

Food testing under GMP - food and pharmaceuticals

By Dr. Helga Neumann-Hensel, Eurofins Fintelmann und Meyer GMP GmbH, and Frank Kareth, Eurofins DILU – Deutsches Institut für Lebensmitteluntersuchung GmbH, Germany

The new unit Eurofins Fintelmann und Meyer GMP covers the area of products that lie between food and pharmaceuticals. The market of food, pharmaceuticals, over the counter (OTC) products and food supplements is very large. Many products are borderline in nature and can be a pharmaceutical as well as a food depending on how they are marketed. For example pumpkin seeds can be a roasted snack or a salad topping, garlic capsules can be a food supplement with benefits for the cardio-vascular system and peppermint oil can be a food-flavouring. However, they might all be pharmaceuticals if the labelling indicates that they are to be used to cure a disease.

In many cases the products have to be analysed according to Pharmacopoeia methods to the high pharma quality standard GMP (Good Manufacturing Practice). GMP is regulated by national and international agencies. Regulatory inspections are performed by the national agencies to ensure the quality of the service.

Eurofins Fintelmann und Meyer GMP performs the analysis under such quality standards and has GMP certification and also accreditation according to DIN EN ISO/IEC 17025. Chemical and microbiological analyses are performed according to the current Pharmacopoeia (e.g. EP, USP, BP, JP) and ISO methods. Eurofins Fintelmann und Meyer GMP can prove the

microbial status of the products, identify active ingredients and impurities, and measure their content.

In cooperation with Eurofins DILU (Deutsches Institut für Lebensmitteluntersuchung), Eurofins Fintelmann und Meyer GMP offers customer support in respect of the formulation of food supplements and functional food. Eurofins DILU recommends test schemes, checks the legal status and labelling requirements of health food and is the specialist on matters such as food additives, active ingredients and health claim labelling and advertising. A health claim is any claim that states that there is a relationship between food and health, or that a food product significantly reduces a risk factor for a particular disease (like “calcium is good for your bones” or risk reduction claims like “calcium intake might reduce the risk of osteoporosis”).

For food to bear a health claim, the claim must be approved by the European Commission and the food has to contain a significant quantity of the nutrient or active ingredient in the amount of the product that can reasonably be expected to be consumed. Compliance can be tested by Eurofins.

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Differentiation of inorganic and organic arsenic in food and feed

By Dr. Katrin Hoenicke, Eurofins WEJ Contaminants GmbH, Germany

Arsenic is a metal that occurs both naturally and as a contaminant resulting from environmental activity (mainly in the soil). It can be present in food as inorganic or organically bound arsenic and these forms differ significantly in their toxicity. Long term ingestion of inorganic arsenic can lead to ailments such as skin lesions, cancer of the urinary tract, lung, and skin, whereas organically bound arsenic exhibits relatively low toxicity. Consequently, the potential adverse effects of arsenic exposure to health are determined mainly by the inorganic fraction.

The main source for the arsenic intake in humans in Europe is from food. Seafood and fish can contain particularly high amounts of arsenic which is often mainly present as arsenobetaine and arsenocholine, i.e. the less toxic organic forms. The main sources of inorganic arsenic exposure

are due to consumption of cereals and cereal products followed by food for special dietary uses, bottled water, coffee, beer, rice and rice products, fish and vegetables. In Europe there are no harmonised maximum values for the arsenic content of food. For certain animal feed products maximum values are given in the European guideline 2002/32/EC.

Eurofins WEJ Contaminants offers the determination of inorganic and organic arsenic in food and animal feed. Total arsenic is determined after pressure digestion using inductively coupled plasma - mass spectrometry (ICP-MS) and/or atomic absorption spectrometry (AAS). Additionally, a specific



determination of the more toxicologically relevant content of inorganic arsenic is performed using the hydride technology (hydride AAS). Using this method the ratio of organic and inorganic arsenic as well as the amount of the more toxic inorganic arsenic can be determined in food.

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Pesticide residue analysis in dried fruits

Available in 24 hours with very low detection limits suitable for organic products

By Dr. Matthias Sauer, Eurofins Dr. Specht Express GmbH, Germany

Different producers, wholesalers and industries are showing an increasing need for rapid detection and identification of pesticides, with demanding requirements for analytical competence and service reliability. Eurofins Dr. Specht Express is an innovative laboratory organisation exclusively focused on very fast turn-around times for high quality pesticide analysis in different fresh and processed products such as fruits, vegetables or cereals. Eurofins Dr. Specht Express offers reliable test packages for the detection of pesticides with turn-around times of 12, 24 and 48 hours. Additional service components such as logistics designed to meet customer needs, or pre-harvest and pre-shipment testing are also available.

For the first time, the company offers an express analysis for the difficult matrices of dried fruits. This new analysis package (**SpechtMulti+DF**) is a unique combination of purification methods and analytical procedures that were specifically developed for dried

fruits. The advantages of using the new approach are that the analysis is rapid and at the same time able to reach very low detection limits. Therefore, dried fruits can be analysed for pesticides in 24 hours and in accordance with requirements for organic products.



Furthermore, the test covers a very broad scope of pesticide compounds and increases the level of confidence in product compliance. The package (**SpechtMulti+DF**) can be applied to many different kinds of dried fruits including pineapples, apples, apricots,

orange and citrus slices, goji berries, cranberries, mangos, papayas, dates, raisins, cherries, ginger, cantaloupe slices and more. The new test is good value for money and is characterised by an excellent price-performance ratio.

The advantages of the new pesticide testing package (**SpechtMulti+DF**) for dried fruits:

1. Large range of pesticide compounds in one analysis giving increased confidence
2. Shorter processing time of 24 hours giving fast turn-around times
3. Very low detection limits meet the stringent requirements for organic products
4. Good value for money

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Sample preparation robot for mycotoxin analysis

Customer focused research & development at Eurofins

By Simone Staiger and Dr. Ole Winkelmann, Mycotoxin Competence Centre, Eurofins WEJ Contaminants GmbH, Germany

Mycotoxins are toxic metabolites produced by moulds which appear in the food chain as the result of a fungal infection of crops, either during growth or storage. The presence of mycotoxins in food and feed cannot be completely avoided and regulations exist to limit exposure. A number of different mycotoxins are routinely analysed at Eurofins WEJ Contaminants in diverse commodities. Particularly large numbers of samples are handled for the most prominent mycotoxins, ochratoxin A and aflatoxins B and G, which occur for example in grains, coffee, dried fruits, nuts and spices.

In order to improve the quality of the results and to accelerate the throughput of samples for analysis, the prototype of a sample preparation robot has recently been installed in the laboratory. The automation of the

process offers a number of benefits for the customer. Every single step of sample preparation (weighing, addition



of salts, solvents and standards, mixing, filtration, transfer of extracts) is carried out precisely according to the detailed protocol. This generates more reliable results compared to the manual sample

preparation procedure which requires great care to minimise the risk of errors. Furthermore, the robot increases the capacity of the laboratory and thus enables the handling of larger number of samples in a shorter time period.

The system has so far been validated for the analysis of ochratoxin A and aflatoxins B and G in dried figs as well as ochratoxin A in green coffee. The results of the automated process are in very good agreement with those obtained by the accredited manual sample preparation, and the robot is now routinely in use for the aforementioned matrices.

The validation and use of the system for further matrices and analytes is progressing.

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Competence in monitoring persistent chemicals

Analysis of 24 “Stockholm-POPs” and more at Eurofins GfA

By Frank Neugebauer, Competence Center for dioxins & persistent organic pollutants, Eurofins GfA GmbH, Germany

Whether they induce human disease, have adverse effects on animals or contaminate food and feed – the negative properties and effects of the 24 Persistent Organic Pollutants (POPs) are many.

Since the end of August 2010, the number of pollutants banned or restricted on a worldwide basis has extended to a total of 21 chemicals, with an additional 3 further candidates under review. Amongst them are accidentally produced chemicals such as dioxins, and those industrially synthesised such as pesticides, PCBs, flame retardants and fluorinated surfactants. They all have one thing in common. They are released into the global ecosystems and are difficult to remove. They act as endocrine disruptors or as mutagens or are just poisons and are therefore under increased observation by concerned governments of the world. Their accumulation within the food chain reaches the human body and hence special attention is given to foods where they may be found, for example fish, eggs, milk or cheese.

An international agreement covering the control of POPs was agreed in

Sweden and issued in 2001. The Stockholm Convention on POPs has been signed by over 150 countries agreeing on prohibition or restriction of these chemicals by establishing national implementation plans and regulations within the signatory countries.

Eurofins GfA acts as a POP Competence Centre within Eurofins, offering analysis of the whole range of Stockholm POPs and the potential candidates. Using a set of sophisticated mass-spectrometric techniques, 24 pollutants or pollutant groups can be

quantified including the well-known contaminants dioxins (PCDD/F) Polychlorinated Biphenyls (PCBs), DDT or several brominated flame retardants.

The complete list of pollutants analysed as well as more information can be found at www.pops24.de.

Furthermore, Eurofins GfA is also offering solutions for similar compounds such as PAHs, organotin compounds, phosphorous flame retardants or “novel POPs”.

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in brief

Eurofins International Seminar 2011

Brussels, Belgium, May 10-11, 2011

For its 19th edition, the Eurofins International Seminar heads to the European Capital with a renewed programme: 2 main themes combined in a 2-day event.

Biotech developments in the food industry will return, sharing the programme with topics related to food safety solutions. As always, it will be a meeting point for professionals involved in all areas of the agro-food chain.

More information soon on

<http://eis.eurofins.com>.

EU recommendation on monitoring of ergot alkaloids

Ergot is the sclerotium of a fungal parasite which feeds on various cereals and forms a number of highly toxic, so-called ergot alkaloids. Ergot is normally removed during the cleaning process of grains.

In a recent recommendation from the European Commission the monitoring of ergometrine, ergotamine, ergosine, ergocristine, ergocryptine

and ergocornine in food and feed has been suggested. This is considered more appropriate than the physical determination of ergot.

Currently, a limit exists only for the ergot content of feed which contains unground cereals (0.1%, European Directive 2002/32/EC). Eurofins WEJ Contaminants offers the determination of all the aforementioned ergot alkaloids in cereals and cereal products by LC-MS/MS.

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Opening of Eurofins food laboratory in Des Moines (USA)

Eurofins has finally unveiled its brand new nutrition analysis facility to customers, the media, and key industry contacts at its grand opening on August 3rd in Des Moines, USA. This new relocated and expanded facility consists of a 60,000 sq/ft area that houses both the Nutrition Analysis Centre, including the Vitamin testing center, and the Eurofins US Support Services. It is considered to be the flagship laboratory for Eurofins in the US with state-of-the-art instrumentation and highly skilled scientists. The new centre and instrumentation give the US food testing group enhanced

capabilities to handle speciality projects, more specifically Good Laboratory Practice (GLP) work as well as work to other industry accepted standards.

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Access the Eurofins laboratories from your desk

With Eurofins OnLine (EOL), our free online service, you can now enjoy 24/7 access to our laboratories. Track your samples from registration to test report and leverage many other benefits, such as:

- Faster turn-around times with online sample registration
- Greater transparency in the "sample workflow"
- Compliance check of your results according to your specifications or legally defined maximum levels
- Online archive for storing your analysis results and test reports
- Retrieval of customer specific statistics
- Export of analysis results in a range of file formats
- Integration of group structures for customers with multiple locations
- Individual user authorisations
- Simple and user-friendly interface

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COMING EVENTS

EVENT	DATE & PLACE	MORE INFO	CONTACT
BIOFACH	16-19/02/2011, Nürnberg, Germany	Hall 9, Booth 9-225	marketing-food@eurofins.de
FRUIT LOGISTICA	9-11/02/2011, Berlin, Germany	Hall 21, Booth D12	marketing-food@eurofins.de
EIS	10-11/05/2011, Brussels, Belgium	http://eis.eurofins.com	eis@eurofins.com

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