A pinch of salt

Period:	May 2012-December 2017
Budget:	14.991.835 DKK
Funding:	The Danish Milk Levy Fund (Mælkeafgiftsfonden)
Project manager:	Associate professor Marianne Hammershøj
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Aim:
To study the effect hereof on cheese structure, texture, flavor and the microbiology of the starter culture, together with exploring alternative ingredients and/or technologies that can support these parameters in low-salt cheese.

Description:
The project 'A pinch of salt' concerns the effect of reduced salt content in cheese on food quality. The aim is to study the effect hereof on cheese structure, texture, flavor and the microbiology of the starter culture, together with exploring alternative ingredients and/or technologies that can support these parameters in low-salt cheese.

The research is initiated in model systems, where the effect of salt concentration both in brine for the production of yellow cheese and in the cheese milk for the production of white cheese on the structural formation and the consequences for cheese texture and water holding properties are evaluated.

A range of technologies and ingredients, e.g. ultrasound, high pressure treatment, other salts and hydrocolloids, which can contribute in building and supporting the cheese-network and the firmness hereof will be studied. The significance of salt in cheese for the taste and aroma of cheese will be studied by sensory evaluation, and the effect of a step-wise reduction in salt for the consumer acceptance, liking and sensation of salt taste in cheese is in focus. The starter culture is important for the characteristics of each cheese type. It is studied, how salt concentration affects growth and especially autolysis of different starter cultures, where important enzymes for the maturation and flavour formation are released. The knowledge achieved is applied to cheese production, and low-salt cheeses are followed during production and storage, where analyses of structure, texture and microflora together with sensory evaluations are performed in comparison to normal-salted cheeses. The content and composition of different metabolites and enzymes are correlated to the sensory analysis in order to identify the components responsible for different taste attributes. Finally, a concept for selection and propagation of relevant starter-cultures for low-salt cheese production is developed.

The project provides knowledge and understanding of the mechanisms that in more or less salty environments are determining factors with respect to cheese structure, texture, taste and the development of the starter culture. This is vital to maintain the competitive edge of the Danish dairy industry in a market that demands low-salt cheese of high quality.