

PRESS RELEASE

Enabling high-quality plant-based food products

Ede, <date>, - People all over the world are turning to plant-based foods in growing numbers. They are also increasingly aware of the dangers of too much salt, sugar and highly processed foods in their diets, which is driving demand for so-called “clean label” food products. A new public-private funded project aims to develop new fermentation processes to improve the quality of plant-based proteins.

Recent years have seen growing consumer interest in plant-based food options, leading to a (partial) transition from animal- to plant-based proteins. For example, the UK’s Vegan Society predicts that, between 2020 and 2025, the market for plant-based milk alternatives will grow by around 17% per year while consumption of vegan cheese will increase by 13% per year¹. However, the increased use of plant proteins comes with several challenges as plant-protein ingredients often contain compounds that can cause unpleasant flavours in end products – such as hexanal from legume-based proteins producing a noticeable “beany” flavour.

It can be very difficult – if not impossible – to completely eliminate these unwanted compounds using conventional food processing approaches such as filtration and / or chemical processing. Moreover, the extensive use of chemical additives doesn’t really match up with the view of plant-based food as a natural, healthy and sustainable option.

Improving plant-based proteins

To overcome this and maximize the potential of plant-based food products, a new consortium of leading food manufacturers, universities and food research institutes has launched a project to develop bio-purification techniques based on fermentation. Fermentation has been used for millennia to create such familiar foodstuffs as yoghurt, bread, and beer. But it can be applied much more widely in food production using different microbial cultures. By carefully selecting the culture and controlling the fermentation process, it is possible to fine tune the effect of the fermentation on the ingredient of end product.

The three-year “Bio-purification of plant proteins” project will explore the potential for using fermentation to remove off flavours and other unwanted characteristics in various plant proteins and isolates. It aims to develop generic bio-purification strategies and determine the strengths and limitations of such techniques. To do this, the project will draw on knowledge of how fermentation can

¹ Source <https://www.ubs.com/global/en/wealth-management/marketnews/home/article.1441202.html>

remove undesired components from already existing technologies within the consortium and the wider industry.

Public-private finding for sustainable food supplies

The project is co-funded by the consortium partners and a grant from the Dutch government through its Top Sector Agri & Food (TKI Agri & Food) initiative. TKI Agri & Food is one of nine Top Sector organisations established by the Dutch government to stimulate innovation and business opportunities in sectors where the Netherlands already excels.

Successful generic strategies found by the project will be applicable to different protein sources and impurities. This should allow the plant-based food industry to develop innovative bio-purification processes for manufacturing new or improved plant-based food products. The availability of such high-quality plant-based products – potentially with fewer additives – will give consumers greater choice of healthy food options.

The Bio-purification of plant proteins consortium

- NIZO (project coordinator)
- Wageningen University and Research (WUR)
- Vrije Universiteit Amsterdam (VU)
- HAS University of Applied Sciences
- Bel
- DMK/DOC
- GeneralMills
- Glanbia Ireland DAC
- IFF
- Ruitenberg Ingredients

The “Bio-purification of plant proteins” project receives financial support from the Top Sector Agri & Food. Within the Top Sector, the business community, knowledge institutions and the government work together on innovations for safe, healthy food for 9 billion people in a resilient world.

About NIZO:

The comprehensive expertise of NIZO helps food industries successfully address their challenges: from protein transition to substantiation of health benefits, to food safety or to upscaling to industrial production. With multidisciplinary teams and the largest food-grade contract research (CRO) pilot plant, NIZO brings all expertise together to lower costs and time-to-market for new products. NIZO can support the whole innovation process: from R&D to food-grade pilot production.

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News on NIZO website (not online, in private)



A new research project, partly funded by the Dutch government's Top Sector Agri & Food initiative, aims to develop new fermentation processes to improve the quality and flavour of plant-based proteins.

In recent years, it has become clear that a (partial) transition from animal- to plant-based proteins is underway in the food market. As a result, sales of plant-based dairy alternatives are expected to grow considerably between 2020 and 2025, with consumption of vegan cheese and milk alternatives increasing by 13% and nearly 17% each year in that period.

However, plant-protein ingredients often contain unwanted compounds that can cause unpleasant flavours in end products. The three-year "Bio-purification of plant proteins" aims to develop fermentation-based bio-purification processes to eliminate these unwanted compounds from plant-based protein ingredients.

"Fermentation is an age-old, well-known and safe technique in food production, used in everything from alcoholic beverages and bread to sauerkraut and yoghurt. But it is much more widely applicable than that. With this project, we aim to build on existing experience of using fermentation to remove undesired components and apply that more generally to the manufacture of new and improved plant-based food products," says Vesela Tzenova, Senior Project Manager at NIZO.

"Increasing numbers of consumers are interested in diversifying their diets with plant-based food products. But they also want high-quality products, preferably with fewer chemical additives. This bio-purification project will pave the way towards such products, giving consumers much greater choice in the food they buy," says Ralf Zink, Head of R&D, DMK.

The Bio-purification of plant proteins consortium



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NIZO LinkedIn page

Quote (MP4)



Body text

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For more information: URL NIZO website

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