Potential of Starter Cultures in the Production of Vegan Spreads (Vegan Spreads) – CORNET –

Coordination:	Forschungskreis der Ernährungsindustrie e. V. (FEI), Bonn (Research Association of the German Food Industry)
National Agencies:	DLR-Projektträger, Bonn/Germany VLAIO – Flanders Innovation & Intrepreneurship Agentschap Innoveren & Ondernemen, Brussels/Belgium
Research Association:	Flanders‘ Food, Brussels/Belgium
Research Institutes:	Technical University Berlin Institute of Food Technology and Food Chemistry Department of Food Biotechnology and Food Process Engineering, Berlin Prof. Dr. Cornelia Rauh/Dr. Robert Sevenich KU Leuven Technology Campus Ghent Research Group Meat Technology & Science of Protein-Rich Foods (MTSP) Prof. Dr. Myriam Loeffler
Industrial Branch:	Dietary and Special products Cereal Products Fruit, Vegetable and Potato Products Mechanical Engineering and Plant Construction, Measurement Technology
Duration:	2023 – 2026
Volume:	€ 497.678,-- (total)

Initial Situation

Vegan (plant-based) spreads currently available on the market usually have a high fat content and/or a (very) low protein content and also contain declarable hydrocolloids. In addition, vegan cream cheese alternatives are often reported to have unbalanced taste and texture profiles, especially if the products have been enriched with proteins.

The "Vegan Spreads" project aims to address these challenges by generating knowledge on how to successfully develop high-quality, vegan, protein-rich spreads through fermentation with exopolysaccharide (EPS)-producing starter cultures. "Vegan Spreads" will take a multidisciplinary and comprehensive approach to address the challenges of developing and producing fermented spreads (including a vegan cream cheese alternative and a classic plant-based spread) with a focus on technological, analytical and microbiological aspects.

A preliminary market study and consumer survey will help to ensure that developments are targeted and meet consumer needs. In addition to the fermentation approach itself, this project will also expand existing

knowledge in the field of non-thermal technologies ultrasound (US), pulsed electric fields (PEF) and high pressure (HPP). The project will also contribute to the achievement of the EU sustainability goals.

The expected outcome of the project is to equip especially SMEs with the necessary knowledge to produce fermented, high-quality, vegan spreads (incl. cream cheese alternatives) with an optimized nutritional profile that are relevant to the market and meet consumer expectations (clear labeling, plant-based, healthier and tasty). In this context, the project aims to provide answers to the following product and processing related questions:

- How must fermentation and EPS production be controlled to produce vegan spreads and which starter cultures are best suited for this purpose?
- Which technologies and process parameters induce the most pronounced EPS formation in the spread matrices and what amount is needed to achieve additional texturizing effects?
- How can vegan spreads be produced that contain significant levels of vegetable proteins, but ideally do not contain added hydrocolloids?
- How to ensure spreadability/pleasing texture of spreads while keeping fat content as low as possible (without compromising sensory properties)?
- How can physically, chemically and microbially stable products be produced?

Economic Impact

Currently, there is no scientific and multidisciplinary approach investigating the production of vegan spreads (including cream cheese alternatives) based on fermentation and stress-induced EPS formation by thermal and non-thermal technologies. The project generates and transfers the knowledge to produce new, high-quality products (classic vegetable spread/vegan cream cheese alternative) with a balanced nutritional profile ("clean label"), which are adapted to the needs of consumers. Further, this strengthens the competitiveness and expands the product portfolio of producing SMEs. This also includes SMEs that are active in the field of non-thermal technologies and can open up new markets and establish application guidelines on the basis of this project. While new technologies in food manufacturing open up new markets and opportunities, they must also take into account changing environmental concerns. Saving resources (water and energy), valorizing side streams and reducing environmental impact can additionally contribute to the sustainability of the food industry.

Further Information

Technical University Berlin
Institute of Food Technology and Food Chemistry
Department of Food Biotechnology and Food Process Engineering
Prof. Dr. Cornelia Rauh/Dr. Robert Sevenich
Königin-Luise-Straße 22, 14195 Berlin/Germany
Phone: +49 30 314-71254
Fax: +49 30 832-7663
E-Mail: cornelia.rauh@tu-berlin.de

Research Association of the German Food Industry
GFPi/FEI EU-Office
Dr. Jan Jacobi
47-51, Rue du Luxembourg
B-1050 Brussels/Belgium
Phone: +49 172 2643357
Fax: +32 2 2820841
E-Mail: gfpi-fei@bdp-online.de

KU Leuven
Technology Campus Ghent
Research Group Meat Technology & Science of Protein-Rich Foods (MTSP)
Gebroeders de Smetstraat 1
B-9000 Ghent/Belgium
Phone: +32 9 3102553
E-Mail: myriam.loeffler@kuleuven.be

Förderhinweis

*… a project of the **Industrial Collective Research (IGF)***

Supported by:
Federal Ministry for Economic Affairs and Energy
on the basis of a decision by the German Bundestag

FEI RESEARCH ASSOCIATION OF THE GERMAN FOOD INDUSTRY

cornet

This IGF project of the FEI is/was supported within the programme for promoting the Industrial Collective Research (IGF) of the German Federal Ministry for Economic Affairs and Energy (BMWE) on the basis of a decision by the German Bundestag.

Bildnachweis - Seite 1: © HLPhoto - stock.adobe.com

Stand: 7. Juli 2025