

HISTORY OF THE ECOLOGICAL CHEMISTRY DEVELOPMENT

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The 1980s are marked by the emergence and development of the new scientific directions, in response to progressive industrialization and qualitative and quantitative change of the environment components. The scientific interest of many researchers worldwide was focused on one of them – *Ecological Chemistry*.

Until its inception, there was no scientific field that would comprehensively assess the processes of pollution and self-purification of the environment. The *Ecological Chemistry* as interdisciplinary science appears at the interface of two fields – biology, in particular *ecology*, the science which describe the relationship of living organisms with the environment and *chemistry*, the science concerned with the structure and transformation of substances. The *Ecological Chemistry* is based on analysis of environmental processes from the chemical perspective, while taking into account the anthropogenic impact on environmental components (biota and abiota).

Among the founders of *Ecological Chemistry* could be mentioned Yu. Skurlatov, F. Korte, J. Bockris, A. Sichev, Gh. Duca, M. Bahadir and others. Being pioneers in the absolutely new scientific direction, they came up with different definitions of ecological chemistry and/ or environmental chemistry. Important is that the proposed definitions complement each other.

The scientists Gh. Duca, A. Sichev, S. Travin, Yu. Skurlatov were the first who proposed to title the new direction – *Ecological Chemistry*, following the *Chemical Ecology*, which grounded the creation of the *Ecological Chemistry* with well defined research purposes and directions. Thus, according to the authors, *Ecological Chemistry is the science focused on the research of chemical pollution of anthropogenic origin and the mechanisms of their transformation in the environment*, a definition set out in the paper „Catalytic reactions and environmental protection”, published in 1983. Subsequently, acad. Gh. Duca proposed a complete definition of *ecological chemistry* – „*The science which study the chemical, physico-chemical and biochemical processes that determine the chemical composition of the environment, adequate to their biological value of habitat.*”

In another region of the European continent, *Ecological Chemistry* appears as an interdisciplinary science called *Environmental Chemistry*. Professor Friedhelm Korte, the founder of environmental chemistry domain in Germany, proposed the following definition: „*Ecological Chemistry can be seen as a science of chemical processes and interactions that take place in the environment (ecosphere) and their impact*”. Another scientist, founder of ecological and environment chemistry, Prof. M. Bahadir, interprets this field as „*an interdisciplinary research that deals with the anthropogenic consequences of human interaction with the ecosystem in a chemical aspect.*”

Follow up, the positive dynamic of the *Ecological Chemistry* domain development was observed throughout the world, including the Republic of Moldova. Thus, in 1992 at the Chemical Faculty of the Moldova State University, the new department of **Industrial and Ecological Chemistry** was founded by Acad. Gh. Duca, to train specialists and conduct scientific research in the field of ecological chemistry, chemical technology and environmental protection. Within the 30 years period of the department’s functioning over 1000 graduates for the 3 cycles of studies were trained.

In 2016, under the leadership of acad. Tudor Lupascu, the **Centre of Ecological Chemistry and Environmental Protection** was founded within the Institute of Chemistry, which included four research laboratories: Ecological Chemistry Laboratory; Laboratory of Physico-Chemical Methods of Research and Analysis; Environmental Quality Monitoring Laboratory (GeoLab) and Water Chemistry Laboratory (ILAS).

It should be mentioned that in Russia the *Ecological Chemistry* scientific schools were developed rapidly as well, under the guidance of recognized scientists Prof. Yu. Skurlatov, Prof. A. Purmal, Prof. S. Travin and others. Currently the departments of Ecological Chemistry are established in many higher education institutions, as well as in the specialized research institute in the field, such as Institute of Fine Chemical Technologies "M. V. Lomonosov", etc.

Thus, within the less of half a century, the *Ecological Chemistry* domain has developed rapidly worldwide. Nowadays, numerous departments, research centres and institutes were created in the field in different countries, including Germany, Switzerland, Spain, USA, Sweden, Greece, Japan, Poland, Czech Republic, etc. Taking into consideration the growing impact of anthropogenic pollution to the environment, the *Ecological Chemistry* domain will remain in great demand for many years to come.