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Food Testing News

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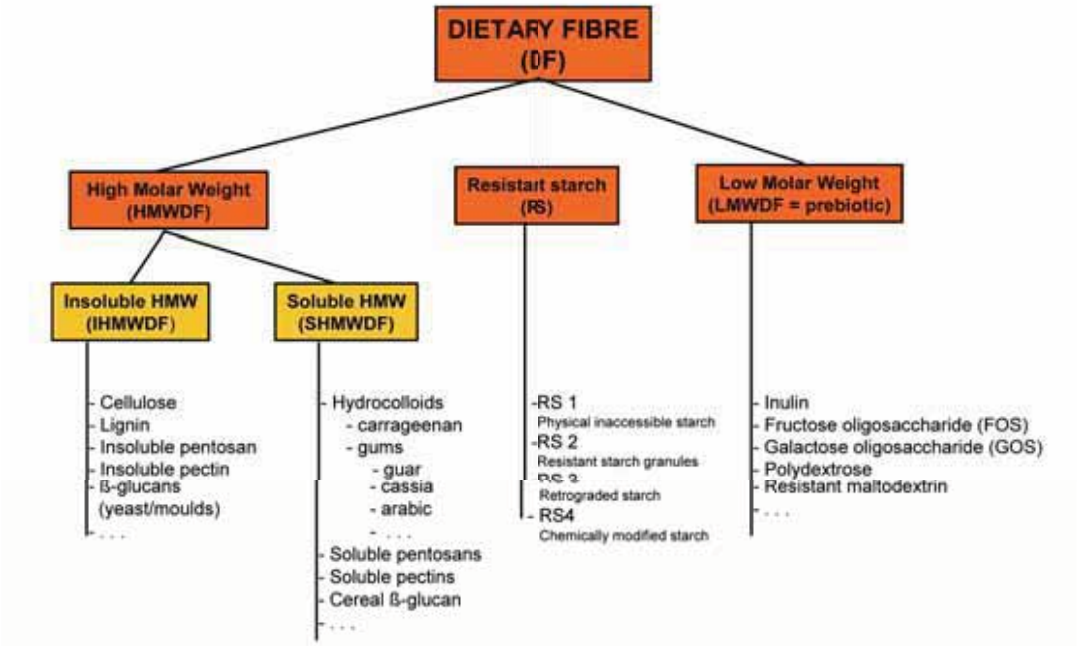
New developments in dietary fibre analyses

By Kommer Brunt, Eurofins Food, The Netherlands



It is generally recognised that dietary fibre is an essential part of human food. In the western world the daily intake of dietary fibre is considerably less than the recommended daily intake of about 35g. The different categories of dietary fibre have been shown to benefit diabetes, blood cholesterol levels, body weight control (obesity) and in the reduction of the risk of coronary heart disease.

Nowadays, many new products are launched with statements regarding their dietary fibre content. Manufacturers enrich their products with different types of dietary fibres such as soluble or insoluble high molecular weight fibres, or low molecular weight prebiotics as exemplified by inulins, the oligosaccharides (FOS and GOS) and polydextroses. Furthermore, resis-tant starch and resistant maltodextrines are considered as dietary fibre and added to food products.

Subdivision of dietary fibre constituents in different groups

Eurofins Food in The Netherlands has developed five different packages for the determination of the dietary fibre content of semi prepared and finished food products including drinks.

With these five different packages Eurofins can distinguish between the different groups of dietary fibres: it is possible to distinguish between soluble and insoluble dietary fibre groups and between high and low molecular weight dietary fibres. It is also possible to look just for the low molecular weight (prebiotics) fractions of the dietary fibres.

Apart from these packages, Eurofins can also perform several analyses for specific dietary fibres and/or prebiotic constituents.

Currently, food products can be fortified with different dietary fibre ingredients, ranging from the classical naturally high molecular weight dietary fibres (e.g. cereal based ß-glucans, fruit-based pectins, resistant starches) to the low molecular weight dietary fibres such as inulins, fructose-oligosaccharides, galactose-oligosaccharides, polydextroses and resistant maltodextrins. Eurofins has developed a helpful scheme in order to assist with the decision as to which specific dietary fibre tests have to be performed in order to correctly determine the dietary fibre content of fortified food products.

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Importing food and feed from China
- Risk reduction opportunities

By Peter Leedham, Eurofins China and Werner Nader, Eurofins Global Control, Germany

China became the world's second biggest export nation in 2008 and is a major exporter of many fresh and processed food products. The number of EU-Rapid Alert notifications for food and feed for Chinese products increased to 355 in 2007 and US FDA has detained an increasing number of shipments. However, this must be considered in the context of the large quantity of food products exported.

Notifications have included residues of veterinary drugs, aflatoxins in peanuts, chemical contaminant migration from food contact materials, and excessive levels or undeclared sulphite preservative in dried fruits and vegetables. In 2006, there were notifications of Bt 63 GMO rice products being exported and melamine became a major issue for Chinese feed materials in 2007 and for infant formula in 2008. This year new notifications have included the illegal use of the dye orange II in Chinese safflower oil.

The response in China has been to develop its own domestic "Rapid Alert System for Food" and increased controls on food and feed exports. For the private sector, Eurofins now offers new services combining experience and knowledge of food analysis, EU food legislation and the potential risks posed by food imports from China. The Eurofins laboratory in Suzhou offers analysis to the same standard as Eurofins European Laboratories and is accredited to ISO 17025 by both the China National Accreditation Service and the German accreditation body (DACH).

Eurofins Global Control is a recent addition to Eurofins' service centers and complements the services offered by Eurofins' facilities in China. Eurofins Global Control offers full supply chain control to importers sourcing ingredients from many countries including China. Such services include inspection, sampling and analysis of food products and auditing of industrial and agricultural production sites. Production lots are sampled and analysed according to applicable EU or US standards before shipment. This minimises the risk that products cannot be sold or used upon arrival.

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Checking the geographical origin of olive oil

By Eric Jamin, Eurofins Scientific Analytics, France

Commission Regulation (EC) No 182/2009 on marketing standards for olive oil has introduced mandatory labelling of geographical origin within Europe, from July 1st 2009.

The nutritional benefits of olive oil have been well publicised resulting in increased demand for high quality products from specific origins. In March 2009, the European Commission brought in legislation requiring precise origin labelling of olive oil.

Multi-isotope profiles

Verifying the geographical origin of agricultural products such as olive oil requires determining a combination of parameters in order to discriminate clearly between different provenances. Several stable isotope ratios can be related to geographical parameters

such as latitude, distance from the sea and altitude as well as the local climatic conditions such as temperature and humidity.

Eurofins has established an analytical package based on these isotopic ratios and their comparison with a database of authentic products of certified origin. It cannot determine the origin of a sample which is completely unknown due to the fact that some similarities in isotope values exist between certain regions of the world. However, it can be used to check a declared origin for all European producing regions.

Eurofins Laboratories offers these analyses which can be combined with parameters related to the quality and authenticity of the oil and the method of extraction, in particular for virgin olive oil.

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Efficient new multi-matrix method for GMO

By Nicholas Krohn, Eurofins GeneScan, Germany

Each year new crops that have been enhanced using biotechnology, also referred to as genetically modified organisms (GMOs), enter the market. Advanced GMO testing has to combine the broadest screening and precise identification with cost and time efficiency to meet the up and coming challenges.

Analytical laboratories are facing new challenges with respect to GMO analysis. Not only from the area of global planting of biotech or GM crops but also from the diversity of the different GMO varieties and crops (e.g. from Brazil). Furthermore, the number of countries that are developing GM crops is increasing e.g. China, India and African countries. New GMOs lacking common genetic screening elements (e.g. 35S promoter or NOS terminator) may enter the food and feed chain. Innovative method development is the key for a reliable GMO analysis.

To meet these challenges Eurofins has developed a new multi matrix method to reliably detect several transgenic targets simultaneously. The performance of the method was extensively tested utilising a novel validation plan to ensure that stringent quality criteria are fulfilled.

The new method enables the Eurofins GMO testing laboratories in Brazil, Europe and the USA to offer timely and cost-effective screening assays to reliably detect commercialised GMO varieties, including those that do not contain common genetic screening elements.

Companies involved with the food and feed chain benefit from this advancement by extending the range of detection for potentially contaminating GMOs to cover current and new varieties - specifically in corn and soy.

By combining different analytical steps Eurofins has reduced the turnaround time to ensure faster reporting of results. The new method can be used in various combinations with existing GMO testing methods. This will enable the laboratory to customise the testing to satisfy customer needs with regard to GMO testing.

MultiScreen^{HX} , the new multiplex realtime PCR assay, complements the broad range of Eurofins GMO testing methods.

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Consumer magazines check the quality of honey

By Gregor Camps, Eurofins Analytik GmbH, Germany

Earlier this year several consumer magazines published the results obtained from testing a variety of honey samples. Major points of criticism were damage by heat, the presence of GMO (genetically modified organisms) and no indication on the label of the source for mono-floral honeys. Hence, the requirements of the German Code of Practice for honey with a superior quality were not met.

Producers were puzzled by criticism of low enzyme activity or high HMF (Hydroxymethylfurfural) for honey in samples without any claim on the label of their superior quality, since they met the legal requirements. Consequently, some retailers revised their specification for honey to include the enzyme activity of invertase and reduced levels of HMF.

The survey carried out by the magazines included a check for pollen from GMO sources. One magazine found Roundup Ready Soy in most of the South American honey blends and genetically modified rape in Canadian clover-rape honey. However, another magazine did not find any products from genetically modified plants. Eurofins analysed soy (glycine max) pollen and found positive results for Roundup Ready Soy using PCR-checks.

A further point was the missing identification of the origin of mono-floral honeys. The product names may be supplemented by:

1. The botanical origin, if the honey comes wholly or mainly from this source and possesses the organoleptic, physico-chemical and microscopic characteristics of the source
2. The geographical origin, if the product comes entirely from the indicated source.

For verification of the authenticity of mono-floral honey, the sensory characteristics must be considered in conjunction with the pollen analysis and physicochemical characteristics. Pollen analysis also enables the verification of geographical origin. Complementary confirmation of origin may be obtained by isotopic analysis, especially in the case of filtered honeys.

European Regulations addres-sing mono-floral honey are being revised. In 2004, the International Honey Commission published a collection of data of some European mono-floral honeys. The German Commission is in the process of revising their Code of Practice for honey.

Eurofins is one of the leading laboratories for honey analysis, is engaged in method development and collaborates with DIN and with the German Code of Practice Commission.

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Food Testing

in brief

New maximum levels of heavy metals have been set in food supplements.

The rapid alert system for food and feed (RASFF) has reported finding high concentrations of lead, cadmium and mercury in dietary food supplements. Food supplements therefore have the potential to be a major contributor to the total human exposure to heavy metals. Research has shown that heavy metals can accumulate in the body with dramatic consequences to health.

In order to protect public health, the European Commission has prescribed maximum levels of lead, cadmium and mercury in food supplements in its Regulation (EC) N° 629/2008 amending the regulation (EC) N° 1881/2006. These new maximum levels will apply from July 1st, 2009.

Maximum levels applicable from July 1st, 2009 for food supplements:

Lead: 3.0 mg/kg

Cadmium: 1.0 mg/kg. Except for food supplements exclusively or mainly made with dried seaweed where the maximum level has been fixed at **3.0 mg/kg.**

Mercury: 0.10 mg/kg

Note: the maximum level applies to the final food supplement as sold to the consumer.

Similar concerns have surfaced in USA where Proposition 65 guidelines call for limits as low as 0.5 µg and 4.1 µg per daily serving for lead and cadmium respectively.

Many Eurofins facilities perform analysis for the detection and quantification of heavy metals in various matrices, including dietary food supplements.

Please contact your local Eurofins representative for further information.

Guidelines for the presence of nicotine in wild mushrooms

The Standing Committee of the Food Chain and Animal Health Commission (SCoFCAH) published on 11 May 2009 guidelines concerning the presence of nicotine in wild mushrooms.

The Commission found that some samples of dried wild mushrooms may contain higher level of nicotine than the current EU Maximum Residue Level (MRL's) of 0.01 mg/kg (EC No. 396/2005).

Therefore, new temporary MRLs have been set:

Fresh wild mushrooms are allowed to contain a maximum of 0.04 mg/kg nicotine, and dried wild mushrooms other than ceps are permitted to contain up to 1.2 mg/kg. The MRL for dried ceps (mainly *Boletus edulis*) is now set at 2.3 mg/kg.

Member States must establish a monitoring programme in 2009 to determine natural levels of nicotine. The results of this monitoring programme will be reported to the EFSA. As part of the outcome of this programme new MRLs are expected by the end of 2009.

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Dietary Fibre Conference 2009 - Eurofins will be present!

The 4th Dietary Fibre (DF) Congress will be held in Vienna on 1-3 July 2009 in Schönbrunn Palace. This year the topics covered will include nutrition and health, definition and analysis of fibre, consumer communication and the structure and functional relationship of different types of dietary fibre.

Eurofins will exhibit and present a poster at the Congress. Kommer Brunt will also speak about "the pitfalls in the determination of the total dietary fibre content, and the calculation of the energy value in food products".

For more information about the Conference, please visit the website www.icc.or.at.

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