

CENTER OF SCIENTIFIC RESEARCH OF ENVIRONMENT, FOOD AND HEALTH SAFETY- PHYSICAL-CHEMICAL ANALYSIS - CCESMAS-Phys-Chem

Contact details

Name	Center of Scientific Research of Environment, Food and Health Safety- Physical-Chemical Analysis	
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Areas of expertise

Food safety and quality: • Food control; • Functional food; • Food packaging
Environment: • Environment monitoring: wastes, organic and inorganic pollutants from different matrices • Recovery of valuable metals from different wastes (including the mining waste water)
Science of material: • Nanomaterials based on titania, silica and noble metals: preparation, characterization and applications in depollution, recovery of metals, self-cleaning, food preservation, food packaging, etc...
Chemometry: • Statistically processing of the experimental data; • Mathematical modelling of experimental data

Team

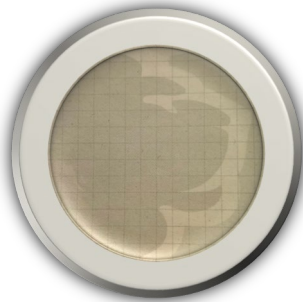
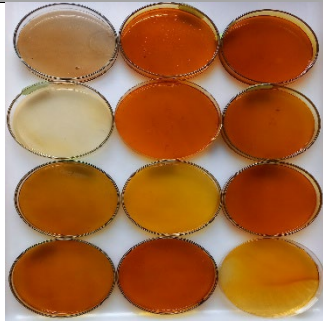
Prof. dr. Anca Mihaly Cozmuta (coordinator), Prof. dr. Anca Peter, Associate Prof. dr. Camelia Nicula, Associate prof. dr. Leonard Mihaly Cozmuta, PhD students: Pop Lucica, Uivarasan Alexandra, Pintilii Cristina, Cosma Adrian

Representative projects

Title: *Demonstration of innovative functional food production systems based on a sustainable value chain of marine and freshwater raw materials for conscientious European consumers – NOVAFOODIES*, Project code: 101084180
Time range: 2023 - 2026
Programme: Type of action: HORIZON-IA; Type of model grant agreement: HORIZON Action Grant Budget-Based (HORIZON-AG), HORIZON-CL6-2022-FARM2FORK-02-two-stage; Topic: HORIZON-CL6-2022-FARM2FORK-02-05-two-stage; Type of action: HORIZON Innovation Actions
Responsible from TUCN: Prof. Anca Mihaly Cozmuta

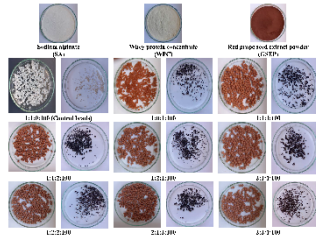
Significant results

Active packages for food industry



Edible films with antioxidant and antimicrobial properties

Functional food



Encapsulated red grape seed powder

Marine biomass-based food products (NOVAFOODIES project, 101084180)

The most representative publications of the past 5 years

1. C. Pintilii, M. Baia, E. Alexa, K. Magyari, I. Botiz, M. Muresan-Pop, L. Barbu-Tudoran, C. Nicula, A. Peter, Z. Szak'acs, A. Mihaly Cozmuta, L. Mihaly Cozmuta (2025). Comparative study on starch and protein secondary structures in brown, red, and black rice influenced by microwave treatment. *Food Chemistry: X* 32 (2025) 103224. <https://doi.org/10.1016/j.fochx.2025.103224>.
2. L. Mihaly Cozmuta, A. Peter, C. Nicula, A. Uivarasan, Z. Szak'acs, S. Scarfi, M. Moussa, S. Mirata, P. Fajardo Bern'ardez, S. Baldassari, G. Drava, A. Mihaly Cozmuta (2025). Influence of Alaria esculenta powder on sensory acceptance, nutritional aspects, and staling of wheat bread. *Future Foods* 12 (2025) 100805. <https://doi.org/10.1016/j.fufo.2025.100805>.
3. L. Mihaly Cozmuta, A. Peter, C. Nicula, A. Jastrzebska, M. Jakubczak, M.A.K. Purbayanto, A. Bunea, F. Bora, A. Uivarasan, Z. Szakacs, A. Mihaly Cozmuta (2025). Exploring the impact of microwaves, ultrasounds, UVA light, and X-rays on polyphenols in alginate–whey protein matrix–encapsulated red grape seed extract powder. *Applied Food Research*, 5, 100658. <https://doi.org/10.1016/j.afres.2024.100658>. WOS:001398499500001.
4. Anca Peter, Lucica Pop, Leonard Mihaly Cozmuta, Camelia Nicula, Anca Mihaly Cozmuta, Goran Drazic, Klara Magyari, Marieta Muresan-Pop, Milica Todea, Lucian Baia. Beeswax-poly(vinyl alcohol) composite films for bread packaging. *Food Chemistry: X* 24 (2024) 102053. <https://doi.org/10.1016/j.fochx.2024.102053>.
5. Pop, L.M.; Mihaly Cozmuta, A.; Nicula, C.; Mihaly Cozmuta, L.; Peter, A. Attempts to Obtain Material Based on Polyvinyl Alcohol with Barrier Properties against Water Vapor. *Appl. Sci.* 2024, 14, 4310. <https://doi.org/10.3390/app14104310>
6. Mihaly Cozmuta A., Purbayanto M.A.K., Jastrebska A., Peter A., Nicula C., Uivarasan, L. Mihaly Cozmuta (2023). Thermal stability and *in vitro* digestion of alginate–starch–iron beads for oral delivery of iron, *Food Hydrocolloids*, 108808. <https://doi.org/10.1016/j.foodhyd.2023.108808>. WOS:000999654300001.
7. Anca Peter, Leonard Mihaly Cozmuta, Camelia Nicula, Anca Mihaly Cozmuta, Goran Drazic, Antonio Peñas, Stefania Silvi. (2023). Recovery and characterization of nano-Ag-graphene-TiO2: Active compound from polylactic acid (PLA)-based film. *Journal of Polymers and the Environment*. <https://doi.org/10.1007/s10924-023-02995-8>. WOS:001031323200002.

Patent:

Methods to obtain intelligent packages containing nano-structured materials used in food preservation -European patent, filing No. 1023377/ 28.08.2015

The offer addressed to the economic environment

Research & development	Physical-chemical control and expertise of food; Food packaging; Food adulteration; Functional foods; Nanomaterials: preparation, characterization, application; Recovery of valuable metals (Au, Ag, Cu) from wastes;
Consulting	Technologies for remediation of polluted soils; Technologies for recovery of valuable metals from wastes (Cu, Au, Ag); Food packaging; Food quality and safety;
Applied engineering services	Technologies for remediation of polluted soils and recovery of valuable metals from wastes (Cu, Au, Ag); Physical-chemical analysis of solid and liquid samples; Analysis of mineral elements in different matrices
Training	Operation of analysis equipment (FTIR, TOC, Analyst Perkin Elmer 800); Statistically processing of experimental data;

Last updated: January 2026