CORE organic

Short description of the project

Project short name and title

EcoBerries - Innovative and eco-sustainable processing and packaging for safe, high quality and healthy organic berry products

Project summary

Sale of organic foods is one of the fastest growing market segments within the global food industry. However, the number of processed foods made from organic raw materials is still limited. Furthermore, the EU regulatory framework for organic food defines high quality of the products as an important goal of production but evaluation of processing technologies according to the requirements of organic food production is in general lacking. Consumers buy organic food because they believe in the high quality of the product. The most important reasons are health benefits (less pesticide residues and better nutritional quality), taste, and environmentally friendly production. Since organic production in EU competes with both conventional food and global organic production it depends greatly on innovation, novel appropriate technologies and scientific evidence to support the quality. To increase the amount of products commercially available that meet the requirements of organic food production and consumer expectations more research and knowledge is needed focusing on development and adaptation of processing technologies. The focus will be on innovating along the processing chain of organic fresh berries and value added products obtained using organic berries as raw materials but the findings of the project can be extrapolated to other organic plant products.

The general objective of the project is to identify processing solutions to enhance the safety and overall quality and nutritional value of organic processed berries by adapting traditional processing methods to organic requirements, further developing methods that are not fully implemented and developing new sustainable processing schemes. Technologies to naturally extend the shelf-life of fresh berries and to process berries into added value products will also be considered. The technologies and processing schemes will be adapted to organic products and selected based on their environmental impact.
The results will be widely disseminated and transferred to relevant stakeholders and in scientific journals, at international conferences and workshops. The main stakeholders for this project are (i) distributers of fresh berries (ii) food producers that use berries as raw material e.g. juice-, yogurt-, and smoothies manufacturers (iii) food producers that use dried fruits in their products (breakfast cereals, yoghurt, ice cream); (iv) entrepreneurs interested in food innovations, (v) retailers (vi) consumer organisations.

Aim, objectives and hypotheses

There is an increasing demand from consumers for organic berry products but the industry faces difficulties in meeting this consumer demand. The main goal of this project is to develop innovative sustainable processing and packaging technologies to boost the manufacturing of safe organic berry products with high nutritional quality and low environmental impact by:

- Characterization of organic berries and products regarding their nutritional quality, microbiological safety aspects (contaminants) (WP1)
- To identify new eco-efficient and biodegradable packaging solutions to extend the shelf-life of fresh organic berries and to minimize the waste of fresh produce (WP2)
- To evaluate and develop new mild processing technologies for organic products with enhanced functionality and nutritional value while meeting consumer expectations (WP3)
- To identify sustainable technologies and production schemes to produce innovative and high value-added organic berry ingredients and products (WP4)
- Evaluation of consumer acceptance to ensure the quality (taste, appearance and shelf life) of processed organic berries, taking into account the whole production chain (WP5)
- Dissemination of results and recommendations to farmers, industry, and stakeholders (WP6)

The main hypothesis of the project is that adaption of current technologies and development of new technologies, and packaging solutions applied to organic berry products will be a platform for an invigorated and high-tech sustainable organic berry sector, with a strong base in both minimal environmental impact (e.g. minimise water and energy us) and high nutritional and sensory qualities, while at the same time enhancing the shelf life.

Expected results and their impact/application

The following results are expected:

- Knowledge about the potential effects of production methods on nutritional quality and safety aspects
- Identification of packaging solutions based on bio-sourced/biodegradable packaging material to extend the shelf-life of fresh berries and minimize waste of produce.
- Suitable mild technologies to obtain dried berries with improved functionality and sensorial properties that are attractive for consumers
- Development of technologies to produce high added-value berry products (snacks, ingredients) by preserving the natural content of bioactive compounds

The knowledge will have positive influence on the end product quality and stimulate producers to

improve quality which will contribute to maintained/increased consumer confidence in organic products
These results will underpin creation of new profitable value chains for organic berry products. The involvement of numerous stakeholders, commerce and consumer organisations will be important in order to facilitate the practical application of the research and promotion of innovation and development of more sustainable systems for the organic food chain.

Coordinator, partners and countries involved

- **Chalmers, Sweden (coordinator)**
- **NOFIMA, Norway**
- **UNIBO, University of Bologna, Italy**
- **USAMVB, University of Agronomic Science and Veterinary Medicine, Romania**
- **VTT, Ltd. Technical Research Centre of Finland, Finland**
- **UMR-IATE, National Institute for Agricultural Research, France**
- **SP, Sweden,**
- **GU, Gaziantep University, Food Engineering Department and CRIFFC, Central Research Institute of Food and Feed Control, Turkey**