



The National Food Institute develops methods which can be used to create value from waste products from dairies and breweries and from underutilized resources such as seaweed and microalgae.

 Bladderwrack seaweed. Colourbox

# The hunt for nature's own additives

In general, aromas, emulsifiers, and preservatives do not make up a large part of our foods. However, they make a big difference for their taste, texture, and shelf life. The researchers at the National Food Institute are searching through the building blocks of foods in order to develop new, natural, and sustainable additives.

For several centuries, additives have been used to extend the shelf life of foods and to provide them with a better texture and taste. However, today's consumers often demand natural additives that do not require an E number.

In order to help the industry give the consumers what they want, researchers at the National Food Institute have developed methods to identify naturally occurring additives e.g. in food proteins, which can help slow down the process of fatty acids in foods going rancid, among other things.

Along with bioinformaticians from DTU Health Tech and colleagues from Aalborg University, the Institute's researchers have developed tools that are able to extract those parts of the proteins that can be used in the production of additives.

## Better resource utilization

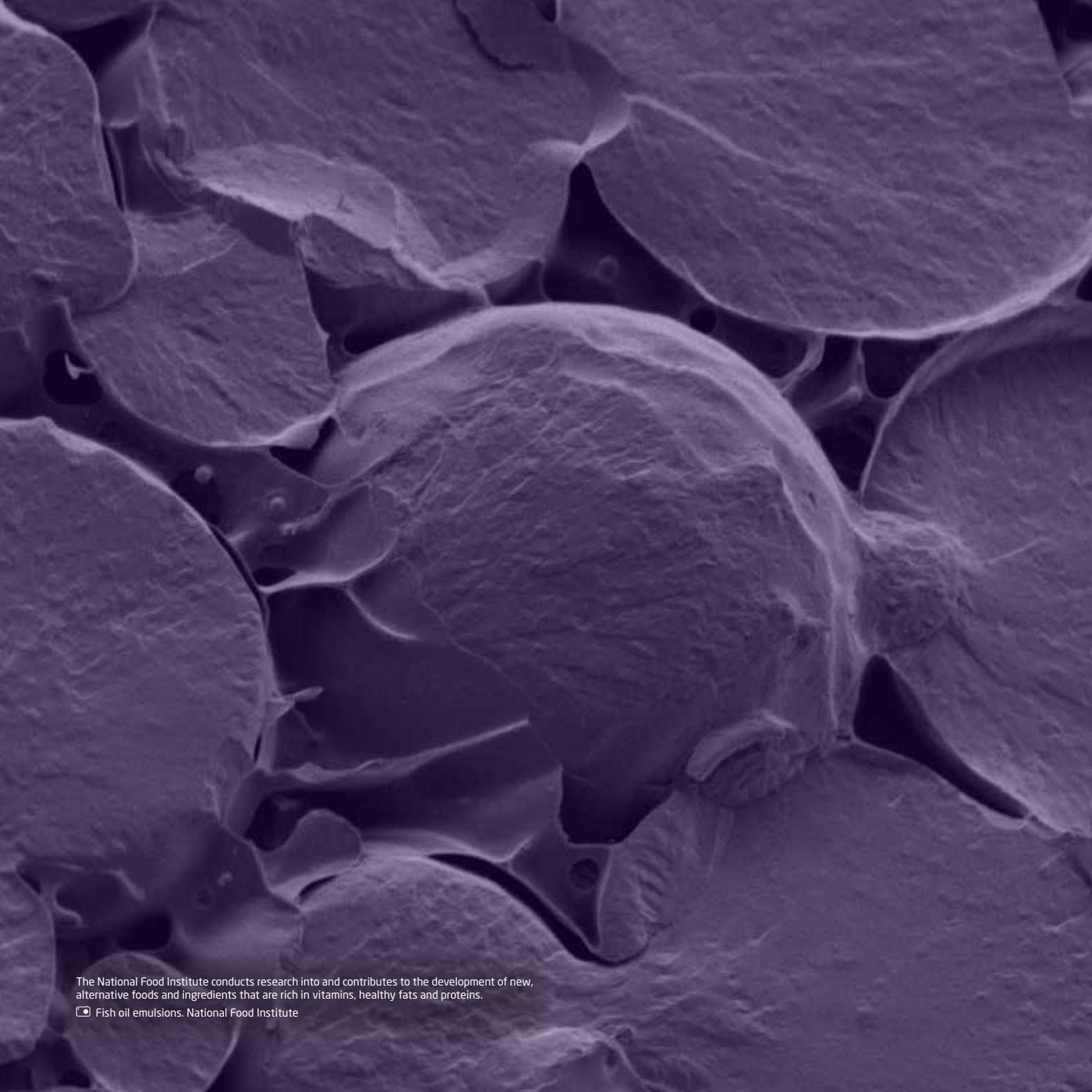
The researchers have found the active peptides - which are the building blocks of proteins - in e.g. residual products from the production of potato starch and the processing of seaweeds. This ensures a much better and sustainable resource utilization of raw materials.

"As the additives also extend the shelf life of foods, our research contributes to combatting the waste of resources in several ways," Professor Egon Bech Hansen says.

## Huge increase in value

The large quantities of residual products generated by the food industry are typically sold at a kilo price of between one and 15 Danish kroner to other companies, who convert them to biogas or use them as animal feed.

However, depending on what it is used for, the food companies can sell the extracted protein mass at a kilo price that is ten to a thousand times higher than the price at which they currently sell the residual products.



The image shows a scanning electron micrograph (SEM) of fish oil emulsion droplets. The droplets are spherical and vary in size, with some appearing larger and more prominent than others. They have a textured surface with visible wrinkles and ridges. Some droplets appear to be partially merged or clustered together. The background is a dark, textured surface, likely the substrate or other emulsion components.

The National Food Institute conducts research into and contributes to the development of new, alternative foods and ingredients that are rich in vitamins, healthy fats and proteins.

 Fish oil emulsions. National Food Institute

**“**The ambition is to transfer the methods we use to find new ingredients in a number of other vegetable or animal residual products. With the very large quantities of residual products generated by the food industry, the Institute's methods have a great potential to create added value for the companies while they can also ensure a better utilization of Earth's limited resources.**”**

Egon Bech Hansen  
Professor