of Doctor habilitate in chemistry for his thesis entitled: "Synthesis, physic-chemical properties and structure of iron, cobalt, nickel, and copper coordination compounds with dioximes", a work that consolidated his contributions to the field of coordination chemistry of transition metals.

Professor Bulhac's scientific career is closely linked to the Institute of Chemistry, where he advanced through successive research positions—from junior researcher to coordinating researcher, principal researcher, and head of the laboratory. Since 2018, he has continued his activity as head of the laboratory of Coordination Chemistry within the Institute of Chemistry of the Moldova State University, ensuring the continuity and consolidation of the national scientific school in coordination and supramolecular chemistry.

His research contributions are primarily situated in the chemistry of transition metal coordination compounds with  $\alpha$ -dioximes, carboxylic acids, and Schiff bases. Among his pioneering achievements is the first synthesis and investigation of iron- $\alpha$ -dioxime interaction products in acidic media, highlighting the



**Doctor habilitate Ion BULHAC**

formation of *cis*- and *tris*-dioximine species. These studies provided valuable insights into the structural and electronic features of iron dioximates and clarified the mechanisms of intramolecular redox processes occurring within such systems.

The scientific interests of Prof. Ion Bulhac extend to the design and investigation of 3d metal coordination compounds exhibiting magnetic, catalytic, and biological properties. His work integrates structural chemistry with functional applications, reflecting a modern approach to coordination chemistry as a bridge between fundamental research and practical utility.

A significant direction of his research concerns the application of coordination compounds as plant growth regulators and modulators of enzymogenesis in lower plants. Under his leadership, numerous compounds have been synthesized and evaluated as stimulators of growth and development in agricultural crops such as garlic, maize, and soybean, as well as regulators in micromycete cultivation. Experimental results demonstrated substantial increases in biomass and yield, alongside enhancement of antioxidant properties in treated plants.

The growth-stimulating and developmental effects on agricultural crops, as well as the antioxidant properties of several coordination

compounds and chemical compositions, including “Polyel,” “Cotidiaz,” “Cobamid,” “Conimid,” “Galmet,” and “Tiogalmet,” among others, have been clearly demonstrated. These findings highlight their practical potential in protecting agricultural crops against drought-induced oxidative stress - a phenomenon that has been occurring with increasing frequency and intensity in the Republic of Moldova. Through their ability to modulate physiological processes and enhance endogenous antioxidant mechanisms, these formulations emerge as promising solutions for strengthening plant resilience under adverse climatic conditions.

Dr. hab. Ion Bulhac has also developed an innovative technology for the neutralization and disposal of oxidizers used in military rockets, thereby contributing to the reduction of environmental risks and enhancing safety in the management of hazardous substances.

The scientific output of Professor Ion Bulhac is impressive: approximately 250 scientific publications, including two monographs, one book chapter, and over 100 research articles-more than 50 of which have appeared in international journals with impact factor. He is co-author of 50 national patents. His inventive activity has been recognized through numerous prizes and medals at national and international exhibitions of inventions and innovations.

His excellence has been acknowledged by prestigious awards, including Prize of the Presidium of the Academy of Sciences of Moldova (1995), National Prize of the World Intellectual Property Organization for Inventors (2023), “Nicolae Gărbălău” Prize of the Academy of Sciences of Moldova (2021–2022), Medal of ASM “Nicolae Milescu Spătaru” (2019), Medal

“Tiraspol State University” (2020), Diploma “Most Active Inventor of the Year 2023” awarded by the Union of Inventors and Rationalisers of the Republic of Moldova “Innovator”.

Beyond his research achievements, dr. hab. Ion Bulhac has devoted sustained efforts to the training of young scientists. As a doctoral supervisor in inorganic chemistry (specialty 141.01), he has guided and co-guided six PhD theses, contributing decisively to the formation of a new generation of chemists and to the perpetuation of rigorous scientific standards within the national academic community.

The career of Professor Ion Bulhac exemplifies the unity of fundamental inquiry, applied research, innovation, and mentorship. His work has strengthened the intellectual infrastructure of Moldovan chemistry and positioned coordination chemistry as a dynamic field capable of responding to contemporary scientific and societal challenges.

At the age of 80, Professor Bulhac remains a symbol of intellectual integrity, scientific perseverance and academic modesty. His life’s work stands as a testament to the enduring value of curiosity-driven research and to the transformative power of chemistry in advancing knowledge and serving society.

On the occasion of his 80<sup>th</sup> anniversary, the members of the editorial board of the Chemistry Journal of Moldova, along with the researchers of the Institute of Chemistry of MSU and colleagues from the laboratory of Coordination Chemistry, express our profound respect and gratitude to Professor Ion Bulhac, Doctor habilitate in chemistry, whose life and work are linked to the development of inorganic and coordination chemistry in the Republic of Moldova.

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