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INCORPORATING A BIOCATALYST INTO A FOOD PRODUCT

#bioprocesses #enzyme engineering #biocatalysis #enzymes #food processing

Cycle Farms is a specialist in manufacturing of fish food made with insect protein. In 2018, the company entrusted Capacités with sourcing a biocatalyst that would improve its products' nutritional efficiency. Afterwards this successful and first collaborative project, Cycle Farms asked Capacités experts to support them in the development of the transformation and preservation process of its product. The main objective of the new project was to guarantee the compatibility between the biocatalyst ingredient and the adapted industrial process.

CONTROLLING AND MAINTAINING ENZYME ACTIVITY FROM MANUFACTURE TO USE

Cycle Farms relied on Capacités' experts in enzymatic and bioprocess engineering to add a biocatalyst to its animal nutrition products.

Capacités' engineers recommended using spray-drying, a well-known food industry process. Since it requires a temperature increase, the experts first carried out various tests to ensure the enzyme remains undamaged.

The next step was to blend the resulting enzyme powder with granulated insect meal. The main goal was to validate a formula in which both elements could be fully combined and not dissolve in water. A custom fat/oil coating was therefore added to complete this new manufacturing process

Finally, Capacités' experts confirmed that the enzymes had

remained active in the final product. They also checked the product's stability in realistic storage conditions, with temperatures reaching 30°C and in up to 80 % moisture content. At the end of this project, Cycle Farms' new recipe contained a stable enzyme compatible with the constraints of industrial manufacturing, product storage and use.

To successfully complete this project, the Capacités' experts benefited from support and technical equipment from the UFIP laboratory (Protein Functionality and Engineering Unit), joint research unit of Université de Nantes and CNRS (The French National Centre for Scientific Research). ■

Expertises:

- Enzymology
- Glycochemistry

CAPACITÉS

Created in 2005, Capacités is the private engineering and research valorisation subsidiary of the University of Nantes. It employs 90 employees, mainly engineers and PhDs, who work directly with scientists in the research laboratories.



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