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Food Testing News

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Risk minimisation of food imports by supply chain control

By Sanjeev Khatri, Eurofins India and Werner Nader, Eurofins Food Germany

Global presence of Eurofins allows control of products before arrival in the EU or the USA.

Importers into the EU are facing one common challenge – is my product fit for the European market? Once products have arrived in Europe and are tested and found to be out of specification, importers might have to pay for their disposal. All too frequently these goods are quite different from those, which have been supposedly tested prior to leaving their country of origin.

Eurofins can assist in minimizing these risks for industry and trade. For instance, Eurofins GeneScan has established a supply chain control program for feed companies for soy meal from Brazil by applying polymerase chain reaction analysis (PCR) and quick tests (dip sticks). In this manner GMO levels could be kept below the EU-limits for GMO-labelling purposes. Nuts and dried fruits from Turkey are tested by Eurofins prior to shipment to the EU and sealed containers are only shipped after positive release.

Supply chain control and traceability can be achieved from chemical and DNA-fingerprinting. For olive oil, homogenous “mother lots” are prepared in huge tanks and tested organoleptically and chemically by Eurofins before bottling. Each single bottle can be traced back to the mother lot by its oil composition, which is a unique chemical fingerprint.

Recently Eurofins has established a supply chain control program for Basmati rice from India. Prior to shipment the rice is stored under quarantine and is only released for shipment, after its authenticity, safety and quality has been tested. Sampling, sealing of the quarantine area and loading is strictly controlled by Eurofins India. In Europe, a final cross-check is performed on arrival of the cargo of rice prior to milling and packaging. This rice receives a special Eurofins quality control seal.

The global presence and comprehensive analytical portfolio of Eurofins allows for the control of the supply chain by a neutral third party. In addition to inspection and control, stable isotope analysis, chemical analysis and DNA-fingerprinting provide further security. Rice and olive oil are only two examples of the versatile applications of this concept, which will be now be extended to the import of products from China.

Contact: SanjeevKhatri@eurofins.com ; WernerNader@eurofins.de

Eurofins has developed a new authenticity test for Thai Jasmine rice

By Silke Heimbecher, Eurofins Food Germany and Jens Wiehler, Eurofins Medigenomix GmbH

In Thailand, three varieties of Jasmine, fragrant or scented rice are being cultivated, the traditional variety Kao Dok Mali 105 and its derivatives Gor Khor 15 and Pathumthani 1. Kao Dok Mali 105 and Gor Khor 15 are officially registered as Thai Hom Mali rice.

Hom Mali is only cultivated from June to December in the lower North Eastern part of Thailand. The cultivation of Pathumthani 1 is not bound to certain regions and seasons and it can only be commercialized under this name. Hom Mali rice is of better quality than Pathumthani and can be stored over longer periods. Consequently it is more expensive than its derivative.

Eurofins has performed authenticity tests for Basmati rice for over 3 years by DNA-fingerprinting for various rice mills and retail companies. Due to high concern about the authenticity of Thai Jasmine rice, a new method for its identification has been developed. Based on the DNA-fingerprinting of Basmati rice, Eurofins has determined the DNA-fingerprint for Hom Mali and Pathumthani and is now able to distinguish both varieties, and also determine the quantity of other non-Jasmine rice.

As in the case of Basmati rice, adulteration with non-fragrant rice varieties can also be confirmed by the quantitative analysis of the rice fragrance gene, coding for the enzyme betainaldehyde dehydrogenase. Using this new method the adulteration of high value Basmati and Jasmine rice specialities can be detected and confirmed more reliably than was previously possible with the conventional DNA-fingerprinting method for Basmati rice.

The Basmati Rice authenticity test is ISO 17025:2005 accredited. The accreditation for the Thai Rice authenticity test is expected for March 2009.

Contact: SilkeHeimbecher@eurofins.de; wiehler@medigenomix.de

Analysis of food products by Near Infrared techniques

By Charles Victoire, Eurofins CRCB, France

Near Infrared techniques provide reliable, precise and fast solutions for the analysis of numerous raw materials and finished products, for human food as well as animal feed.

The infrared spectrum of the sample is recorded and the data are processed and converted into the corresponding concentrations of the required components using calibration models established with representative reference samples.

This technique and the equipment can be applied to liquid as well as dry samples after grinding.

The use of NIR is of major interest for quality control of raw materials, to ensure compliance with specifications, and to optimise formulations and monitor finished products. With its short turnaround time and low cost the use of NIR can help improve control in industry without straining the budget.

A draft international standard is being finalised by the European Committee for Standardization (CEN), with the Technical Committee CEN/TC 327 “Animal Feedingstuffs - Methods of sampling and analysis”, in collaboration with the ”Food Products” Technical Committee. The standard will provide the guidelines for the determination by near infrared spectroscopy of constituents such as water, fat, proteins, starch, and fibres, as well as other parameters of technical or physiological interest, such as the digestibility of animal feedingstuffs.

Eurofins has considerable experience in near infrared analysis as well as in the development of customer-specific calibrations in several countries. For example, hay as well as corn and grass silage can be analysed within a short period.

Contact : CharlesVictoire@eurofins.com

Declaration of compliance for food packaging

By Andreas Grabitz, Eurofins Consumer Product Testing, Germany

Since 2008 the European Union has required detailed information regarding food packaging made from plastic. Directive 2007/19/EC committed producers and importers of food packaging into the EU to enclose a document with the packaging which informs the user about its compliance with existing legislation as well as any restrictions on the use of the material. In most European countries this Directive was implemented in National legislation in spring 2008.

All materials and articles which are made exclusively from plastic monolayers, as well as multilayers are covered by the Plastics Directive. Furthermore, the sealing materials of screw caps fall within the scope of the Directive. In contrast, all other materials containing a layer which is not made from plastic, such as aluminium or paper, are not within the scope of this Directive, and hence do not require such a Declaration of Compliance.

For plastic materials as well as for screw caps the producer or the importer has to produce a written declaration in which they have to confirm compliance with fundamental requirements. These are, that when the material is in contact with the food it does not affect the taste or smell of food, compromise safety to human health and causes no unacceptable changes to the food.

The declaration also has to state that the packaging is in compliance with the Plastic Directive 2002/72/EC and the established limit of 60 mg per kg food for all substances which might be transferred from packaging to the food. Furthermore, the Directive defines specific limits for a wide range of substances like monomers, additives or plasticisers.

Last but not least the producer has to specify in the Declaration for which kind of food the packaging can be used and whether the packaging is suitable for freezing, pasteurisation or sterilisation.

Eurofins offers a broad consultancy service on all requirements from this new legislation as well as analytical services on most of the important monomers and additives regulated in the Plastic Directive.

Contact: AndreasGrabitz@eurofins.de

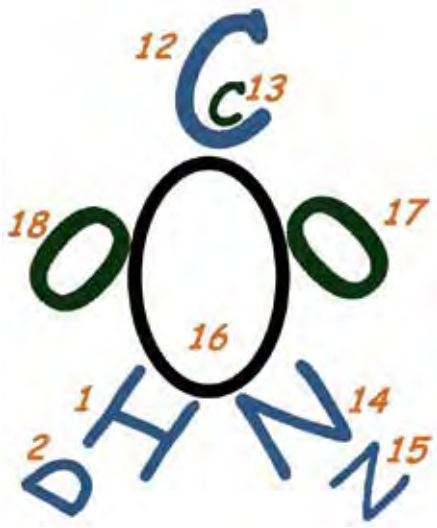
Validation of health claims using isotopic tracers

By Eric Jamin, Eurofins Scientific Analytics, France

According to the EC Regulation N° 1924/2006 on nutritional and health claims, that came into force on July 1st 2007, it is now mandatory for a food company which is including health claims in their advertising or labelling, to have an approval of the European Food Safety Agency. To get this approval, the company has to demonstrate that the claim has been scientifically validated.

One of the most efficient ways of studying nutritional effects of foods is to follow their metabolic pathway, either in animals or in humans, using stable isotopes as tracers. These isotopes (deuterium, carbon 13, nitrogen 15, oxygen 18, etc.) are not harmful when ingested at low levels: a Russian Scientist even claimed recently that they could be used to prevent aging*.

Measuring their distribution with time in various body tissues (blood plasma, urine, faeces, muscle, skin, etc) provides relevant information about the impact of ingested food ingredients on health. Large food companies looking for innovation in the field of consumer health benefits regularly perform such studies to validate their new products. Due to their extensive experience working for over 20 years in this field, the Eurofins laboratories in Nantes (France) can provide analytical support using either IRMS (Isotope Ratio Mass Spectrometry) or NMR (Nuclear Magnetic Resonance) measurements. The laboratory has been accredited to the ISO 17025 standard for stable isotope testing since 1994, and has strong expertise in the field of nutrition studies using isotopically-enriched food. Furthermore, a fast turnaround can be offered which significantly reduces the overall duration of the studies - a key-point for successful product development.



Clinical studies for this type of testing can be designed and coordinated with the Eurofins Pharma division.

Contact : EricJamin@eurofins.com

**New Scientist, 29 November 2008*

in brief

Eurofins China awarded ISO/IEC 17025 Accreditation.

Eurofins is pleased to announce that its new laboratory in Suzhou, near Shanghai, China has been awarded ISO/IEC17025:2005 accreditation from CNAS, the Chinese National Accreditation body. The scope covers microbiological testing, metals and a range of physical and chemical tests for food. Accreditation through a European body is also expected in the early part of this year, additionally covering pesticide testing and measurement of melamine and cyanuric acid. The range of pesticides included is designed to specifically meet the needs of food producers in China and also includes pesticides of specific interest to the tea industry.

The diversity of tests offered, together with existing services in IP certification and auditing, and testing services offered through the partner laboratories worldwide means that Eurofins can offer a full service, tailor made to the needs of customers in China and to those who source products from China.

For further information, please contact Leo Chen at leochen@eurofins.com or your local Eurofins contact.

Migration of Benzophenone and 4-Methylbenzophenone from printed carton board

In early February 2009, the European Union's rapid alert system for food and feed (RASFF) reported that the substance 4-methylbenzophenone, which is used as initiator for polymerisation in inks, was found in food products. Benzophenone was detected as well as 4-methylbenzophenone in cereal products from Belgium at concentrations up to 4 mg/kg. This was due to its migration from packaging materials.

The tolerable daily intake of benzophenone is 0.01 mg/kg body weight. There is a specific migration limit of 0.6 mg per kilogram of food specified by the plastics directive 2002/72/EC. For 4-methylbenzophenone no toxicological data is available up to now. The European Food Safety Authority (EFSA) was asked to provide a risk assessment.

The European printing ink association (EuPIA) has declared in a statement that members of EuPIA do not consider these UV-initiators as suitable for food packaging, due to migration concerns, unless there is a functional barrier present.

Eurofins offers the analyses of 4-methylbenzophenone and benzophenone in printed carton board as well as the testing of the migration of these substances from packaging to food simulants and the analyses of these substances in dry food products.

Contact: AndreasGrabitz@eurofins.de

Eurofins present at the PLMA fair in Amsterdam

The Private Label Manufacturers Association's international fair will be held 26-27 May 2009 at the RAI Centre in Amsterdam. The trade show is divided in two main sections, for food and non-food products.

Eurofins Germany will be present with two stands at the PLMA – one in the food section and one in the non-food section.

This fair is an ideal opportunity to get informed about new developments and new analyses for food and non-food products.

For further information please contact Maike Langmaak, service@eurofins.de

Eurofins' technical seminar on juices

Once more in 2009 Eurofins is organising, along with FoodNews, a technical seminar during Juice Asia.

You can update your expertise with renowned speakers and meet the experts in Beijing (China) on April 29th, 2009 during Juice Asia 2009.

This will be an excellent opportunity for you to catch up with the latest information regarding quality management, authenticity and fraud issues for fruit juices.

Presented from a non-scientific viewpoint, this seminar is accessible to anyone in senior management, R&D or sales and marketing roles, as well as technical specialists.

More information on the programme and registrations on www.agra-net.com.

Contact: EventsFr@eurofins.com

Eurofins Scientific Scandinavia
Sv. Aage Linde / sal@eurofins.dk
Tel. : +45 70 22 42 66

Eurofins Scientific Germany
Werner Nader / WernerNader@eurofins.de
Tel. : +49 40 49294 731

Eurofins Scientific France
François Vigneau / FrancoisVigneau@eurofins.com
Tel. : +33 2 51 83 21 00

Eurofins Scientific Netherlands
Linda Tilman / l.tilman@eurofins.nl
Tel. : +31 (0)88-831 00 00

Eurofins Scientific UK
Graham Evans / info@eurofins.co.uk
Tel.: +44 1902 693378

Eurofins Scientific US
Lars Reimann / LarsReimann@eurofinsUS.com
Tel. : +1 901 507 3959

Eurofins Scientific Switzerland
Klaus Fuchs / KlausFuchs@eurofins.com
Tel. : +41 62 858 71 06

Eurofins Scientific Italy
Valeria Merlo / ValeriaMerlo@eurofins.com
Tel.: +39 0171 412470

Others countries
info@eurofins.com
Tel. : +32 2 766 16 20

Newsletter editorial team:
F. Heupel, S. Noster-Vallée, B. McLean, S. Heimbecher, W. Nader, L. Reimann, S. Jensen, F. Vermaning, M. Martin.
Design : P. Vestergaard Soelberg.