A REFRESHING VIEW ON THE QUALITY OF FOOD PRODUCTS THROUGHOUT THE EUROPEAN COLD CHAIN

The cold chain of food products, for example for the postharvest storage of apples and pears, is obviously of paramount importance to guarantee the delivery of high quality products to the consumer. Typical quality features include chemical and microbiological safety, aroma, colour, texture characteristics, ...

The division MeBioS participates in the starting European project **FRISBEE** – **F**ood **R**efrigeration **I**nnovations for **S**afety, Consumers' **B**enefit, **E**nvironmental Impact and **E**nergy Optimisation Along the Cold Chain in Europe. In this project research is tackled by a unique approach: next to aspects such as food safety and quality (apple aroma, apple texture, ...) also aspects of energy consumption and environmental impact –such as equivalent CO_2 emissions for different steps in the cold chain - will be considered. Existing as well as promising new technologies for refrigeration will be analysed.

This vacancy for a PhD student is part of the FRISBEE project. The objective of the doctoral research will be a thorough risk analysis related with the following case-studies: (i) the risk for deviating texture, soluble solids and aroma after long term postharvest storage of apples (in cooperation with the VCBT- Flanders Centre of Postharvest Technology) and (ii) the risk for acquiring listeriosis in relation to the consumption of chilled meat products and prepared meals (in cooperation with ACTIA, France) and superchilled meat products (in cooperation with SINTEF, Norway).

The steps in the doctoral research involve fundamental as well as applied aspects:

- Follow the construction (done by other partner in the FRISBEE project) of a database at EU-level on the performance of existing cold chains and consumer expectations,
- Implementation of a number of field tests on the cold chain in Belgium, involving the case-studies as mentioned above, for database enrichment,
- Characterisation of uncertainty and variability in cold chain temperature using the developed database and by exploiting classical statistical techniques as well as advanced uncertainty models,
- Construction of quality models with temperature as the most important factor,
- Construction of a user-friendly software application to describe realistic trajectories of apples and meat products/ready-to-eat meals in the cold chain,
- Development of multi-objective optimization algorithms combining the software with models for energy use and environmental impact (designed by other partners)
- Translation of the results in suggestions for risk and chain management for professional users and risk communication towards consumers

The doctoral research will provide ample opportunity to interact with an international group of European experts in all technological aspects of the cold chain.

PROFILE

We are looking for an enthusiastic engineer, bio-engineer, master in exact sciences or equivalent with a firm interest in interdisciplinary research related with food technology, postharvest technology, cold chain technology, data analysis. Experience with programming is a strong asset. International candidates with a MSc degree who have distinguished themselves during their education are encouraged to apply.

CONTACT

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