

BDA group Master project

Project title: Critical quantitative evaluation of heat-induced changes
in milk protein distribution and interaction
Duration: At least 5 months
Start: Negotiable
Supervisor: Age Smilde
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Remarks: Collaboration with dr. Ewa Szymanska and dr. Thom Huppertz
(FrieslandCampina)

Project description

Milk proteins are in most cases the dominant constituents governing the physical properties and stability of milk and dairy products. Heat treatment is typically applied to extend the shelf-life of the dairy products, but has also strong effects on the proteins. Heat-induced dissociation of caseins and casein-whey protein interactions occur during many thermal processes applied to milk and dairy products and have a strong influence on the functionality of milk proteins.

Heat-induced casein dissociation and casein-whey protein interactions have been investigated by many research groups but there is no quantitative assessment combining and reviewing scientific results from many different sources i.e. scientific papers, presentations, published and unpublished datasets. FrieslandCampina Innovation Centre has started a comprehensive study in which data on heat-induced changes in milk protein distribution and interaction is selected, extracted, combined and statistically assessed. This will give not only increased quantitative understanding of physical chemical relations in product structure but also provide an excellent data analysis platform to study and review scientific data on different topics.

The aim of proposed internship is to develop a data scientific procedure for extraction, combination and analysis of data on heat-induced changes in milk protein distribution and interaction. The internship will lead to new insights on milk proteins and to new tools to find them.

During this internship, you will be a member of the research group in the Wageningen Innovation Centre. You will be working together with milk protein experts and the data scientific team.