

A Microparticulated Whey Protein Product for UHT Dairy Beverages

A novel microparticulation process for whey streams allowing the generation of Ultra High Temperature (UHT) stable microparticulated whey protein products for use in ambient stored dairy beverages. The process uses waste whey streams allowing the generation of high value add ingredients with an extended shelf life and more desirable functional and nutritional properties.

Whey Product; Whey Protein Concentrate; WPC; Ultra High Temperature; UHT; UHT Beverage Companies; Dairy; Microparticulated Whey Protein; UHT treated liquid nutritional products; UHT medical nutritional products

Problem Addressed

Microparticulated whey is especially useful in the dairy industry as a non-fat or low-fat food ingredient, where the microparticulated nature of the protein imparts a creamy mouthfeel. Standard whey microparticulation processes are not commonly applied in beverages, especially those required to have a long shelf life at ambient temperatures (i.e. UHT products) as high processing temperatures destabilise the whey protein, leading to grainy and undesirable textures. This method solves the problem of fresh whey protein ingredients instability after UHT.

The Solution

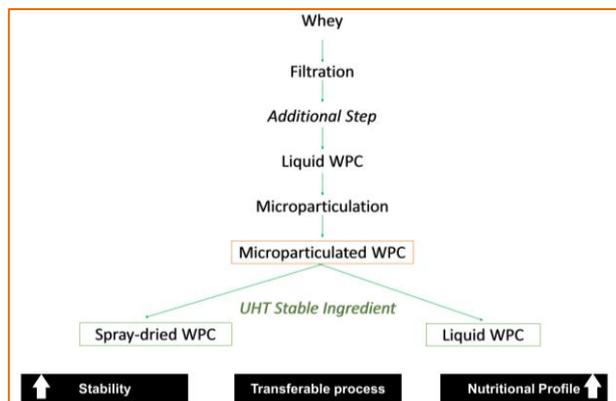
This novel microparticulation process (see Figure included) allows the production of a stable microparticulated whey product with more desirable organoleptic properties compared to conventional microparticulated whey which demonstrate poor stability characteristics during subsequent UHT processing.

Whey Protein Concentrate (WPC) is made through a combination of filtration processes, followed by a microparticulation step to produce a protein concentrate that is stable when subjected to UHT treatment.

By controlling the denaturation and aggregation of whey proteins during microparticulation the proteins can be rendered inert during subsequent high temperature processing allowing their incorporation into UHT dairy beverages without instability issues and with more desirable organoleptic properties for consumers.

Value Proposition

1. Easily transferable to existing UHT beverage process, with minimal cost implications
2. Value added UHT dairy beverage opportunity with increased shelf life and stability
3. Enhanced nutritional profile due to inclusion of whey
4. Process validated at commercial scale



Intellectual Property Status

Patent application filed 2017, PCT/EP2019/084098. Claiming novel processes for making WPC and resulting UHT treated liquid nutritional product/beverage.

Funding

Supported through Enterprise Ireland Innovation Partnership Programme.

Opportunity

Teagasc is interested in licensing the process to UHT beverage companies and nutritional formulators to generate new and improved food ingredients, with enhanced protein content, nutritional profile and increased shelf life surpassing current offerings.

How to Proceed:

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