Organisation

Faculty of Food Science and Engineering

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Expression of interest

of Dunarea de Jos University of Galati, Faculty of Food Science and Engineering to join a Consortium on HORIZON EUROPE calls

HORIZON-CL6-2024-FARM2FORK-01-2 New healthy and sustainable food products and processes

Organization details:

Country: **Romania**

Name of the organization: Faculty of Food Science and Engineering, Dunarea de Jos University of Galati, Romania

Short description of the organization

"Dunarea de Jos" University of Galati (UGAL) is ranked the most important institution for higher education in the South-East of Romania and has been nationally and internationally acknowledged since its foundation, in 1948 (https://www.ugal.ro/).

With a strong food engineering core and a long- standing tradition in food research, the **Faculty of Food Science and Engineering (FFSE)** dates from UGAL`s early beginnings, and it has been educated students for more than 70 years (http://www.sia.ugal.ro/).

The Faculty of Food Science and Engineering (FFSE) is one of the most prestigious faculties within the "Dunărea de Jos" University of Galati, recognized for its academic performance and its research, development and innovation activity. FFSE has maintained its place in the elite of the currently existing faculties in Romania, as the main provider of education and research in the fundamental field of Food Engineering and related fields (biotechnology, nutrition, aquaculture).

In accordance with the mission of the "Dunărea de Jos" University of Galati, the assumed aim of FFSE is to generate and transfer knowledge to society, through a continuous training at the university and postgraduate level, in order to meet the expectations of the socio-economic environment for certain skills and knowledge, as well as the dissemination of results at a regional, national and international level.

The academic activity is carried out in accredited fundamental fields for all the bachelor's, master's and doctoral programs developed within the faculty. FFSE has all the necessary resources (modern infrastructure, material and human resources) to support the academic performance and scientific research through two research centers, ranked at the institutional level in the excellence research units category, namely the Integrated Center for Research, Expertise and Technological Transfer in Food Industry (BioAliment-TehnIA) and the Romanian Center for Modelling Recirculating Aquaculture Systems (MORAS).

At this moment, the research, innovation and development strategy it takes shape in implementing of 4 international projects, 8 national projects and 4 research projects with the private sector.

The abovementioned projects are focused on assessment of the process-structure-function-products relationship of targeted biologically active compounds, intrinsic indicators to quantitatively evaluate the impact of physical preservation/processing techniques in terms of food safety and functionality, valorisation of highly nutritional and functional by-products from food industry, microencapsulation of active ingredients and application of microencapsulation for the safe delivery of bioactive in food system. The approaches are oriented to include and/or reintegrate specific novel ingredients to improve one's (physical) health or reduce the risk of disease, thus developing engineered functional foods or food items. One of the important project developed by FFSE is entitled *Novel transition from probiotics to metabiotics - New emerging concepts for food functionalization as a health promoting strategy* (acronym Biotics+), financed by *The Executive Agency for Higher Education, Research, Development and Innovation Funding*, within The National Research, Development and Innovation Plan 2015-2020, Program 4 - Fundamental and Frontier Research (www.biotics.ugal.ro). Biotics+ aims to adopt complex exploratory research, enabling the development of **tailored functional foods,** based on paraprobiotics, thus contributing to food functionalization. At scientific level, Biotics+ exploits new emerging concepts, such as paraprobiotics and postbiotics, to refer to the non-viable microorganisms or metabolites able to provide physiological health benefits to the consumers. Biotics+ ambition is to extend the paraprobiotics application in foods as functional ingredients, providing several advantages during the industrial handling and commercialization, including the possibility of being added to certain foods considered stressful to probiotics survival, thus, contributing to the expansion of the tailored functional foods market. In this context, a new generation of the functional fermented foods (dairy and bakery) are proposed to be obtained with the paraprobiotics and postbiotics as ingredients.

Contact person:

The contact person short description and contact details: **Nicoleta.Stanciuc@ugal.ro.**

Nicoleta Stănciuc is involved in research activities revolve around three key interrelated research lines:

(i) process structure relationship related to structure bioengineering, with the main aim to find answer to question on how food structures can be generated and maintained;

(ii) process-structure-function-food quality related relationship, based on inactivation/degradation kinetics for food quality and safety design, based on investigating the influence of the industrial processes parameters on biochemical, chemical and physical food quality aspects during processing and shelf life;

(iii) process-structure-function-product-health relationship, based on *in silico* and *in vitro* digestion and bio-accessibility studies, based on how food structure can be engineered to influence/optimize nutrient bio-accessibility and digestion. Therefore, Nicoleta Stănciuc was involved in projects related to process-structure-function-food quality-health related relationship of selected plant and animal derivate bioactive compounds. The research and managerial skills were constantly improved during the past years, by being involved in different national and international research projects as project leader or team member. Since 2006, Nicoleta Stănciuc has been involved in collaborative projects merging food science, functional foods, food safety and food quality, traceability and biochemistry. She is member in different professional associations, such as Romanian Dairy Industry Association, Association of Specialists in Applied Biotechnology.

Scientific achievements of contact person:

Nicoleta Stănciuc research, development and innovation activity has allowed the publication of a number of about 100 scientific papers in Web of Science Core Collection, 4 book chapters in international publishing houses. As contact persona, Nicoleta Stănciuc will bring valuable added value by creating several independent research cores, at the level of Integrated Center for Research, Expertise and Technological Transfer in the Food Industry (https://www.unicer.ugal.ro/index.php/en/about-tehnia).

a.1 Previous projects related to the present proposal

2021 – The National Research, Development and Innovation Plan 2015-2020, Program 4 - Fundamental and Frontier Research, Project 159/2021 - Novel transition from probiotics to metabiotics - New emerging concepts for food functionalization as a health promoting strategy (acronym Biotics+) (www.biotics.ugal.ro).

2018-2020 PN-III-P1-1.2-PCCDI-2017-056, 10PCCDI/2018, project 3-4 Life - Tribiotic products - probiotic, prebiotic, postbiotic - with multiple uses, obtained from vegetables by-products

2015-2017 - PN II-RU-TE-2014-4-0115 - Functional composites based on whey protein and vegetable extracts for food applications.

a.2. Books and chapters

Stănciuc, N., Aprodu, I., Râpeanu, G. (2020). Preservation of Anthocyanin-Rich Extracts: Encapsulation and Related Technologies. In: Anthocyanins: Antioxidant Properties, Sources and Health Benefits, Edited by Paulo Munekatao Francisco J. Barba, Jose M. Lorenzo, Nova Science Publishers, Inc., NY, USA. In press.

Aprodu, I., Dumitrașcu, L., **Stănciuc, N.** (2018). Thermal Stability of Carotenoids-α-Lactalbumin Complex, Reference Module in Food Science, https://doi.org/10.1016/B978-0-08-100596-5.22422-0.

Stănciuc N., Râpeanu G., Aprodu, I. (2018). Tailoring the Functional Benefits of Whey Proteins by Encapsulation: A bottom-up Approach. In Deepak Kumar Verma, Ami Patel and Prem Prakash Srivastav (Eds): Bioprocessing Technology in Food and Health, Apple Academic Press, Inc.

Râpeanu G., Bahrim G., **Stănciuc, N**. 2014. Microorganism Metabolic Activity Stimulation by Polyphenols, In Watson, R.R., Preedy, P.R., Zibadi, S. (Eds.), Polyphenols in Human Health and Disease, Academic Press, Elsevier, London, NW1 7BY, UK (ISBN: 978-0-12-398456-2), pp. 513-522.

Scientometric indicators: Hirsch index **23**, ORCID ID: https://orcid.org/0000-0002-4763-8656

www.brainmap.ro: (UEF-ID):U-1700-039F-0579.

Possible main contributions of organization to the project proposal

Nicoleta Stănciuc and her reseach team may be involved in:

A. increasing food systems sustainably whilst reducing waste and limiting environmental impacts, by implementing technological solutions for managing the agro-food by-products, thus improving the quality of life, by introducing the concept of sustainable *food you can trust* and encouraging sustainable consumer behaviours and food choices.
B. Reintegration of bioactive compounds by enabled-processes to produce functional composites;
C. Tribiotication of food in transition: novel strategies to develop innovative, technology driven foods through introducing new approaches based on valorisation of probiotics, prebiotics, and postbiotics valuable potential;
D. Developing strategies for beneficial health effects by implementing technology-driven solutions and introducing the concept of *tailored functional foods*, while encouraging sustainable consumer behaviours and food choices.

Specific expertise relevant to the call topic

The list of research team in the field of functional foods is: Nicoleta Stănciuc, Gabriela Bahrim, Iuliana Aprodu, Daniela Borda, Liliana Mihalcea, Aida Mihaela Vasile, Leontina Grigore Gurgu, Carmen Chitescu, Loredana Dumitrașcu, Mihaela Cotârlet, Elena Enachi, Ștefania Milea, Nina Nicoleta Condurache, Bogdan Păcularu-Burada, Oana Viorela Nistor, Doina Georgeta Andronoiu, Dănuț Gabriel Mocanu. The structure of the team consists of experienced scientists, researchers, PhD and postdoctoral students, technical and administrative staff, as well as early-age researchers. The project team is built on a pyramid type, taking into account individual expertise and skills, including a work packaging responsible, senior researches, postdoc, PhD and master students.

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