

Bespoke fermented dairy products; new strategies for understanding and controlling protein ingredient-milk component interactions during processing

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Aim

The purpose of the project is to provide a science platform to allow facile, energy efficient development of new fermented dairy products with tailored texture, excellent stability, and specific functionalities suitable for implementation on an industrial scale.

Description

The project is concerned with gaining a new understanding of, and developing new strategies for control of the molecular interactions that occur between milk protein ingredients (MPI) and native milk proteins, and how this can be used to tailor the physical, chemical and functional characteristics of fermented dairy products, during and after processing. To achieve this, a strategic alliance between KU FOOD, DTU and SDU is necessary to fully utilize the complementary competences and infrastructure at the three universities.

The global demand for protein rich dairy products and dairy products with low content of sugars and fat is increasing the focus on the use of milk protein ingredients (MPIs). Due to their intrinsic chemical and nutritional properties milk proteins are very attractive as ingredients to create desired functional properties in foods. A new understanding of how interactions between milk constituents and MPIs can be manipulated, and the chemistry governing this, will enable the industry to tailor ingredients and develop new and robust applications in fermented products and cream cheese further developing and realise the market potential for Danish MPI and dairy products. To achieve this understanding there is a need to combine analytical tools from food research with technologies used in biotechnology and imaging technology. We therefore propose to investigate exactly how new MPIs change the chemistry of the milk matrix during processing and fermentation. This basic knowledge will be highly relevant for the industry, providing a platform for facile development of new fermented products with a novel level of tailored texture, excellent stability, specific functionalities and robust, cost effective and energy efficient industrial scale production.