



Gentle processing and zero waste

Towards gentle processing and zero waste: better preservation of nutrients and micronutrients

The FoodNexus project 'Gentle processing and zero waste' will focus on improving the European food industry's ability to re-engineer food unit operations by combining novel technologies in a smarter way. Through smart, gentle processing, the food industry can secure more high-quality final food products in which sensory attributes, biological preservation and nutritional benefits from the raw material are kept while the use of resources (e.g. water, energy, raw materials) is minimised.

SUSTAINABILITY THROUGH MILD PROCESSING

The FoodNexus consortium is established to ensure leadership in the change towards a food system prepared for common challenges, one of them being food security and sustainability.

When food is processed (e.g. is exposed to high temperatures), the raw products' sensory attributes and beneficial nutrients can be damaged. At the same time, food processing risks using excessive resources such as water and energy, as well as creating unwanted or unused side-streams. Industrial food processing thereby provides an opportunity for improving the food system's sustainability footprint.

NATURAL FOOD PRODUCTS

Gentle processing takes the approach of mildly generating fractions from plant-based raw materials, to optimise the individual components and maximise their functionality. This allows the nutritional benefit of ingredients in the food products and the sensory attributes of the raw material to be preserved, which equally is living up to the consumers' increasing demand for high quality, natural food products they can trust.



USING ENABLING TECHNOLOGIES IN A SMARTER WAY

The introduction of technologies such as 'Internet of Things', robotics, micro- and nanotechnologies, biotechnologies (KET) all along the food chain provides opportunities for food process innovation and represents a paradigm shift in the food production system. In this project, novel enabling technologies as well as technology will be combined and applied to food processing across the food system.

THE PROJECT'S OBJECTIVE

The final objective is to carry out re-engineering of food unit operations and processes combining new technologies in the right way, and thereby improving ingredients and final food products' expected functions (technical functionalities, sensory attributes, biological preservation, nutrition composition) while adding new value to co-products and reducing industrial and domestic waste. The project will lead to prototypes of a new generation of foods, ready to be tested for consumer acceptance.

READY-TO-GO PROJECT # 1

THE PROJECT'S ACTIVITY

Within the mild processing area, several sub-areas need to be addressed ranging from mild separation technology development to component functionalisation in complex mixtures to predicting product generation from these complex mixtures. From there, the aim is to generate separation technologies based on mild and natural processes (e.g. water-based or physical processes), and mild processing steps that maximise the functionality of each of the components present in the plant-based extract (colour, taste, structure, preservatives, etc.). Another action will be to build large datasets of product characteristics from whole-plant structured products. These datasets will then be analysed and

modelled such that we can build understanding on how to generate products from non-refined starting materials in a robust and sustainable manner.

- At the first stage, the project will work within the field of seeds and grains while the ambition is to expand the knowledge generated to other agricultural raw material areas.
- In March 2017, the project obtained seed funding from FoodNexus and is engaging with other external funding agents. The project is expected to deliver its first results already within 2017.



FOODNEXUS PARTNERS PARTICIPATING IN THE PROJECT:

Cargill
Lund university
SILL
TRIFIRO
University of Copenhagen
Unilever

LEARN MORE AND ENGAGE:

The FoodNexus partnership is open to collaboration with relevant organisations and individuals sharing our vision and mission. Project activity is updated on the FoodNexus website, where you can also read more about the FoodNexus partnership, as well as follow news and activity. For more information about this particular project you are welcome to get in touch with the contact person.

GENTLE PROCESSING CONTACT PERSON:

Marcel van der Vaart
Marcel-van-der.Vaart@unilever.com

