



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



PROCEEDINGS
VII INTERNATIONAL CONFERENCE
EUROPEAN DIMENSIONS OF
SUSTAINABLE DEVELOPMENT



MAY 5-7, 2025, KYIV

CONTENT

ENVIRONMENTAL SUSTAINABILITY	11
<i>Igor Yakymenko, Sergiy Kyrylenko, Anatoli Giritch</i> CURRENT CHALLENGES OF EUROPEAN SUSTAINABILITY AND COMPETITIVENESS	12
<i>Zhanna Klishchova, Carlos Godinho de Abreu, Hanna Laiko, Oleh Primakov, Serhii Mishchenko, Victor Satler Pylro, Sergiy Kyrylenko</i> SOIL MICROBIAL DIVERSITY UNDER CONTINUOUS CULTIVATION OF INDUSTRIAL HEMP (<i>CANNABIS SATIVA L.</i>)	13
<i>Diana Bogueva, Dora Marinova</i> FOOD POLICIES AND SUSTAINABILITY: EUROPEAN LESSONS FOR TRANSFORMING AUSTRALIA'S FOOD SYSTEMS	14
<i>Dmitry Nikolaenko</i> THE LONG-TERM PATTERN OF ECOLOGICAL DISASTERS RESULTING IN CRUCIAL DEPOPULATION OF A ONCE WELL-DEVELOPED AREA (CASE OF UKRAINE)	15
<i>Larysa Gorodianska</i> EUROPEAN PRINCIPLES AND OPPORTUNITIES FOR ENSURING ENVIRONMENTAL SUSTAINABILITY IN UKRAINE	16
<i>Olena Kuznietsova, Mykhailo Baranovskyy, Iryna Korniienko, Larysa Yastremska</i> THE PACKAGING WASTE MANAGEMENT IN THE EU IN THE CONTEXT OF CIRCULAR ECONOMY REQUIREMENTS	17
<i>Vlas Berezovyi, Viacheslav Kharchenko</i> HARMFUL STEREOTYPES REGARDING THE TREATMENT OF GREEN SPACES IN THE SCOPE OF URBAN DEVELOPMENT	18
<i>Oksana Hutsalenko</i> FROM CORPORATE SOCIAL RESPONSIBILITY (CSR) TO ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG): AN ETHICAL RESPONSE TO ECOLOGICAL CRISIS BY UKRAINIAN KERNEL	19
<i>Oksana Salavor, Nataliya Bubliencko, Oksana Nychyk, Yevhen Lukashevich, Yuliya Voytenko Palgan</i> ECO-FRIENDLY PROCESSING OF ORGANIC WASTE IN UKRAINE: POTENTIAL AND PROSPECTS	20

<i>Olena Mitryasova, Vadym Chvyr, Viktor Smyrnov, Andrii Mats</i> EDUCATIONAL COURSE «EUROPEAN GREEN DIMENSIONS» IN PREPARATION OF ECOLOGISTS	21
<i>Svitlana Madzhd, Oksana Nychyk, Igor Yakymenko</i> ENVIRONMENTAL SUSTAINABILITY AS AN INDICATOR OF ECOSYSTEMS RELIABILITY	22
<i>Oleksandr Pylypenko</i> ECOLOGICAL SAFETY OF FOOD PRODUCTS	23
<i>Olena Mitryasova, Ruslan Mariychuk</i> BACHELORS-ENVIRONMENTALISTS EDUCATIONAL TRAINING ON THE EXAMPLE OF UKRAINE AND SLOVAKIA	24
<i>Tetiana Suleiko, Olena Semenova</i> BIOCENOSIS OF AEROBIC ACTIVATED SLUDGE OF THE MAIN STRUCTURE OF THE WASTEWATER TREATMENT PLANT OF A FOOD INDUSTRY ENTERPRISE	25
<i>Yefym Tahizada</i> PRODIGIOSIN: AN INNOVATIVE BACTERIAL PIGMENT WITH UV-PROTECTIVE FUNCTION FOR THE SUSTAINABLE DEVELOPMENT OF COSMETIC TECHNOLOGIES	26
<i>Serhii Yakymenko, Bohdan Pashchenko</i> SMART AUTOMATION FOR LEAN FOOD MANUFACTURING: REDUCING WASTE AND PROMOTING SUSTAINABILITY	27
<i>Yulia Vashchuk, Olena Oleshko, Ruslana Stavetska</i> INTEGRATION OF NATURE-BASED SOLUTIONS INTO URBAN ECOSYSTEMS FOR SUPPORTS THEIR ADAPTATION TO NEW CLIMATE REALITIES	28
ECONOMIC GROWTH FOR SUSTAINABLE DEVELOPMENT	29
<i>Tetiana Sobolieva</i> LEVERAGING INTELLECTUAL PROPERTY FOR SUSTAINABILITY: CHALLENGES AND RATIONALE FOR INTEGRATION	30
<i>Oksana Makovoz, Serhii Makovoz</i> STRATEGIC MANAGEMENT OF SUSTAINABLE ENTERPRISE DEVELOPMENT BY SETTING GOALS	31

<i>Oleg Osadtsiv</i> MANAGING THE IMPLEMENTATION OF THE ESG CONCEPT IN A PHARMACEUTICAL COMPANY	32
<i>Inna Sytnyk</i> DEVELOPMENT OF DIGITAL INFRASTRUCTURE AND ITS IMPACT ON ECONOMIC GROWTH	33
<i>Mykhailo Arych</i> GENETICS IN INSURANCE: IMPLICATIONS FOR LIFE INSURANCE UNDERWRITING IN UKRAINE	34
<i>Larysa Strashynska</i> INNOVATION AS A PRIORITY AREA OF STRUCTURAL POLICY	35
SOCIAL INCLUSION AND PUBLIC HEALTH	36
<i>Iryna Druzhkova</i> INTELLECTUAL PROPERTY AND ACCESS TO MEDICAL INNOVATION – CHALLENGES OF SOCIAL JUSTICE AND SUSTAINABLE DEVELOPMENT	37
<i>Otto Stoyka, Andrij Skipalskyi, Tetyana Bondar</i> THE PROBLEM OF TOBACCO AND NICOTINE USE BY SCHOOLCHILDREN ON THE EXAMPLE OF TEENAGERS IN KYIV	38
<i>Oksana Liashenko, Olga Demianiuk</i> SOCIAL PREFERENCES AND RESPONSIBLE CONSUMER BEHAVIOUR AS DRIVERS OF SUSTAINABLE CONSUMPTION: A BEHAVIOURAL ECONOMICS PERSPECTIVE	39
<i>Olga Kyrylenko</i> HOW A MODERN PUBLIC HEALTH SYSTEM SHOULD WORK TO ACHIEVE THE AMBITIOUS GOALS OF THE AGENDA FOR SUSTAINABLE DEVELOPMENT ..	40
<i>Anastasiia Hirina, Natalia Gregirchak</i> FERMENTED BEVERAGES AS A TOOL FOR SOCIAL INCLUSION AND PUBLIC HEALTH	41
<i>Khrystyna Shevchuk, Olga Kyrylenko</i> PUBLIC HEALTH APPROACHES TO THE PREVENTION AND TREATMENT OF SYSTEMIC DISEASES TO ENSURE SUSTAINABLE DEVELOPMENT OF THE GLOBAL ECONOMY	42

<i>Liliya Morska</i> PEDAGOGICAL ASPECT OF A HIGHER EDUCATION SUSTAINABILITY	43
<i>Iryna Sahaidak, Tetiana Chorna</i> OPERATIONAL CONTROL OF CONSUMER SAFETY THROUGH RAPEX AND RASFF NOTIFICATION SYSTEMS	44
<i>Natalia Zhuravel, Liliya Baranovska</i> AUSTRALIA’S EXPERIENCE IN SHAPING THE QUALITY OF HIGHER EDUCATION FOR THE IMPLEMENTATION OF THE CONCEPT OF SUSTAINABLE DEVELOPMENT IN UKRAINE	45
<i>Iryna Simkova</i> IMPLEMENTATION OF NEURODIVERSITY PARADIGM FOR CLASSES WITH INTERNALLY DISPLACED STUDENTS	46
ADVANCED TECHNOLOGIES FOR SUSTAINABLE DEVELOPMENT	47
<i>Anatoli Giritch</i> EXPANDING THE ARSENAL OF ANTIMICROBIALS: BACTERICIDAL PROTEINS ...	48
<i>Sergiy Kyrylenko, Zhanna Klishchova, Oleh Primakov, Gustavo Henrique D. Tonoli</i> INDUSTRIAL HEMP AS A SOURCE OF NEW NANOMATERIALS	49
<i>Hanna Bondar, Viktoriia Krasinko</i> OPTIMIZED SPECTROPHOTOMETRIC METHOD FOR THE RAPID DETERMINATION OF IRON CONTENT IN YEAST	50
<i>Vsevolod Herasymenko, Viktoriia Krasinko, Margarita Lomborg</i> PROSPECTS FOR USING MEDICINAL BASIDIOMYCETES IN PREVENTING BACTERIAL INFECTIONS AND PROMOTING SUSTAINABLE AQUACULTURE	51
<i>Maksym Kryvosheiev, Roman Hryshchenko, Andrii Forsiuk</i> INTEGRATION OF ESSENTIAL SUSTAINABLE ELEMENTS INTO UKRAINE’S RECONSTRUCTION EFFORT	52
<i>Tetiana Plachynda</i> PROMOTING SUSTAINABLE DEVELOPMENT THROUGH HEALTH-PRESERVING EDUCATIONAL TECHNOLOGIES	53

<i>Yevhenii Shapovalov, Viktor Shapovalov, Stanislav Usenko, Maksym Klymenko, Sergey Zhadan</i>	
INTEGRATING AI IN EDUCATION FOR SUSTAINABLE DEVELOPMENT: INSIGHTS FROM K-12 AND HIGHER EDUCATION	54
<i>Oksana Skrotska, Pavlo Holubiev</i>	
POSSIBILITIES OF USING BAKER'S YEAST <i>SACCHAROMYCES CEREVISIAE</i> FOR GREEN BIOSYNTHESIS OF METAL NANOPARTICLES: INTEGRATION INTO EUROPEAN PRIORITIES OF SUSTAINABLE DEVELOPMENT AND NANOSAFETY	55
<i>Natalia Stetsenko, Galyna Simahina, Iryna Goyko, Alla Bashta</i>	
TECHNOLOGIES FOR AMARANTH COMPLEX PROCESSING FOR THE PRODUCTION OF HEALTHY FOOD PRODUCTS	56
<i>Oleh Vysotsky, Viktoriia Krasinko</i>	
DYNAMICS OF CORN WASTE ENSILING FOR POTENTIAL BIOGAS PRODUCTION: UKRAINIAN AND GLOBAL PRACTICES	57
<i>Viacheslav Shopinskyi, Liudmyla Butsenko</i>	
ANTAGONISTIC ACTIVITY OF ENDOPHYTIC ISOLATE E11 FROM SCOTS PINE SEEDS	58
<i>Natalia Stetsenko</i>	
COMPARISON OF THE BASIC PRINCIPLES OF THE GREEN AND SUSTAINABLE CHEMISTRY CONCEPTS AND THE PRACTICE OF THEIR APPLICATION	59
<i>Alla Bashta, Natalia Stetsenko, Svitlana Bazhay-Zhezherun</i>	
USE OF NON-TRADITIONAL PLANT-BASED RAW MATERIALS IN THE INNOVATIVE TECHNOLOGY OF HEALTH PATE	60
<i>Mykhailo Baranovskyy, Olena Kuznietsova, Larysa Yastremska, Iryna Korniyenko</i>	
CLEANE ENERGY TECHNOLOGIES AND ENERGY EFFICIENCY: THE EU EXPERIENCE AND PROSPECTS FOR UKRAINE	61
<i>Serhii Yakymenko*, Oleksandr Chepeliuk, Maksym Zhukov</i>	
SUSTAINABLE ENERGY STORAGE THROUGH BIOMASS-DERIVED CARBON: A NEW PARADIGM?	62
<i>Yuliia Biliavska, Oleksandra Mykolaienko</i>	
TECHNOLOGICAL INNOVATIONS AS A TOOL FOR MANAGING THE AVIATION INDUSTRY	63

<i>Valentyn Biliavskiy, Daria Horodnycha</i> ARTIFICIAL INTELLIGENCE IN ENSURING A SUSTAINABLE LABOR MARKET	64
<i>Larysa Hopkalo, Liudmyla Bovsh</i> DIGITALIZATION OF HOTEL SERVICES: THE EUROPEAN EXPERIENCE	65
<i>Serhii Yakymenko, Denys Zhukov</i> GREEN-BY-DESIGN: USING DIGITAL TWINS FOR LIFECYCLE SUSTAINABILITY IN INDUSTRY 5.0	66
<i>Svitlana Litvynchuk*, Alina Siryk, Olga Yevtushenko</i> ULTRASONIC PROCESSING OF FOOD PRODUCTS IN COMPLIANCE WITH THE PRINCIPLES OF LABOR SAFETY AS A DIRECTION OF SUSTAINABLE DEVELOPMENT OF THE FOOD INDUSTRY	67
<i>Yevhenii Lazorenko, Tetiana Sylchuk, Vita Tsyruhnikova, Vira Zuiko</i> USE OF MILLET FLOUR IN THE RESTAURANT BUSINESS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT	68
<i>Iryna Korniienko, Olena Kuznietsova, Larysa Yastremska, Mykhailo Baranovskiy</i> THE CIRCULAR BIOECONOMY AND ADVANCED WASTE TREATMENT BIOTECHNOLOGIES IN THE CONTEXT OF UKRAINE’S EU ACCESSION PATH	69
<i>Sofiia Zherdiieva, Viktoriia Khmurova</i> THE ROLE OF DIGITAL PLATFORMS IN THE DEVELOPMENT OF THE CIRCULAR ECONOMY	70
<i>Olha Chekan, Viktoriia Khmurova</i> DIGITAL TRADE AS A CATALYST FOR GREEN ECONOMY TRANSFORMATION ...	71
EUROPEAN STUDIES FOR SUSTAINABLE DEVELOPMENT	72
<i>Igor Yakymenko, Yevhenii Shapovalov, Natalia Hrehirchak, Svitlana Madzhd, Maria Galaburda, Anatoli Giritch</i> EUROPEAN STUDIES ON ACADEMIC PROJECT MANAGEMENT FOR UKRAINIAN PHD STUDENTS	73
<i>Igor Yakymenko, Yevhenii Shapovalov, Natalia Hrehirchak, Oksana Skrotska, Anatoli Giritch</i> EUROPEAN STUDIES ON ENVIRONMENTAL MANAGEMENT AND COMMUNICATION FOR BACHELOR STUDENTS IN ENVIRONMENTAL SCIENCE AND IN BIOTECHNOLOGY	74

<i>Liliya Baranovska</i> EUROPEAN STUDIES ON THE FORMATION OF CRITICAL THINKING FOR THE SUSTAINABLE DEVELOPMENT OF UKRAINE	75
<i>Viktoriia Anishchenko</i> EDUCATIONAL TECHNOLOGIES AND PSYCHOLOGICAL AND PEDAGOGICAL CONDITIONS FOR ENSURING THE QUALITY OF TRAINING OF FUTURE OFFICERS OF THE SECURITY AND DEFENSE SECTOR OF UKRAINE	76
RUSSIAN INVASION OF UKRAINE AS A THREAT TO EUROPEAN SUSTAINABILITY	77
<i>Viacheslav Kharchenk¹, Bohdan Rudyk</i> THE IMPACT OF RUSSIAN AGGRESSION ON THE AIR COMPONENT OF THE ENVIRONMENT	78
<i>Tetyana Dyman, Ruslana Zadorozhna</i> CHANGES IN CONSUMER BEHAVIOR OF UKRAINIAN FOOD MARKET BUYERS UNDER THE INFLUENCE OF THE WAR	79
<i>Oleksii Varypaiev, Andrii Minosian</i> RUSSIAN AGGRESSION AND WESTERN STRATEGY: THE UKRAINIAN DIMENSION	80

COMPARISON OF THE BASIC PRINCIPLES OF THE GREEN AND SUSTAINABLE CHEMISTRY CONCEPTS AND THE PRACTICE OF THEIR APPLICATION

Natalia Stetsenko

National University of Food Technologies, Kyiv, Ukraine

Speaker: stetsenkono@nuft.edu.ua

The growth of global production and use of chemical products increases the risks associated with the adverse effects of hazardous chemicals on human health and the environment. In international practice, there is a shift in emphasis in regulating the circulation of chemical products. The use of administrative methods that require state-level control of the circulation of chemical substances, their mixtures and products derived from them is supplemented by methods to prevent the release of hazardous chemical products onto the market. To this end, preventive measures are being developed that are based on the application of the principles of green and sustainable chemistry, the best available technologies aimed at the sustainable development of industry in the long term.

The scientific direction of "green chemistry" aims to prevent the negative impact of chemicals on the environment and human health at the initial stages of chemical processes by reducing or completely eliminating the use of hazardous chemicals or improving the synthesis processes that produce these chemical substances (Zuin et al., 2021).

"Sustainable chemistry" is a broader concept than "green chemistry" in terms of maintaining a balance between the needs of society in the present and the need to protect the environment in the future. Sustainable chemistry is a scientific concept that aims to increase the efficiency of the use of natural resources to meet human needs for chemical products and services. Sustainable chemistry includes the development, production and use of effective, efficient, more environmentally friendly chemical products and processes. The principles of sustainable chemistry take into account the use of the best available technologies, increasing the life cycle of chemicals used in technological processes, and increasing resource and energy efficiency in order to achieve sustainable development, i.e. a balance between human activity, socio-economic development, as well as natural resources and the ability to restore the natural environment (Blum et al., 2017).

The application of the basic approaches and principles of two concepts – green and sustainable chemistry – in the formation and development of chemistry, chemical technology and other industries is a driver of sustainable industrial development.

References:

- Blum, C., Bunke, D., Hungsberg, M., Roelofs, E., Joas, A., Joas, R., Blepp, M., & Stolzenberg, H.C. (2017). The concept of sustainable chemistry: Key drivers for the transition towards sustainable development. *Sustainable Chemistry and Pharmacy*, 5, 94–104. <https://doi.org/10.1016/j.scp.2017.01.001>
- Zuin, V.G., Eilks, I., Elschami, M., & Kummerer, K. (2021). Education in green chemistry and in sustainable chemistry: perspectives towards sustainability. *Green Chemistry*, 23, 1594–1608. <https://doi.org/10.1039/D0GC03313H>