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Enhancement of Agro Food Chain Byproducts through Innovative and Sustainable Methods
Project Acronym: eAfoBy

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REPORT – THIRD TRAINING FOR STUDENTS

University of Life Sciences "King Mihai I", Timișoara, Romania

Faculty of Food Engineering,

24.10.2025-28.10.2025

The training entitled *Sustainable approaches for agro food chain byproducts enhancement* aimed to develop advanced scientific and technological competencies related to the sustainable valorization of agro-food chain by-products, integrating principles of food engineering, circular economy, industrial processing, product development, and consumer-oriented innovation. Emphasis was placed on the transformation of food waste into value-added ingredients and products, as well as on strengthening academia–industry interaction. At the training, a total number of 25 students from University of Agricultural Sciences and Veterinary Medicine from Cluj-Napoca, Universidade do Porto, Universitat Politecnica de Valencia and from the University of Life Sciences "King Mihai I", Timișoara, Romania, attended. The host of the last students training was University of Life Sciences "King Mihai I", Timișoara, Romania.

The first day was dedicated to the formal opening of the program and to contextualizing the training within the Erasmus+ project framework. After registration and institutional welcome addresses, the host university and the Erasmus+ programme were presented, followed by an overview of the project objectives, training structure, and organizational aspects.

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Scientific activities focused on the concept of "from waste to value," highlighting innovative uses of agro-food by-products as functional ingredients, including extraction technologies and application fields. Additional lectures addressed sustainable processing strategies for fruit and vegetable residues in food systems. The program also incorporated a cultural visit to facilitate social integration and intercultural exchange. The day concluded with an academic discussion session summarizing key concepts and methodological perspectives.

The second day combined academic and industrial learning environments. Participants visited the "Coriolan Drăgulescu" Institute of Chemistry of the Romanian Academy in Timișoara, gaining insight into analytical research capabilities relevant to food and by-product chemistry.

This was followed by an industrial visit to the FORNETTI production facility, where large-scale bakery manufacturing and waste management practices were observed. In the afternoon, a practical laboratory session focused on the valorization of agro-industrial by-products and on the physico-chemical characterization of newly developed food products in the Meat Products Laboratory. The day ended with a structured discussion on technological feasibility, quality parameters, and food safety considerations.

The third day emphasized hands-on training and socio-economic aspects of sustainability. In the morning, participants conducted practical activities in the Bakery and Pastry Laboratory, focusing on the incorporation of by-products into food formulations and on process optimization.

In the afternoon, theoretical sessions addressed circular economy principles in the agro-food sector, consumer perception of upcycled products, and emerging market trends. These activities enabled participants to link technological innovation with consumer acceptance and market viability. The day concluded with analytical discussions regarding barriers and opportunities for sustainable food innovation.

The fourth day was dedicated to field visits outside Timișoara. Participants traveled to Alba County to visit "Ferma cu Omenie" in Unirea and "Moara lu Vesa" (S.C. Transeuro SRL, Ighiu), facilities representing agricultural production and cereal processing.

These visits provided direct exposure to raw material sourcing, by-product generation, and potential valorization routes in regional food chains. The day concluded with the return to Timișoara and informal technical discussions on industrial scalability and sustainability challenges.

The final day focused on advanced technologies for by-product valorization, including green extraction techniques, fermentation, stabilization methods, and smart packaging solutions. A formal evaluation of the participants' acquired knowledge was conducted, followed by a closing session and structured feedback collection.

This day marked the consolidation of theoretical understanding and practical competencies developed throughout the training period.


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