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BOOK OF ABSTRACTS

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I10. Industrial and Food Microbiology and Biotechnology

P400. Development of a Novel Fresh Cheese Incorporating Ripened Cheese Surpluses

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The global volume of food waste is estimated at 1.6 billion tons of “primary product equivalents”. Hence, avoiding such waste by valorization of the products, as encompassed by a circular economy, has gained much attention.

The current project aimed at the development of a novel fresh cheese product incorporating (ripened) cheese, which may come from the surpluses of the dairy industry, thus representing a mitigation of food waste. The added ripened cheese provide nutritional value to the fresh cheese, as well as a multitude of flavor compounds.

Ripened cheese can be dispersed into submillimeter particles when mixed in a hot paste of gelatinized starch, forming a melted cheese base (MCB). In this work, corn or waxy rice starch were dispersed in cold semi-skimmed HTST milk, and the mixture was heated for 5 minutes, with continuous stirring, until 85 °C (for corn starch), or 90 °C (for waxy rice starch). At this point, the gelatinization of the starch was noticeable and grated or finely cut cheese was added. Ewes', goats', Emmental and Cheddar cheeses were used in this stage. The mixture was removed from the hotplate and stirred until the cheese was fully dispersed, with no visible, macroscopic pieces. The MCBs were left to cool down to room temperature, and subsequently were diluted with milk, or milk enriched with skim milk powder (SMP), and renneted at 35 °C with *Rhizomucor miehei* enzyme.

Several chemical and physical tests were then performed on the samples, such as macronutrient analyses, evaluation of syneresis, texture profile, and sensory analysis.

Results showed that gel formation of the mixture was hindered above a certain level of incorporation of ripened cheese, but this can be overcome by the addition of SMP to the preparation. Starch and SMP both reduced syneresis of the renneted gel. Starch seemed to decrease gel hardness, but addition of SMP had an opposite effect. The sensory attributes of the fresh cheeses could be modulated by varying the amount and type of ripened cheese, and of extra casein. The technical viability and consumer acceptability of these novel fresh cheeses were demonstrated.