2010 EFFoST Annual Meeting – What are the current trends?

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The EFFoST annual meeting was held in Dublin, Ireland from 10th to 12th of November 2010. Twenty-three plenary lectures were given and 272 posters presented. The scientific programme was divided in the four main sections: *Nutrition and Health; Functional Foods; Processing for Healthy Foods and Food Safety and Health*. The Journal does not permit a detailed description of all sub-topics; therefore, only the contributions representing the most significant breakthroughs are presented and further discussed.

As shown in the first section, **Nutrition and Health**, research trends as well as applications are strongly moving towards personalised nutrition, because (as is well known) not all individuals have the same response to the same diet. The concept of personalised nutrition is, as presented at the meeting, related to details of an individual's genetic code. This code may allow researchers to understand diet and gene interactions in the metabolism. However, because of very large number of genetic codes, definitive dietary advice based on a single code is not possible, but there is the possibility that dietary advice could be tailored to clusters of individuals who share a common metabolic profile or so-called *metabotype*. Of course, one needs to be aware that while personalised nutrition has major potential in medical treatment, no one will produce personalised cornflakes. Nevertheless, there are some issues regarding the approach of personalised nutrition for common use. Recently there has been growing interest in pursuing personalised nutrition, not based on genetic data but based on phenotypic and dietary data. Many services in the public and private sectors offer the opportunity to submit details of one's habitual diet and receive back details of one's pattern of nutrient intake together with advice on where the balance of nutrients needs to be improved. Such databases store quite personal information about individuals; some questions regarding the security of this data needs to be solved.

Encapsulation of important/**functional food** ingredients was another field of research and application presented and discussed and in which

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there is exponential progress. Encapsulation is a technology of coating an active ingredient within a shell material or entrapping it in a matrix, which may be used to prolong the shelf life of the active ingredient and achieve its controlled release or targeted delivery. The main benefits of this technology are the avoidance of severe environments during digestion and avoidance of biochemical reactions with other food components. This technology should preserve the chosen ingredient up to the point of utilisation in the body. There are significant difficulties in transferring knowledge gained in laboratory experiments into industrial production; mostly, this step is not done. However, the matrix material and encapsulation process chosen should ensure that the active ingredients do not lose their functions during the encapsulation process, that the matrix material should be edible, and that the formed capsules have desirable properties including size, morphology, structure, permeability and mechanical strength. This process should also be easy to scale up and (of course) not be too expensive. It is to be aware that this technology falls within the field of nano-materials, which opens some discussion regarding health impacts.

The presentation in the field of **food allergens** was very surprising. In spite of known health problems caused by food allergens, there is still a lack of good quality data about how many people suffer from food allergies, which kind of food react to and how much of a certain food can cause a problem. Therefore, the EuroPrevall project (http://www.europrevall.org/) is very welcommed, as it brings together a multidisciplinary partnership to address these issues. Cohorts spanning the main climatic regions of Europe have been developed, including infants, school-age children and adults. Confirmatory double-blind placebo-controlled food diagnosis has been undertaken, using foods as they are eaten with titrated doses to allow no effect and the lowest observable effect levels for allergenic foods to be determined. The cohorts are also facilitating validation of novel in vitro diagnostics through the development of the EuroPrevall serum bank. New instruments to assess the socioeconomic impact of food allergies have been developed and applied, allowing an assessment to be made of the burden this disease places on allergy sufferers and their communities for the first time. The new information coming from this activity will fill many of the gaps mentioned before. In addition, international collaborations, spanning Europe, North America, Africa, India and the Far East, are giving new insight into how environmental and lifestyle factors may affect patterns of allergies. This is especially relevant in the present global market place.

In the field of **food safety**, a very interesting presentation opening new perspectives regarding foodborne disease was given. The data presented showed that, at least in Western societies, viruses are the main pathogens involved in foodborne infections, although *Salmonella spp.* and *Campylobacter spp.* are still the most frequent one in the official reports. The reason for this is that they are the most frequently isolated. To date, several food items/products have been ranked by WHO/FAO as high risk food for foodborne infections and outbreaks. The assessment of the relevance of foodborne viruses is currently being formalised by

the preparation of guidelines for viral food safety in the Codex Alimentarius. Recent insights suggest several virus families causing a range of clinical symptoms that can be foodborne. Dealing with viruses in the food chain is not an easy task, as explained by the presenter, because they are quite resistant to common food production processes. Since not only levels of shedding may be very high, infectious doses are generally quite low. As explained by the presenter, the most common route of foodborne virus transmission is human to human, followed by sea shells and water. While foodborne viruses are quite resistant to heat treatment and cleaning procedures, personal hygiene is still the most effective measure to prevent their spreading. The need for the revision of guidelines for good hygiene practices (GHP) should also be considered in this context.

Nutrition and health claims legislation in the EU were presented and discussed from a legislation point of view. Emphasis was put on the differences between the nutrition claims and health claims, where it is a crucial and primary role of food legislation that consumers are not misled. The presentation was orientated mostly on The Nutrition and Health Claims regulation (1924/2006/EC), which came into force in January 2007; this was a good demonstration of the first harmonised EU legislation to establish specific rules governing the use of nutrition and health claims made on food.

In general, all the presenters explained the need for more effective and faster transfer of knowledge gained in the laboratories into real life and industrial production, but not on the account of lower levels of scientific research. Our contribution to this meeting was given in the form of the preliminary results of two studies on the field of food safety, entitled "Insulated bags: How effective are they?" and "Hygienic status and storage conditions of domestic refrigerators".