Whey-less Cheese Manufacture Based on Novel Cheese Technology Platform (NCTP)

Teagasc is seeking industrial partners within the ingredient and retail cheese industry to assist in refinement of NCTP for innovative cheese ingredient solutions and health cheeses tailored to specific customer requirements.

Summary
The rapidly growing market for ingredient cheese is currently being served by sourcing traditionally-manufactured table cheeses. Teagasc has developed a dedicated 2-step process for direct manufacture of ingredient cheese tailored to customer requirements. Without the need for whey expulsion it lends itself to the development of new generation health cheeses and increased control of cheese characteristics.

Problem Addressed
Conventional manufacture of natural cheese is quite limited in terms of cost-competitive, customised ingredient solutions, reliance on a source of fresh milk and a large volume of ‘unclean’ whey, i.e. loss of added materials (e.g., prebiotic materials). Until now, it has not been possible, due to technological constraints and functional limitations, to reconstitute available dairy ingredients in the concentrated form that corresponds to the final compositional specification of targeted cheese types, thereby allowing increased control of ingredient cheese solutions.

Solution
This NCTP provides a platform for design and manufacture of cheeses with varying dry matter content and customised properties using three basic steps. The concept relies on customising the functionality of a milk protein-based ingredient and its subsequent transformation into cheese according to demand. Resultant cheeses may be either cast cheese (<48% dry matter, DM) formed by rennet/acid treatment of re-assembled milk in final package and/or structured cheese (up-to 60% DM) formed by further curd treatment (see figure below).

Competitive Advantage of Technology
1. NCTP capable of making cheese without fresh milk source.
2. No (or very limited) whey expulsion (cast cheeses)
3. Complete retention of any added materials, with potential for development of new generation health cheeses.
4. Greater opportunity to design/control cheese characteristics of ingredient cheeses.

Opportunity
This technology allows the development of a novel range of prototype, functional, casein-based ingredients whereby the pH, buffering capacity and casein-to-whey protein ratio of the resultant cheese can be targeted.

The aim is to link up with relevant cheese ingredient manufacturers to prepare and evaluate prototype cheeses (at moisture levels > 53% with functionality suitable for ingredient cheese applications) with a view to licensing this technology.

Intellectual Property Status
PCT patent Application WO 2009/1 50183.

Funding

How to Proceed:
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