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Food Testing News

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Vitamin Competence Centre

Short turn-around-times and modern methods

By Benedicte Sandbæk, Eurofins Denmark

The Eurofins Vitamin Competence Centre established in Denmark in 2002 has considerably expanded during the last 4 years. Due to recent investments much shorter turn-around times can be offered and modern methods allow for lower LOQs (Limits of Quantification).

Today the Centre receives samples from all over the world. Sample matrices include food, dairy products, feed, raw materials, premixes, enriched confectionery, vitamin tablets and pharmaceutical products.

The Competence Centre focuses on high technical quality, participates in all relevant intercomparison tests and documents its performance in such tests. The methods used at the laboratory are based on recognised standards, USP, AOAC, EN/ISO while sample preparation and extraction are adapted to the relevant matrix. The analytical techniques used are mainly HPLC combined with UV and fluorescence detection. However, for some vitamins at low concentrations, microbiological methods are used.

In order to increase specificity and sensitivity, the traditional HPLC detectors have now been supplemented by mass spectrometry (MS). This means e.g. for vitamin D, that the normal analysis using HPLC-DAD is supplemented by an inline MS-detection (LC-MS). In particular Vitamin D is a difficult analyte, as shown by the relatively large variation of results in inter-laboratory comparison tests. The new LS/MS method is much more reliable and gives significantly lower LOQs and improved RSD values.

Reliable and short turn-around-times are very important for most of our customers. The vitamin laboratory now works 7 days a week and additional analytical lines were established to be able to offer much reduced turn-around-times.

In case the routine methods are not adequate for a customer's sample type, the laboratory can develop and validate customer specific methods. This has been done for example for some enriched confectionery products and also pharmaceutical products.

And of course if our customers would like to visit the laboratory, they are most welcome to do so.

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Noroviruses – a poorly known source of foodpoisoning

By Dr. Bert Pöpping, Eurofins Analytik GmbH, Germany

Why are noroviruses relevant for the food industry?

Bacterial contamination is typically well controlled at food manufacturing sites. However, noroviruses are not detectable by microbiological analyses and are generally overlooked. It it is estimated that as many as half of all food-related outbreaks of illness may be caused by noroviruses.

What are noroviruses?

Noroviruses are a group of RNA-based viruses which cause acute gastroenteritis in humans. There have been a number of synonyms for noroviruses, for example “Norwalk-like viruses”, “Caliciviruses” or “SRSV”. Noroviruses are comparatively stable and survive freezing and heating to 60˚C.

Are there any products which are typically contaminated with noroviruses?

Generally, norovirus infection can occur at any food production site. Historically, products which have quite frequently shown norovirus contamination are salads, fruits including frozen fruits, seafood and mineral waters.

Can Norovirus-contaminations be controlled?

Norovirus contaminations can be detected by real-time RT-PCR and can therefore be monitored similar to bacterial contaminations.

Some European countries have established expert working groups and a ringtrial validating a detection method, in which Eurofins has successfully participated, has recently taken place.

What does Eurofins have to offer?

Eurofins is offering the validated and ringtrialled test that enables you to monitor any contamination of norovirus at the production site or in the product and minimises the risk of foodpoisoning caused by the virus.

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Comparison of classical and sensory analysis

By Marion Cuny, Eurofins Scientific Analytics, France

Eurofins took the opportunity at the International Agricultural show held in Paris (February 2006), to draw consumers’ attention to aspects of fruit juice authenticity.

In partnership with the Institut National Agronomique Paris-Grignon, a higher education establishment in life sciences, Eurofins organised sensory testing sessions in which visitors to the show were asked to taste different orange juices. The aim was to see whether they could distinguish juices adulterated either with water or pink grapefruit juice by comparison with a control sample.

Sensory evaluation is used to describe, measure and analyse the characteristics of foods and other products, as they are personally perceived. It is an interesting analytical approach, being based on individual perception rather than on the performance of a machine. The sensory analysis services and consumer studies proposed by Eurofins Test Center are an important means whereby companies can identify consumer reactions to a product and its positioning in a particular market sector.

The analytical detection of adulteration of everyday products such as fruit juices is carried out on a routine basis at Eurofins Analytics in Nantes. The purpose of the tasting exercise at the Paris Show was to compare the efficacy of human sensory perception with measurements by ^{1}H NMR spectroscopy and HPLC to pick up adulterated products.

Statistical analysis of the two sets of data showed that both the consumers and the analytical tests could detect similar minimum levels of fraud: 10% added pink grapefruit juice and 4% added water in orange juice. However, the level of information obtained from each technique was quite different. Sensory testing gave a wider range of results, and the richness of the comments provided an indication of how the consumer discerned the decline in quality of the adulterated juice. On the other hand, classical analyses were able to pinpoint the differences in composition between the adulterated and authentic samples.

Combining sensory testing with classical analysis is an interesting approach in food authenticity testing. One thing is for certain, consumers can tell when their food is adulterated.

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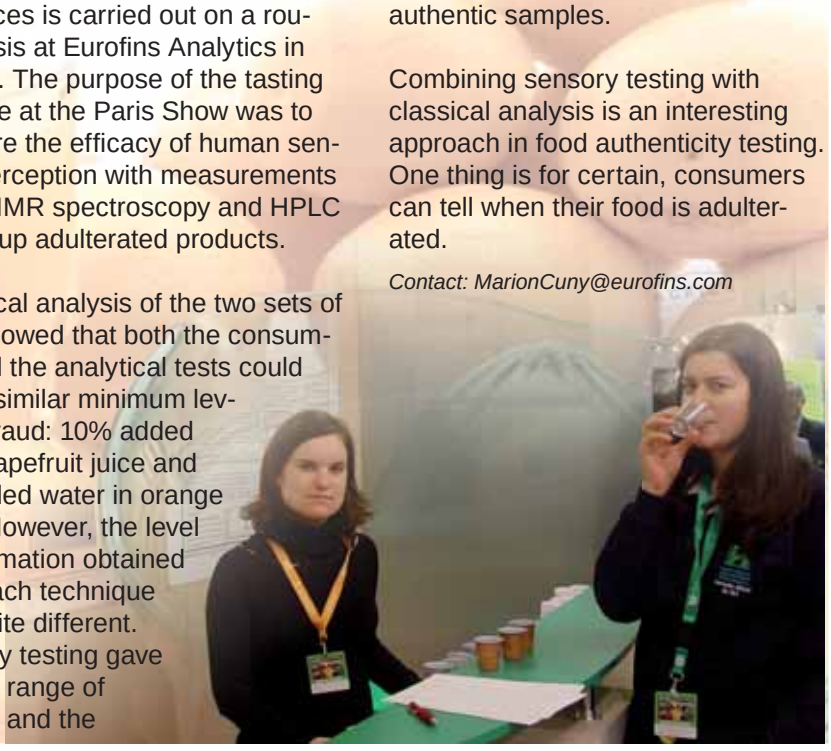

Harmonisation of the regulations for microbiological requirements in food

By Didier Fromentier, Eurofins Biosciences, France

Regulation (EC) n° 2073/2005 has modified the landscape of the microbiological control of foodstuffs by an approach emphasising more preventive control than has hitherto been the case.

The goal of this Regulation is to harmonise microbiological criteria at the level of intra-Community trade and to ensure the safety of food products imported from countries outside the EU.

In the spirit of the Regulation, the safety of foodstuffs is ensured mainly by a preventive approach such as Good Hygiene Practice (GHP) or Hazard Analysis Critical Control Point (HACCP). In this context, the obligatory microbiological control applies only when this would improve the degree of protection offered to the consumers and assuming that no other effective means would provide this. On the other hand, the absence of specific criteria in the Regulation does not exclude control if the risk analysis carried out by the operator highlights a microbiological hazard. The various Member States of the EU therefore have the option of applying the complementary criteria, particularly through the GHP.

Particular attention has to be paid to the stage at which the criterion applies. Thus, a process hygiene criterion should apply only at the production stage. The food safety criteria apply during the entire shelf life of the product placed on the market.

Internal checking is essential for the first operator who places a product on the market, but all of the food business operators have responsibility for the safety of the foodstuffs. Measurements of recall or withdrawal following an unsatisfactory result are based on the requirements of Regulation (EC) n° 178/2002.

Several Eurofins laboratories are able to analyse for all the bacteria for which a criterion has been specified by the EC. The tests are performed in accordance with the approved methods to meet the requirements of Regulation (EC) no 2073/2005.

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Note: Access to the full regulation texts on http://eur-lex.europa.eu/

in brief

Eurofins Certification (France) attended the IFT meeting in Florida

Diversity of **supply auditing systems and certifications in Europe** (IFS, BRC, ISO 9000, ISO 22000) derives from complex history between retailers and food suppliers with **one common objective: consumer safety**.

- How can suppliers choose a suitable standard?
- Does Food Safety Management System (FSMS) certification bring any added value to suppliers and sustainable food safety to consumers?
- Should there be a single FSMS standard?

During his talk at the IFT annual meeting (Institute of Food Technologists, Orlando, USA, 24-28 June 06), Fayçal Bellatif, on behalf of Eurofins Certification, described the situation in Europe and gave feedback derived from his many years of experience in food supply auditing and certification.

For more information: www.ift.org and www.ifs.fr (download of the complete presentation on-line)

IUFoST – 17-21 September 2006 in Nantes, France

For the 13th edition of IUFoST **World Congress of Food Science & Technology** - ***Food is life*** the Research and Development team of Eurofins Nantes will present 2 posters: 'Detection of Ovine Prion in Blood by HPLC - Preliminary Results' and 'Chemometric methods such as Independent Component Analysis combined with Nuclear Magnetic Resonance spectroscopy used as tools for preventing fraud in the food market: application to fruit juice.'

The Eurofins Nantes laboratories will also open their doors to the IUFoST participants for the business guided tour.

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WORLD JUICE 2006 - Eurofins Technical Forum

A Technical Forum will be organised by Eurofins Scientific together with World Juice 2006 on **October 19, 2006, Barcelona, Spain.**

Following the 8th International Symposium (FASIS) on Authenticity and Safety of Fruit-based Products and Beverages, the latest issues and technical developments will be reviewed in fruit juice authenticity, quality, health and safety.

This Forum will bring together the leading experts in analytical testing, product control and enforcement with all those involved in the juice trade.

Information and programme: http://www.agra-net.com/portal/

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New European maximum levels for fusarium toxins on July 1st, 2006

Mycotoxins are biogenic toxicants that are regularly found in cereals, oilseeds and fruit. They frequently cause disease in humans and animals. Fusarium moulds generate several highly toxic mycotoxins with different chemical structures, among which the most important for the food **chain are trichothecenes, fumonisines and zearalenone.**

These mycotoxins are relatively heat-resistant and are not eliminated during the processing of food and feed.

Regulation (EC) N° 856/2005 has set new maximum limits for fusarium toxins that will be applicable from July 1st, 2006.

(also see Eurofins Newsletter n° 18 and www.eurofins.de/news/specials/fusarium/en)

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