



MINISTRY OF EDUCATION
AND SCIENCE OF UKRAINE
NATIONAL UNIVERSITY
OF FOOD TECHNOLOGIES
NATIONAL ERASMUS+ OFFICE IN UKRAINE
EUROPEAN STUDIES PLATFORM



PROCEEDINGS
VI INTERNATIONAL CONFERENCE
EUROPEAN DIMENSIONS OF SUSTAINABLE DEVELOPMENT



MAY 15-17, 2024, KYIV

NANOTECHNOLOGY AS A COMPONENT OF ADVANCED TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT

Vitaly Polishchuk*, Elena Yakhnovska, Svitlana Polishchuk, Svitlana Tsekhmistrenko

Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine

*Speaker: vitnik2007@ukr.net

Nanotechnology plays a key role in solving global problems of sustainable economic development, preserving human health, protecting the environment, and providing the world's population with clean water, food, and effective medicines. Understanding this will facilitate the creation and implementation of new environmentally friendly, resource- and energy-saving technologies, ensure the modernization of the country's economy and the transfer to a modern high-tech path of development of many environmental and environmental problems.

Green technologies and green chemistry hold great promise in addressing these global planetary challenges. This is especially true for the creation of nanomaterials, which have a wide range of applications in various fields of technology, ecology, biology, medicine, agriculture, food industry, etc. (Bityutskyy, 2022; Malik, 2023). In addition to penalties and a ban on the use of a number of particularly hazardous chemicals, attention has increased to the search for less toxic substitute chemicals and alternative energy and resource saving technologies. Moreover, toxicological control of chemicals and materials produced and used was introduced by law. The definition of green chemistry (green technologies) adopted by the scientific community is as follows: "Green chemistry and green technologies are the discovery, development and use of chemical products and processes that reduce or eliminate the use and formation of harmful substances". The definition directly indicates the need to take into account possible negative effects at the stage of creating new compounds, which researchers often did not think about before.

The principles of green chemistry are a philosophy that applies to all areas of chemistry, not just one chemical discipline, and is aimed at preventing pollution at the molecular level. These principles envisage the use of innovative scientific solutions that lead to a reduction in the formation of hazardous substances, as they prevent the formation of pollution, reduce the negative impact of chemical products and processes on human health and the environment, and reduce and even, in some cases, eliminate hazards from existing products and processes.

The application of nanotechnology in various sectors of the economy, ecology, biology, medicine and agriculture is among the most pressing issues in science and technology.

References:

- Bityutskyy V., Tsekhmistrenko S., Tsekhmistrenko O., Demchenko A. (2022). Eco-friendly biotechnology for biogenic nanoselenium production and its use in combination with probiotics in poultry feeding: innovative feeding concepts. International scientific innovations in human life. Proceedings of the 8th International scientific and practical conference. Cognum Publishing House. Manchester, United Kingdom, 13–21.
- Malik, S., Muhammad, K., & Waheed, Y. (2023). Nanotechnology: A revolution in modern industry. *Molecules*, 28(2), 661.