InBrine: Influence of brine microbiota on flavour development and inhibition of spoilage moulds on Danish cheeses

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Aim

The main objective of the project will be to map and identify the entire microbiota of brines used for salting of cheese and to optimise the brine in order to improve flavour development and through bioprotection to ensure the shelf life and quality of Danish cheeses.

Description

The main objective of the project will be pursued by optimising the existing brine microbiota and to use the obtained knowledge to develop new secondary starter cultures to enhance quality, shelf life and safety of the cheeses. Through the project new knowledge on the importance of the brine will be gained and relevant measures to continuously ensure brine quality will be implemented. The objective will be achieved through five work packages: WP1) revealing the entire brine microbiota through Illumina sequencing (”BriOmics”), isolating non-culturable brine microorganisms and establishing a Cheese Brine Culture Bank (CBCB) at FOOD-KU; WP2) characterizing relevant technological properties of selected brine cultures; WP3) studying the impact of selected brine cultures on flavour development; WP4) understanding mechanisms of interactions, at both physiological and genomic levels, in order to ensure optimal inhibition of spoilage moulds on cheese surfaces and WP5) verifying the results by production of surface ripened semi-hard cheeses at pilot and/or industrial scales, including development of specific industrial recommendations for optimal brine handling. Revealing the full potential of the brine microbiota and its interactions on cheese surfaces will lead to an increased understanding of the importance of brining; facilitate development of secondary starter cultures, and release an, as yet, unexplored potential for enhancing cheese quality, focusing on flavour development and inhibition of spoilage moulds.