

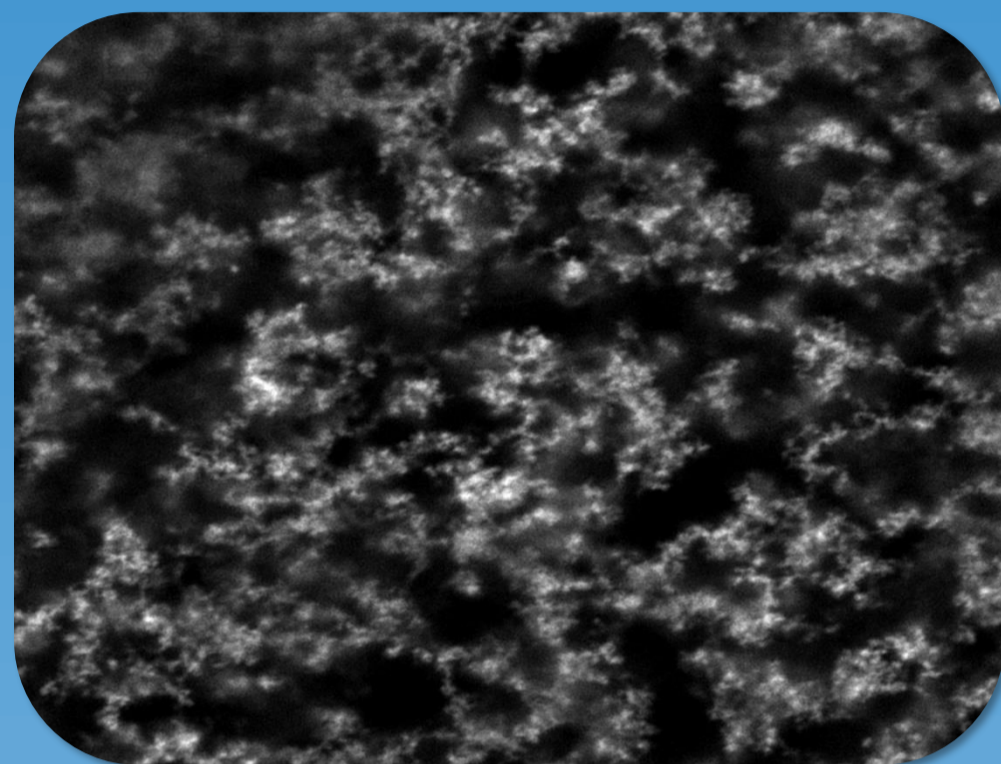


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Process – Structure – Functionality

Keywords

Casein micelle

Milk gelation

Whey protein aggregate

Rheology

How whey protein aggregates interfere on milk enzymatic and acid gelation?

Socio-economic context

Whey is co-produced in the dairy industry. It contains whey proteins that can be reused as ingredients in dairy products after:

- heating whey proteins separately, to form aggregates (*ex situ* heating)
- adding whey protein aggregates into milk

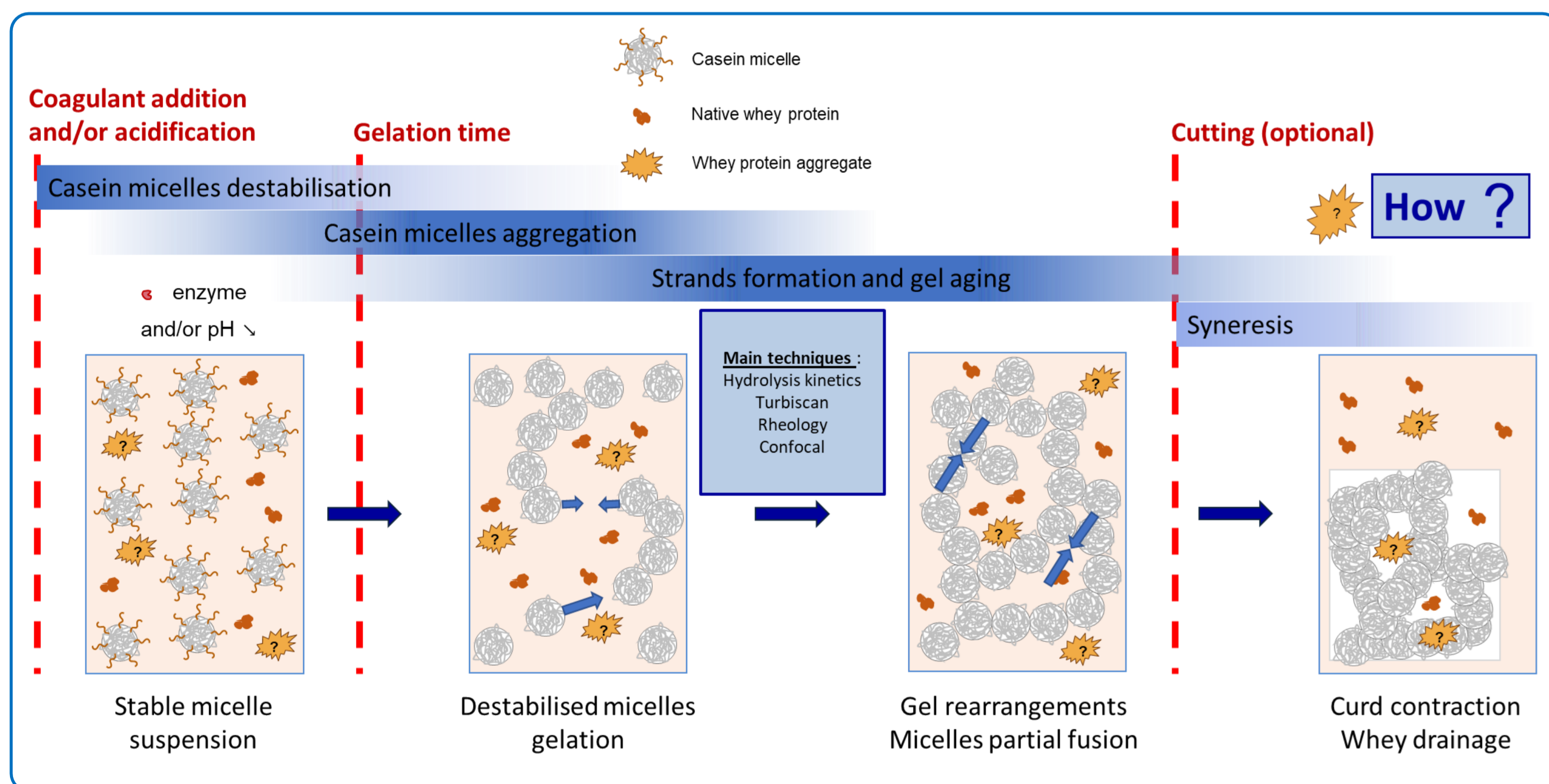
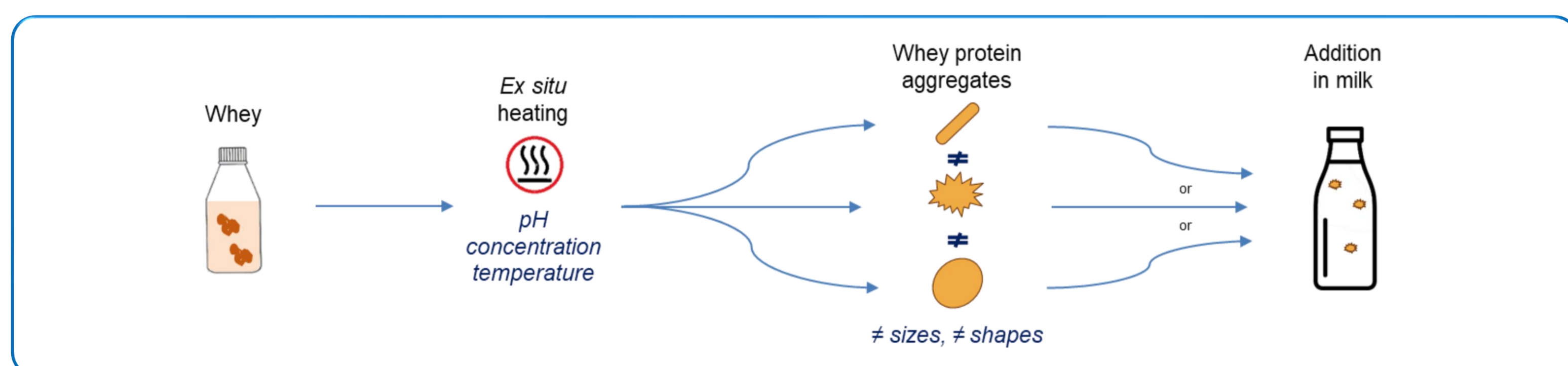
before continuing with the dairy process

Scientific context

- Milk gelation is one of the very first steps in the manufacture of a wide variety of dairy products
- The mechanism of formation of whey protein aggregates and their structure are well-known
- Their effects on the properties of dairy products have been extensively studied. However, only a few insights are given on how they modify the enzymatic gelation of milk

Research questions

- How do whey protein aggregates and other constituents of milk interact?
- What mechanisms explain the effects of whey protein aggregates addition on the coagulation properties of milk?



Expected Results

- Identification of interactions between whey protein aggregates and other milk constituents
- Proposition of mechanisms explaining how whey protein aggregates impact the gelation of milk and the rheological properties of milk gels

Perspectives

- Enhancement of knowledge of milk constituents and their interactions by other techniques (Scattering techniques: SAXS, SANS; microscopies: CLSM, SEM)
- Modelling milk gelation in the presence of whey protein aggregates using a soft matter approach

Funding

