



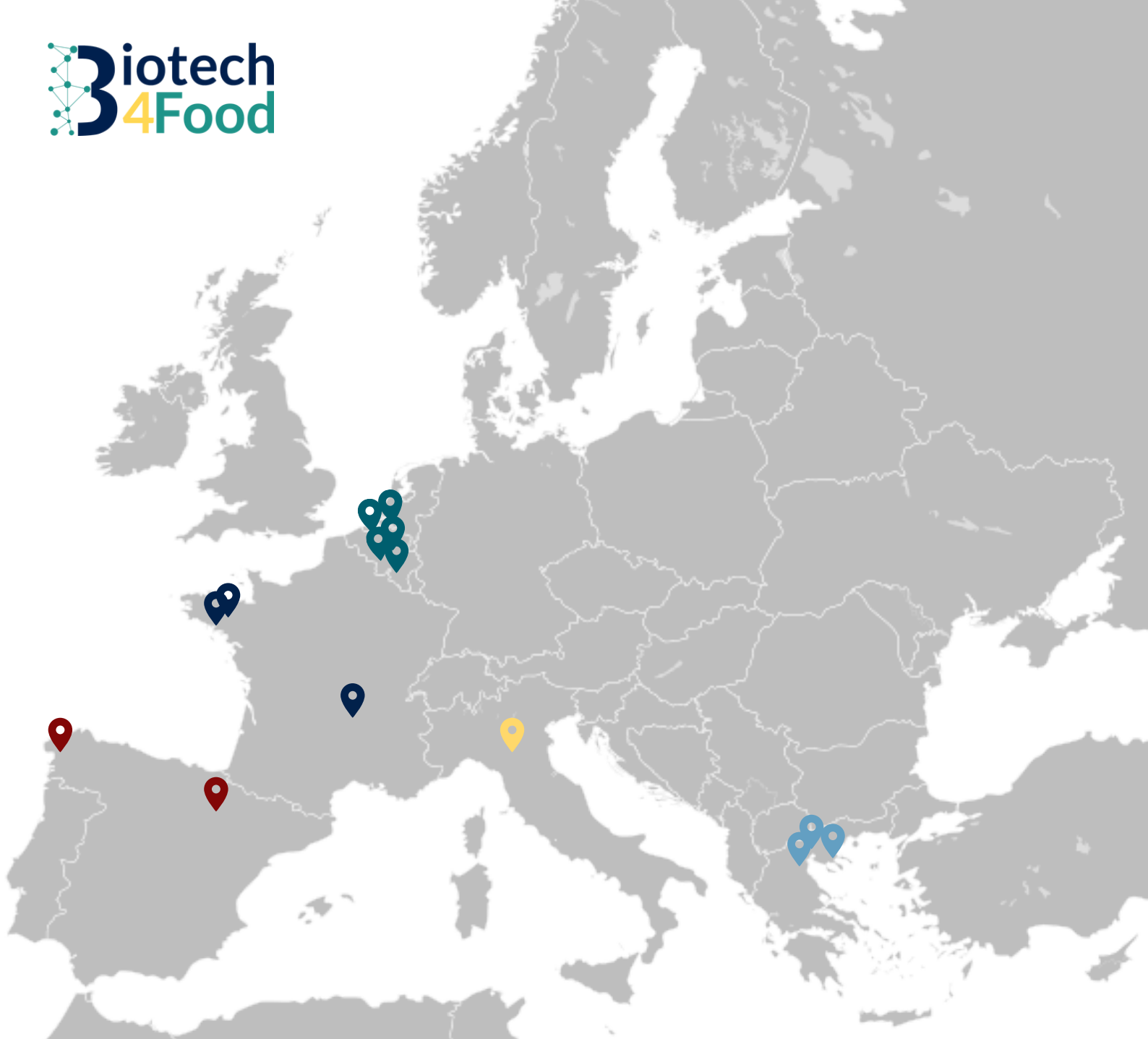
# **Biotech** **4Food**



Co-funded by  
the European Union

## **Presentation of the industry partners**





## Belgium

- Vésale Pharma
- Artechno
- THT
- Avecom
- Calidris Bio

## France

- BCF Life Sciences
- COCONT
- ABYSS Ingredients

## Greece

- KOUKAKIS FARM
- EVYP
- Provil

## Italy

- BUGSLAB

## Spain

- Ingredalia
- Hifas Innovation Hub

## Biotech4Food project coordinator

**Betty Milano**, European Project Manager

betty.milano@wagralim.be

# Abyss Ingredients

Caudan, France



## Natural Marine Ingredients, for health benefits, based on scientific and clinical studies

### Company presentation

Abyss Ingredients was founded in 2004 on the initiative of Brittany's **fishing and fish processing professionals** who aimed at **valuate marine by-products**. Our **R&D team** works together with **universities** and **CRO** on **innovation** and **new developments** to respond to the **growing demand of natural and sustainable healthy-aging solutions**. The efficacy of our ingredients is **scientifically proven**: we heavily invest in studies to bring to our clients full solution.



### Key Figures

**+20**  
years'  
experience

**65%**  
export sales

**1/3**  
of our R&D  
workforce

**13**  
published  
studies

### AromaClean

Abyss Ingredients launch few years back the marine bioactive ingredients: **Cartidyss®**.

The typical "fishy" flavor (taste and smell) for our Cartidyss is **a barrier to our market**. Indeed, **competitive collagens are flavorless**.

Fish flavor for our Collagen is rather a **"No Go"** for cosmetic applications and cosmetic clients.

The objective of this project is to **evaluate and validate innovative biotech process from a technical and financial point of view**.

**Collagen market is booming** but with fierce competition (price and quality and clinical). If success with deodorization, then we will promote this **Premium quality Cartidyss**.



### Contact

**Alexis Mehaignerie**, President  
alexis@abyss-ingredients.com

[www.abyss-ingredients.com](http://www.abyss-ingredients.com)

**Abyss Ingredients**

## High performance fermentation for circular food applications

### Company presentation

Artechno is a **specialist in microbial solutions** developed from **fermentation of bacteria**, yeast and fungi. Supported by **more than 1,000 scientific papers**, eco-friendly solutions are proposed to our partners to meet the challenges of **healthy eating**, of finding **natural solutions in animal feed** and **plant nutrition**. Artechno's know-how is particularly developed in **SPORE FORMING BACTERIA** (mainly **BACILLUS** species).



### Key Figures

Services in  
**5 continents**

**Eco-Friendly**  
solutions

**12**  
employees

**+3 million**  
turnover

### Agroflowval & Porcbiota

**Agroflowva & Porcbiota** are two projects part of a collaborative research programs subsidized by the Walloon region (and monitored by Wagralim).

These R&D&I projects have **allowed the optimization of the fermentation culture conditions** especially for spore-forming, aerobic and anaerobic germs or resistance to drying. The yields, especially in spores' production, have **considerably increased** and now allow to start marketing for **nutraceutical and food applications**, and also for **feed usages**, without forgetting agriculture (bio-stimulants for example).

The biomass raw material used as microorganisms' culture media are **residues of the potato** processing industry (Lutosa) and constitutes therefore a perfect example of an **integrated circular economy** approach.

One of the objectives of this program is to integrate this optimization in a scale up installation by recalculating the sparger, the gas flow, the compression and their other physiological factors (influence of the CO<sub>2</sub>, the Oxygen concentration of the environment).



### Contact

**Louise Poncelet**, Sales Manager  
l.poncelet@artechno.be

[www.artechno.be/](http://www.artechno.be/) 

**ARTECHNO sa** 

**@ARTECHNO\_sa** 

## Sustainable Solutions for Environmental Recovery and Side Stream Valorization

### Company presentation

Avecom is a SME that emerged as a **spin-out company** from the **University of Ghent (UGent)**. Avecom's specialization lies in the **fields of biodegradation, microbial fermentation** and the **engineering of microbial consortia**. These competences enable us to offer **sustainable and cost-effective solutions** for **environmental remediation** and **biomass fermentation**. Within their portfolio, Avecom has developed **diverse biomass fermentation platforms**, originating from byproducts generated by food, agro and other industries.



### Key Figures

**+20 years**  
of experience

**1995**  
foundation

**1M €**  
turnover

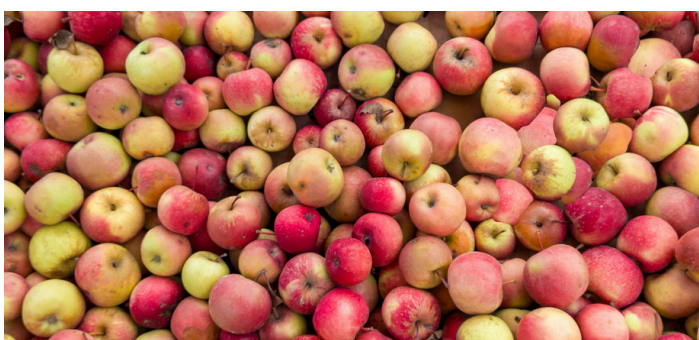
**12**  
employees

### ProMic from Apple Pomace

The project aims to establish a robust, stable and cost-efficient **microbial protein production process** through biomass fermentation, **starting from residual materials derived from the fruit industry**, notably apple pomace. Various fermentation configurations will be demonstrated and fine-tuned, including **batch** and **continuous systems**, in addition to exploring the **use of mono- and co-culture strategies**. This initiative is in alignment with the overarching goal of

**advancing sustainable protein production**, primarily for use in animal feed and ultimately for human consumption, by **valorizing a readily abundant byproduct** that currently lacks efficient processing pathways.

The project's primary activities are **multifaceted** and **centered around advancing the production of SCP from apple pomace**, a residual byproduct from the fruit industry, over the course of one and a half years.



#### Contact

**Stijn Boeren, Director**  
stijn.boeren@avecom.be

[www.avecom.be/](http://www.avecom.be/) 

**Avecom** 

## Specialist in the extraction of free amino acids

### Company presentation

BCF Life Sciences specialises in the **extraction of natural amino acids** (L-Cystine and L-Tyrosine) **and their derivatives** (Carbocysteine, etc.) of 100 % traced origin for the pharmaceutical and health care industries. BCF Life Sciences products are marketed by the **leading names** in the fields of **pharmaceuticals, food supplements** (nutraceuticals) and **baby foods**. BCF Life Sciences also develops and markets a range of **highly soluble and highly bioavailable free amino acid mixes** with very low molecular weight.



### Key Figures

**38.2 million €**  
in 2018

**185**  
employees

**64 %**  
of sales  
made overseas

**2 sales offices**  
in Thailand  
& Colombia

### Scale up & reach additional food markets

The investment project consists of **securing and increasing amino acid extraction capacity** in order to **meet the sustained demand** of its customers, via the updating of part of the equipment making it possible to carry out a key to the extraction process (spinning).

This investment is also part of a **quality dimension**, given the markets in which BCF Life Sciences operates, particularly in human health (child and medical nutrition, pharmaceuticals, food supplements).

We expect this project to contribute to a **production increase objective** lying between **+3 and +5%**, thanks in particular to the following future parameters described below:

- Automatic dismantling;
- Automated spin recipes;
- Increased spin capacity;
- Remote production monitoring.



#### Contact

**Wilfried Bayer**, Engineering Manager  
wbayer@bcf-lifesciences.com

[www.bcf-lifesciences.com/](http://www.bcf-lifesciences.com/) 

**BCF Life Sciences** 

## Multi-enzymatic treatment of insect flour

### Company presentation

**BUGSLAB SOC AGRICOLA SRL** is an Italian start-up specialised in the production of **insects** (currently crickets and locusts) **and insect based products** (dried crickets and cricket flour). Bugslab's products are currently mostly used in the **pet food industry** and also starting to be used in the feed and food industries as legislation has evolved to open these new markets. Bugslab also develops **insect rearing technology** and industrial processes to continuously improve the efficiency of its production.



### Key Figures

**3 Ton of insects**  
per month

**Largest cricket producer**  
in Italy

**Most sustainable protein**

**Lower risk of Spillover**

### Insect Flour

Various insects have emerged as **novel food** or feed resources (for fish, poultry and pigs) due to their **economical, eco-friendly, and nutritive** characteristics. However, several studies on livestock

have shown a reduced apparent digestibility coefficient when insects were supplied as a replacement for commercial meals related to chitin. In addition, when approved as novel food, some issues arose with the **safety of insects**, especially as **allergens**.

As a consequence, novel processing techniques are required to **reduce the allergic potential** of insect proteins, improve the digestibility and the biofunctional properties of insect meal.

The idea of the present project is **to develop a biotechnological and sustainable** protocol based on enzymes to deliver **insect flour** containing protein and chitin hydrolysed in oligopeptides and chitooligosaccharides respectively, to improve digestibility, prebiotic potential and reduce allergenicity, delivering **healthier insect based ingredients** for food and feed applications, stimulating sustainable food consumption.



### Contact

**Francesco Latino**, CEO Bugslab  
francesco.latino@bugslab.it

[www.bugslab.it/](http://www.bugslab.it/) 

**Bugslab** 

## Sustainable protein to feed a growing population

### Company presentation

Calidris Bio is a **biotechnology company** who developed the **fermentative production of Microbial Protein (MP)** by bacteria utilizing renewable resources. Calidris Bio's first product is a **high-protein ingredient** for use in **food and premium feed**. Calidris Bio stands out from other microbial protein producers in that the product is **highly nutritious** (>72% protein with a high concentration of essential amino acids), and that the production process is **independent of agricultural resources** since CO<sub>2</sub>-derived renewables are used as a feedstock.



### Key Figures

**> 80%**  
Crude protein

**Rich in essential**  
amino acids

**> 90%**  
Digestibility

**Produced at**  
ton-scale

## Fine-tuning the First Industrial Scale Microbial Protein Production Runs

The project aims to **improve the overall yield** of the **first industrial production** runs of Calidris Bio's alternative microbial protein.

Calidris Bio utilizes **CO<sub>2</sub>-derived renewables** as carbon source for a methylotrophic bacterium in a fermentative process to produce Microbial Protein (MP), a **next-generation alternative protein** source that can be produced **completely independent of modern agricultural techniques**.

### Expected results:

- Improve substrate to **protein rich biomass conversion rate** to at least 80% of the theoretical maximum value;
- Improve the **metabolic shift** towards protein rich biomass and decrease product loss during downstream processing;
- Interregional **dissemination and communications/attendance** of events organized by Flanders Food/Biotech4Food

### Contact

**Lieve Hoflack**, Co-founder  
lieve.hoflack@calidrisbio.com

**Madiha Nazir**, Bioprocess Scientist  
madiha.nazir@calidrisbio.com

**Sofie Snoeck**, Bioprocess Engineer  
sofie.snoeck@calidrisbio.com

[www.calidrisbio.com/en/](http://www.calidrisbio.com/en/) 

Calidris Bio 





## Sustainable plant-based food that promotes local agricultural sectors

### Company presentation

COCONT's aim is to make **better use of local agricultural sectors** to develop **new fermented plant-based foods** that meet the challenges of food and nutrition, while having a **positive impact on health and the environment**. The company is committed to **ensuring France's food sovereignty**, and has positioned itself as part of a process of reindustrialisation through a low-carbon industry. To ensure COCONT's rapid development as a specialist in the manufacture of fermented plant-based alternatives, we need to **finalise the development** of these **bioprocesses** on an **industrial scale**.



### Key Figures

**1 Million**  
invested in  
innovation

**Re-**  
**industrialisation**  
of France

**Food sovereignty**  
and  
**decarbonisation of**  
**industry**

**Support from**  
**idea to**  
**manufacturing**

### Nutriferments Industry

Nutriferments Industry's main objective is to **develop tempeh-type, soya-free** finished products with a variety of plant protein sources (cereals and legumes) and in various forms on an industrial scale. These products will be **marketed in the Biotech4Food region**.

For COCONT, this project represents an opportunity to **diversify its offering, increase its annual sales** by €1.5 million and **create four full-time jobs** by 2026.



#### Contact

**Louis Fanget, Director**  
louis.fanget@cocont.fr

[www.cocont.fr/](http://www.cocont.fr/) 

**Cocont** 

## Biotechnological transformation of plant-based proteins for poultry feed

### Company presentation

**EVYP L.L.P.** is an innovative Greek company, specialized in the production of exclusively **plant origin non-GMO hydrolyzed proteins** and amino acids for agricultural use. Its primary focus is in the production and marketing of **Food Insect Attractants and Biostimulants**.



### Key Figures

**6 decades**  
expertise

**High quality**  
operation

**Awarded**  
innovative  
orientation

**Carbon neutral**  
objective

### Amino4Food

Livestock production significantly contributes to the agrifood sector. Concerns on **resource availability, animal health, productivity, and environmental impact** are of major importance.

Innovative livestock **feed solutions** can help improve feed quality and feed-to-weight ratio, hence addressing such concerns.

The project focuses on the use of **plant derived amino acids** in chicken diet to improve their well-being and performances.

The project will make use of a **biostimulant**, derived through hydrolysis procedures, to assess its impact on growth and quality of the final product.



### Contact

**Nikolas Paschos**, Quality Assurance Manager  
n.paschos@evyp.gr

[www.evyp.gr/en/](http://www.evyp.gr/en/) 

**E.B.Y.Π. E.E. / EVYP LLP** 

**@Amino 16** 

## Scaling up production of mushroom-Foods for Special Medical Purposes (FSMPs)

### Company presentation

Internal Venture Builder of Hifas da Terra Group specialized in **entrepreneurship and innovation around mycology**. With an agile structure, market focus, talent at all levels (founders, employees and investors), strategic capital, knowledge and the necessary experience to **turn an innovative idea into a high impact business**. It is part of a group with **more than 20 years** of research on functional fungi.



### Key Figures

**+25 years**  
expertise

**Disruptive fungi-**  
**based innovation**  
for healthcare

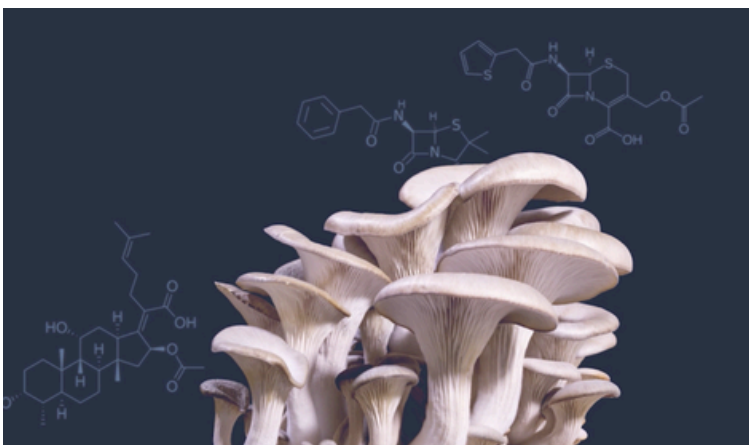
**Novel drugs**  
from fungi

**Patented**  
Technology

### Mushroom-Foods for Special Medical Purposes (FSMPs)

Hifas Innovation Hub is interested in scaling the production of a foods for **special medical uses** for cancer patients at risk of malnutrition that incorporates **Hericium erinaceus mycelial** extract rich in beta-glucans to improve functionality at the immune level.

Hifas has developed a **new process** for the production of **fungal ingredients** through fermentation in a liquid medium that reduces waste, pollution, material consumption, energy use and increases functionality.



### Contact

**Diego Rubianes**, Regulatory Affairs  
& Industrial Property Manager  
diego.rubianes@hifashub.com

[www.hifasbiologics.com](http://www.hifasbiologics.com) 

Hifas Biologics 

## Enzyme assisted extraction of bioactive compound from vegetal by product

### Company presentation

INGREDALIA S.L. is an innovative **technology-based** company located in Milagro (Navarra) whose business model is rooted in the **revalorization** of vegetal by-products. It was set up in 2017 to develop and commercialise **natural functional ingredients**, made from vegetable by-products originated by agri-food companies, mainly from the canned and frozen food sector.



### Key Figures

**Circular Economy**  
principle

**Patented**  
technology

**Sustainability**  
as their DNA

**Real-time**  
monitoring

### ByEnzyme

The current methodology to obtain high-added-value compounds from vegetal by-products is highly dependent on the use of **organic solvents**. The use of those chemicals **compromises the environmental** impact of by-product revalorization.

Their proposal is to use **enzyme mixes to pre-treat the raw material**, liberating the cell's compounds otherwise extracted by the solubilization with ethanol, acetone or other solvents.

At the same time, the **filtration process will be improved** by using **micro membranes**. This equipment is highly reusable and it will completely avoid the utilization of single-use filters (used so far). Furthermore, it will increase the extraction's **purity and yield**. The same membrane system will also facilitate **enzyme recovery**, increasing the number of cycles in which they can be used.



### Contact

**Miguel Angel Cubero**, CEO en Ingredalia S.L.  
macubero@ingredalia.com

[www.ingredalia.net](http://www.ingredalia.net) 

Ingredalia S.L. 

@ingredalia 

## Further development & launch of the My VeFir vegan product line

### Company presentation

Koukakis Farm is one of the **strongest milk and yoghurt manufacturers** in Greece. The factory is located at Kilkis, in a completely **natural environment**.

The company produces **premium products** made exclusively from top quality fresh milk & ingredients.



### Key Figures

**CRYSTAL  
Taste Awards  
2023-2024**

**No1 in KEFIR  
in Greece**

**Exports  
+ 26 countries**

**41M €  
turnover**



### My VeFir

'My VeFir' is a series of **ready-to-drink** beverages from **plant-based** raw materials, offering an alternative for kefir. It will be a **fermentation based** product with special aromas and flavours aiming to cover the needs of different consumer segments. **My VeFir**, a brand name based on the contraction of **vegan** and **kefir**, will target the **average** consumer but also those who follow a **vegetarian** or **vegan** lifestyle, and consumers with **lactose intolerance** or allergic for animal proteins.

Fermentation will be explored and tested, to obtain a superior taste, texture, mouthfeel, and aromas. Additionally, by using probiotic bacteria, the product is expected to benefit the digestive and reinforce the immune system.

Based on the high nutritional value of kefir, the products are further **nutritionally reinforced** using natural ingredients to become a source of essential elements, vitamins and protein. Each product will have a distinct formula that fits the general **preferences** of the targeted consumers.



### Contact

**Theodoros Symeonidis**, Plant Manager  
T.simeonidis@koukakisfarm.gr

[www.koukakisfarm.gr](http://www.koukakisfarm.gr)

**Koukakis Farm S.A.**

[@koukakis\\_farm](https://www.instagram.com/koukakis_farm)

## Microalgae derived EPS as a sustainable food additive

### Company presentation

**PROVIL SA** is a Greek company that produces **ingredients and supplements** for the food industry, mass catering, gastronomy and for meat retail business. For more than **25 years**, PROVIL has been the trusted partner of both food production companies and professionals of gastronomy and organized catering in Greece and abroad, with our name being synonymous to **know-how, quality, continuous development and reliability**.



### Key Figures

**+25 years**  
expertise

**Trusted**  
**partner**  
for companies

**Inspire**  
**nutrition**

**25 tons/day**  
capacity

### AlgaeEPS4Food

One of the most crucial concern facing the food industry is the search of new **alternative ingredients** sources that both pandemic and energy crisis periods highlighted significantly. The project focusing on the use of **EPS derived from microalgae**, cultivated with cheese whey, as a sustainable food additive for replacement the existing ingredients.

The project will have a duration of **18 months** and the workplan is divided into **5 work packages**.

The project implementation will provide the company the opportunity to **explore, test and use** new local sources by **utilizing biotechnology**.



#### Contact

**Thomas Koupantsis**, Research & Development Manager  
research@provil.gr

[www.provilgr.com](http://www.provilgr.com)

Provil S.A.

@provil\_greece

# Biotechnological valorisation of probiotic byproducts

## Company presentation

THT is a biotech company active in the production of **biotics via fermentation** for the food supplements (probiotics, postbiotics) and food (fermentation starters) markets. THT is particularly expert in the **selection and production of lactic acid bacteria**. THT differentiates from its competitors by the **diversity** of its various offer and its **ability to adapt** to customer demand. THT is part of the **Puratos Group**.



## Key Figures

**Diversity**  
offer

**+30 years**  
expertise

**High**  
adaptation  
ability

**30 different**  
strains produced

## Surnabio

The **fermentation** processes implemented at THT generate **2 products** : **bacterial biomass** which is used to make finished products (probiotics and starters) and **supernatants**. These supernatants are known to have potential **health benefits** depending on their chemical composition. They are not valued for now and are considered like a waste.

Therefore, the aim of the project is to **use biotechnology processes** and adapt fermentation technologies to produce bacterial biomass but also to obtain **valuable supernatants** that could become new ingredients for food and health applications or even for other applications like chemistry and feed. These innovations will allow THT to **evolve to a more circular and resilient economy**.



### Contact

**Germain Druart**, R&D Manager  
germain.druart@tth.be

[www.tth.be/](http://www.tth.be/) 

**THT** 

**@THT** 

## Development of innovative solutions for everyone's well-being

### Company presentation

Vésale Pharma is a Walloon company which markets **probiotic specialties** based on the latest scientific research. The company specializes in the **R&D, production and marketing** of products containing **strains of probiotics** known to have a beneficial impact on health. Vésale Pharma markets a very wide range of products targeting the **digestive and paediatric spheres, women's health** and the development of an **effective immune system**.



### Key Figures

**6,172,465 €**  
turnover in 2023

**15**  
employees

**6.700.000 €**  
turnover  
estimated for  
2024

**1996**  
creation of  
the company

### Scaling-up & market access for food supplements

Vésale Pharma faces **2 major challenges** for marketing its products: the **long-term preservation of the functional capabilities of probiotics** and the **need for objective demonstration of the positive impact of probiotics on human health**.

The project aims to:

- **Replace freeze-drying** by low-energy and low temperature drying methods at industrial scale;

- **Increase the productivity** (about 10-15%) and the yield of the manufacturing process of the Intelicaps® encapsulated probiotic;
- **Extend the stability and thus the shelf-life** of our existing and new finished products;
- **Register new products** according to regulatory requirements.



#### Contact

**Jacqueline Abrassart**, Administration Director  
jacqueline.abrassart@vesalepharma.com

**France Fannes**, Director of Public  
Funding & Research Contracting  
france.fannes@vesalepharma.com

[www.vesalepharma.com/](http://www.vesalepharma.com/) 

Vésale Pharma 





[www.i4ce.eu/biotech4food/](http://www.i4ce.eu/biotech4food/)

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