DAINME-SME

DAIRY INNOVATION
FOR MEDITERRANEAN SMEs

NEWSLETTER

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THE DAINME-SME PROJECT

The aim of the DAINME-SME project is to improve the circular economy of SMEs in the dairy sector in Mediterranean countries. All the proposed solutions / innovations are particularly suitable for SMEs (because they are developed by SMEs themselves), with the aim of solving problems especially for small processors. Innovative technologies are already used in other food sectors (such as animal feed), with reliable results. This goal will be achieved through the introduction of innovative technologies and the development of new dairy products.

The general objectives are:
• the valorisation of the by-products of the dairies, through the separation of the precious protein fractions or through their transformation into fresh food,
• the modification of the destination of whey for animal feed or as waste (in some countries, directly in rivers) in products of high nutritional quality for human consumption,
• validation of new food processing technologies, which will improve sustainability and the final quality product, compared to current processes.

The expected impact and results will be:
• 25% reduction in energy consumption in food spray-drying processes,
• 25% reduction in Nile river contamination (at least 1 million liters of whey are spilled every day),
• support for the enhancement of milk, for grazing ruminants (goats and sheep),
• increase in industrial activity for SMEs that build new process machinery in the Mediterranean area (at the moment most manufacturers are located in Northern Europe), • low-cost equipment for the concentration of whey protein, for the benefit of small dairies in the Mediterranean basin, • development and production of milk powders with high economic value, made by SMEs in rural areas,
• the birth of new high-tech companies in the Mediterranean area,
• diversification of income for small dairies,
• new sources of high nutritional proteins recovered from whey and made available to consumers,
• encourage the transition of traditional business activities towards more advanced technologies in order to increase economic well-being,
• new tools to increase the availability of key ingredients in children's nutrition,
• scientific studies and publications with the application of emerging food processing technologies for dairy products

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INTERVIEW WITH DAINME-SME Coordinator

Dr. Xavier Felipe is a senior researcher at IRTA and he is in charge of the Dairy food research Department

Your project is one of the first funded by the new PRIMA Programme. Why IRTA decided to investigate on this specific topic?
Cheese whey valorisation and whey protein isolation have been the subject of RDI for a long time, all over the world. However, this research has been focused mainly on cow's milk, but not on ewe's and goat's milk; they are actually very common in Mediterranean countries, since these species are more adapted to the feed and climate of this region. In Europe, especially in the central and northern countries, these species are almost marginal and few innovations have been implemented to find value for this large by-product.

What are your expectations on the future outcomes of the project and on the cooperation with Egyptian and Tunisian partners?
The consortium should work as a whole, so that each partner has to teach and learn from others. In Europe there hasn't been much interaction with these countries and this kind of projects is perfect for collaboration. All partners have different tasks which are very important for the success of the project.

DAINME-SME wants to reach concrete and tangible outputs for the Mediterranean SMEs. In your opinion, which are the main challenges and obstacles experienced by dairy producers in the Mediterranean basin?
The dairy sector in the Mediterranean area is very disaggregated: physically (there are a lot of islands and large extensions of land), with milk from different animals (cows, ewes, goats, and buffaloes) and small-scale farmers and cheese producers. This is an important shortcoming in achieving a good level of competitiveness in this sector.

WHEY - WASTE OR VALUE?

N*ayil Dinkci Ege University, Faculty of Agriculture, Department of Dairy Technology, Izmir, Turkey*

The dairy sector has effluents with different characteristics, depending on the product obtained (yogurt, cheese, butter, milk, ice cream, etc.). By-products contain various valuable nutrients; thus, their reuse in the production process enables efficient exploitation of all nutrients available in raw milk. Whey is the major by-product of the dairy industry and its disposal without expensive sewage treatments represents a major source of environmental pollution due to its large quantities and high organic loads.

The growing focus of society on circular economy and the environmental pressure have forced the dairy industry to manage its whey side stream. Cheese whey is at the same time an effluent with high organic and saline content and nutritional value. Whey contains valuable substances that are possible to valorise, including functional proteins and peptides, lipids, vitamins, minerals and lactose (Smithers, 2008).

There are several potential valorisation pathways for acid whey, including as a component in animal feed, nutritional products, bakery products and beverages. Today, however, the dominant use is as animal feed or as a biogas substrate in unprocessed form. On the other hand, nearly all sweet wheys are upcycled to value-added products, notably a variety of whey proteins and whey permeates used in the production of nutritional and functional foods.

When considering alternative valorisation options for by-products such as whey, it is important to take a holistic and integrated approach to sustainability. The most technologically advanced solutions are not necessarily the ‘best’ in terms of environmental, economic and social impacts, and trade-offs between these three dimensions of sustainability are likely to occur

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INAUGURAL MEETING OF THE DAINME-SME PROJECT

The Institute of Agrifood Research and Technology (IRTA) holds the kick-off meeting of DAINME-SME project. It took place on December 16th - 17th, 2019 in Monells (Spain), with the representatives from 6 different countries.

The main objective of this project is to improve the circular economy of dairy SMEs in the Mediterranean countries. Coordinated by IRTA (Dr. Xavier Felipe), the project includes 10 academic and non academic entities, which participated in the meeting: IRTA, UNIPROCA and EKONEK from Spain, APEXAGRI from France, SPES and ALIMENTA SRL from Italy, PANAGRO and EGE University from Turkey, CTAA from Tunisia and FAITC from Egypt; last but not least, SPES - a European Economic Interest Group, affiliating Food and Drink Federations from Italy, Spain, Portugal, France, Greece, Slovenia and Turkey.

During these 2 days, work packages leaders presented responsibilities and different tasks to all partners. Together, they established the way forward to achieve the objectives pursued in the DAINME-SME project for the next 3 years. Presentation of the partners were part of the agenda as well and the PRIMA representatives participated in management and legal issues. After the meetings, participants visited different facilities and the IRTA pilot plants.

**IN FORTHCOMING ISSUE (November 2020):*

Utilization of Whey in Africa Med Countries and results from survey to evaluate the final use of cheese-whey in dairy companies of Mediterranean basin.

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