

Tackling the vitamin B12 challenge of plant-based alternatives using fermentation (VegVit) – 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 & Intreprenurship Agentschap Innoveren & Ondernemen, Brussels/Belgium
Research Association:	Flanders' Food, Brussels/Belgium
Research Institutes:	University of Hohenheim Institute of Food Science and Biotechnology Food Material Science Prof. Dr. Jochen Weiss/Dr. Lisa Berger University of Hohenheim Institute of Food Science and Biotechnology Food Microbiology and Hygiene Prof. Dr. Herbert Schmidt KU Leuven Technology Campus Ghent Research Group Meat Technology & Science of Protein-Rich Foods (MTSP) Prof. Dr. Myriam Loeffler KU Leuven Faculty of Bioscience Engineering Centre of Food and Microbial Technology Laboratory of Food Technology (LFT) Prof. Dr. Tara Grauwet
Industrial Branch:	Vegetarian products
Duration:	2025 – 2027
Volume:	€ 936.785,-- (total)

Initial Situation

Compared to traditional dairy and meat products, vegan products are deficient in vitamin B12, which must be supplied by other means. In this context, microorganisms that are able to produce B vitamins *in situ*, such as *Propionibacterium freudenreichii*, a food-grade organism that can produce vitamin B12 in sufficient quantities and in a form that is active for humans, are of great interest. This is where the VegVit project comes in, which aims to develop fermented plant-based raw sausage- and cheese

analogs that offer not only the desired properties in terms of texture and taste, but also an improved nutritional profile targeting especially vitamin B12.

The VegVit project builds on the project 01IF21931N "Two-stage fermentation of plant-based raw materials for the production of plant-based alternatives to raw sausage and raw milk cheese" and the Cornet project "Potential of starter cultures in the production of vegan spreads", in which knowledge in the production of fermented vegan analogues has already been generated.

Ensuring sufficient vitamin B production during processing is a challenge and depends on the bacterial strain(s) used, the matrix composition and the processing parameters, which also affects the overall quality characteristics of the target products. Co-cultivation with other starter cultures used for acidification and flavor formation in the fermented salami and cheese analogs also plays a crucial role in this regard, with lactic acid bacteria also found to promote vitamin B12 production. In addition, not only the quantity but also the bio-accessibility of the vitamin B12 (B vitamins) produced *in situ* is important and must therefore be analyzed and verified.

The overall goal of VegVit is hence to develop formulations and production procedures for the manufacturing of authentic, fermented, high-quality and plant-based salami-style sausage analogues as well as (cream) cheese analogues, with an enhanced Vitamin B level, so as to provide a nutritionally valued added vegan product.

Economic Impact

This project is aimed at SMEs and larger companies that are active in the development and/or production of vegan (or vegetarian) sausage and cheese alternatives, as well as suppliers of ingredients (in the project, various plant-based proteins such as pea, soy, canola and vegetable fats are used) and manufacturers of starter cultures.

The European market for plant-based foods grew from €2.4 billion in 2018 to €3.6 billion in 2020. Vegan meat and dairy alternatives in particular are experiencing strong growth: per capita sales of meat alternatives in Germany are expected to rise from 0.14 kg in 2018 to 0.76 kg in 2028, while similarly high growth is forecast for dairy alternatives, from 1.66 kg in 2018 to 7.77 kg in 2028⁵. A consumer study found that meat and dairy products are the most popular and most frequently used plant-based alternatives. With a sales value of around €400 million in 2020, plant-based dairy alternatives had the highest sales, followed by vegan meat alternatives with a sales value of €181 million. As a result, the production volume of vegetarian and vegan products in Germany doubled from 60,400 tons in 2019 to 121,600 tons in 2023.

The VegVit project offers SMEs the opportunity to benefit from this strong market growth by developing innovative products with an increased vitamin B12 content that are attractive to health-conscious consumers and special target groups, such as people with chronic heartburn or those taking proton pump inhibitors. In addition, the project enables SMEs to gain access to advanced technologies and scientific knowledge through collaboration with leading research institutes such as the University of Hohenheim and the KU Leuven. This not only improves product quality, but also optimizes production costs and processes. In the long term, this leads to securing and creating jobs in the industry. This is particularly relevant at a time when sustainability and health awareness are increasingly dominating consumer decisions.

Further Information

University of Hohenheim
Institute of Food Science and Biotechnology
Food Material Science
Garbenstraße 25, 70599 Stuttgart
Tel.: +49 711 459-22293
Fax: +49 711 459-24446
E-Mail: gibis@uni-hohenheim.de

University of Hohenheim
Institute of Food Science and Biotechnology
Food Microbiology and Hygiene
Garbenstraße 28, 70599 Stuttgart
Tel.: +49 711 4592-3156
E-Mail: herbert.schmidt@uni-hohenheim.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

KU Leuven
Faculty of Bioscience Engineering
Centre of Food and Microbial Technology
Laboratory of Food Technology (LFT)
Kasteelpark Arenberg 22
B-3001 Heverlee/Belgium
Phone: +32 16 321409
E-Mail: tara.grauwet@kuleuven.be

Förderhinweis

... a project of the Industrial Collective Research (IGF)

Supported by:



on the basis of a decision
by the German Bundestag



RESEARCH ASSOCIATION
OF THE GERMAN FOOD INDUSTRY



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: © easyasaofficial - Fotolia.com #115396808

Stand: 31. Oktober 2025