

## Rapid methods for hygiene determination

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The performance of rapid methods for testing cleanliness in industrial situations is being assessed by a member funded research project that started this year. The research is mainly focused on methods for identifying chemical and microbial hazards such as allergens and *Listeria*. These rapid methods will be compared with validated methods that are currently used but which take longer to deliver results.

Many rapid hygiene test systems are already on the market but in supporting the project our members sought independent assessment to understand their capability and suitability to different environments, contaminant types and food production technologies. Systems with the potential for providing an array of real-time information are also becoming available on the market. This project will investigate the latest next generation technologies for detecting the presence of allergens, meat and microbes (such as *Listeria*) on food contact surfaces. ■



# Newsletter





## Case study

### Pet food innovation

[www.campdenbri.co.uk/case/pet-food.php](http://www.campdenbri.co.uk/case/pet-food.php)  
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We worked with PetsLoveFresh, a start-up pet food business, to help them develop a dog food from the initial concept to production and distribution.

The brief was for a premium pet food that used high quality ingredients and was nutritionally balanced. We provided a start to finish innovation service:

- Helping to develop and test the recipe
- Finding ingredient and packaging suppliers
- Assessing the product for microbial safety
- Undertaking nutritional testing
- Providing regulatory and labelling information
- Conducting packaging and shelf life trials ■

If you would like to find out more about how we can help you with new product development - for humans or their pets - please get in touch.

## Contact us

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For other sites, see  
[www.campdenbri.co.uk/campdenbri/contact.php](http://www.campdenbri.co.uk/campdenbri/contact.php)

[information@campdenbri.co.uk](mailto:information@campdenbri.co.uk)  
[www.campdenbri.co.uk](http://www.campdenbri.co.uk)

## New members

We are delighted to welcome the following new members:

Around Noon Ltd - manufacturer of sandwiches

Crikey Ltd - manufacturer of cookies

Defra - Department of Environment Food and Rural Affairs

Glanbia Ingredients Ireland - dairy processor

Jamie Oliver Ltd - restaurant chain

Len Wright Salads - growers and importers of salads

Pets at Home Ltd - pet care retailer

RCMA Stratford Ltd - factory producing rapeseed oil

Sweet Freedom Ltd - marketing company promoting healthy chocolate spreads and syrups

The Natural Beverage Company - manufacturers of Fairtrade juices and drinks

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Please notify the Membership Department of any changes to your company's name or address to allow us to keep our records up to date.



## News

### Trevor Cowley

elected technical editor of the European Brewery Convention

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Trevor Cowley, head of brewing services, has been appointed as the technical editor of the European Brewery Convention. His role will be to review the latest brewing industry methods and his appointment will help us to maintain a good relationship with European brewers. Trevor has been involved in research and implementing new processes and technologies to improve the production of beer throughout his career. ■

### Collaboration with University of Nottingham

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Nicola (Nick) Caporaso has been awarded a PhD in Food Science for his work on "NIR hyperspectral imaging for predicting the composition of granular food commodities". His work, using Campden BRI's hyperspectral imaging facilities, demonstrated new approaches for rapid assessment of wheat, cocoa and coffee quality. Nick published seven papers in international peer-reviewed journals as part of his PhD. He delivered six presentations and presented three posters at national or international conferences. ■

### Experts at events

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PPMA 25-27 September

Craig Leadley, head of production and processing research, and Danny Bayliss, new technology research team leader, will be attending the Processing and Packaging Machinery Association show. Craig will chair a session on future food manufacturing and Danny will talk on preservation technologies. Come and chat with us at stand G36. ■

## BRC - issue 8 What's new for environmental monitoring?

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BRC Global Standard for Food Safety Issue 8 was released in August 2018 and the first audits will be conducted against the new standard from 1 February 2019. A new subsection (4.11.8 "Environmental monitoring") has been created that consolidates the clauses on environmental monitoring requirements from issue 7 of the standard, to help companies that lack systems and controls in this area. The new standard requires companies to have in place an environmental monitoring program for pathogens (e.g. *Listeria*, *Salmonella*) and spoilage microorganisms (e.g. *Pseudomonas*, yeast, moulds), for all areas containing open and ready to eat products. This requirement includes high risk, high care and low risk products such as fruits, nuts, herbs, bread, salads, confectionery, smoked fish and meat.

Your environmental monitoring program should verify that both your control measures and site are suitable to manufacture safe food. You must identify any contamination hazards and vectors, eliminate them where possible and risk assess them. You then need to define your sampling locations, frequency of sampling and target organisms. The results of your environmental program need to be monitored and reviewed at least once a year. ■

We can provide assistance and guidance to ensure you comply with new requirements of issue 8 of the BRC Global Standard for Food Safety. Search 'BRC' at [www.campdenbri.co.uk](http://www.campdenbri.co.uk)





## Feature

# Measuring the impact of reformulation on texture

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Reformulation, for example to reduce sugar, can lead to a change in texture of a product.

Food texture is an important sensory attribute as it affects the way food tastes and how it feels in the mouth. Developing or reformulating products typically requires production and evaluation of many process and recipe variations to identify those that have the required structure and texture.

Textural properties can be determined by sensory and instrumental methods. Both approaches are important and work best when used together.

Sensory evaluations are important measurements, particularly when developing new products where specific sensory parameters form a key element of the product quality. Sensory analysis uses human senses to objectively analyse food - taste, flavour, odour and texture. It can be used to check product quality and troubleshoot.

Instrumental methods used to determine texture must correlate closely with sensory evaluation for them to be appropriate. Textural properties are measured with instrumental texture analysers that can compress or stretch food materials. This is done by applying controlled forces to the product and recording the response in the form of force, deformation and time.

We have recently invested in COMSOL, a finite element modelling (FEM) tool (see opposite), capable of modelling a wide variety of physical processes. A new MFR project looking at modelling of food structure mechanics will use this technology to develop a capability to design products with the required texture by modelling the effects of differences in structure and understand how process conditions can be used to create the required structure for a range of product types. ■

Find out more about the MFR project: [www.campdenbri.co.uk/research/structure-impact-food-texture.php](http://www.campdenbri.co.uk/research/structure-impact-food-texture.php)

Latest blog by Sarab Sahi - Solve your food product problems  
[www.campdenbri.co.uk/blogs/campdenbri-blogs.php](http://www.campdenbri.co.uk/blogs/campdenbri-blogs.php)

## Equipment to meet your needs

information@campdenbri.co.uk

### Zapmill friction cooker (extruder)

We've recently bought a Zapmill friction cooker from Millbank technology. The friction cooker heats and pressurises dry particulates (usually a grain) to create expanded aerated structures. The resulting particulates, which have a long shelf life, can be incorporated into products, such as cereal bars, in 'puff' pieces or as a powder.

We've already done trials with brown rice, quinoa and chick peas, and created prototype products with different flavours, such as cocoa and curry.

### COMSOL modelling software

We have invested significantly in technology to model the behaviour of food, drinks, packaging and factory environments in real life situations. The technology can be used to rapidly optimise food and drink processes and can model physical processes in 3D, including gas/liquid flow, heat transfer, mass transfer and solid mechanics. We are one of the first food and drink research companies to offer this service.

### LED lighting system for sensory booths

We have recently invested in a new LED system in our sensory booths to increase the quality and flexibility of lighting options for sensory testing. The new system can produce a range of different colours, including artificial daylight to aid with sensory testing. ■

Get in touch to talk about how these new technologies could help you.



## Why test for vitamins?

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Knowing what vitamins, and in what quantity, are in your products and ingredients is advantageous as it can help you to:

- Develop new products
- Anticipate the impact of shelf life on vitamin levels
- Understand the impact of processing on vitamin content
- Fortify products for nutritional claims
- Make health claims

Vitamin analysis is not always straightforward. Vitamins are a very disparate group of chemicals and historically they have been measured in different ways - taking account of their chemistry, source, and whether they occur naturally in the food or have been added. For example it is also important to identify whether the vitamin is from a natural source or fortified, as different extraction methods are used.

At Campden BRI we have developed a range of methods which can rapidly and reliably test for all vitamins. We are UKAS accredited for the analysis of vitamins A, D, E, B1, B2, B3, B5, B6, B9 and B12. We can test for vitamins in most food and drink - fruit, vegetables, dairy, meats, fish, sprouted seeds, drinks, vitamin supplements, animal feeds, pet foods. We can also help you to work out which vitamins to test for and provide expert interpretation of the results. ■

Get in touch to find out more about our vitamin services.

## Member zone

to access privileged member information and services

[www.campdenbri.co.uk/memberzone.php](http://www.campdenbri.co.uk/memberzone.php)

## Manufacture of test materials

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Test materials are used by food companies and laboratories to help ensure their products and testing meet the required standards. Clinical trial test materials may be used in research studies to help substantiate health claims.

Reference materials are used in laboratory proficiency testing to demonstrate quality control checks have been carried out and provide evidence of compliance with standards. Key to the success of testing schemes is the homogeneity of the reference method, with the analytes distributed uniformly, and stability of the food or drink material being tested. The composition of the matrix should also reflect the food as sold; in other words, it must be fit for purpose.

Clinical trials that aim to substantiate health claims will use test samples enriched with certain nutrients. It is imperative that the design of the food produced is relevant to the proposed health claim or study and takes into account the formulation and effect of processing and shelf life on the component under test. For example, a vitamin enrichment claim in a drink should be tested using a drink that is produced in a similar way as the intended product.

6

We have many years' experience in the manufacture of test materials. Using an extensive range of equipment available in our process halls, we can advise on suitable formulations and evaluate the most appropriate processing and packaging solutions to ensure stability of the material. ■

Get in touch to find out more.



Next round of MIGs start on 11 September 2018

[www.campdenbri.co.uk/research/paneldates.php](http://www.campdenbri.co.uk/research/paneldates.php)

## Six figure grant secured to research resistant starch

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Working with Modern Baker, we secured a £100,000 project from Innovate UK to research the impact of freezing processes on resistant starch generation in bread. This will be measured in long-fermented bread products by monitoring blood glucose response, fibre levels and selected nutritional parameters.

Resistant starch is a fraction of starch that escapes digestion in the small intestine and is partially or fully digested in the large intestine. Resistant starch has been shown to reduce how much glucose is released into the blood after eating. It is also linked to increased satiety. Previous research has shown that food processing methods, such as freezing, influence the levels of resistant starch. ■

Please get in touch if you want to find out more about how we can work with your business to successfully bid for research funding.

[www.campdenbri.co.uk/memberzone.php](http://www.campdenbri.co.uk/memberzone.php)

## Supporting students

The food and drink industry relies on getting the right people with the right skills to maintain its knowledge base. To help attract young talent and raise awareness of the food industry as a career option for scientists and technologists, we regularly offer PhD studentships (see page 3 for an example) and industrial placements for undergraduates.

We are delighted to welcome ten undergraduates, as part of our annual student placement scheme: Bernice Coulson and Dara Ladipo to microbiology; Iveta Garbacheva, Kristian Gardner, Dylan Morgan, Ffion Donaghue and Claire Pike to chemistry; Clement Garcia and Axelle Reysset to baking and cereal processing; and, Tayla Lewis to food manufacturing technologies.

This complements activities like Ecotrophelia and the Student LaunchPad. ■



## Leamington consumer research centre

[www.campdenbri.co.uk/videos/consumer-research-centre.php](http://www.campdenbri.co.uk/videos/consumer-research-centre.php)

In this video, Peter Burgess, head of consumer and sensory sciences, talks about how our Leamington consumer research centre can be used to conduct:

- Large scale consumer sensory research tests
- Focus groups
- In-depth interviews
- Co-creation and ideation sessions ■

## More about our sensory and consumer services

[www.campdenbri.co.uk/services/sensory-consumer.php](http://www.campdenbri.co.uk/services/sensory-consumer.php)

## Latest on the web

### Blogs

[www.campdenbri.co.uk/blogs/campdenbri-blogs.php](http://www.campdenbri.co.uk/blogs/campdenbri-blogs.php)

#### Plastic packaging alternatives - what you need to know

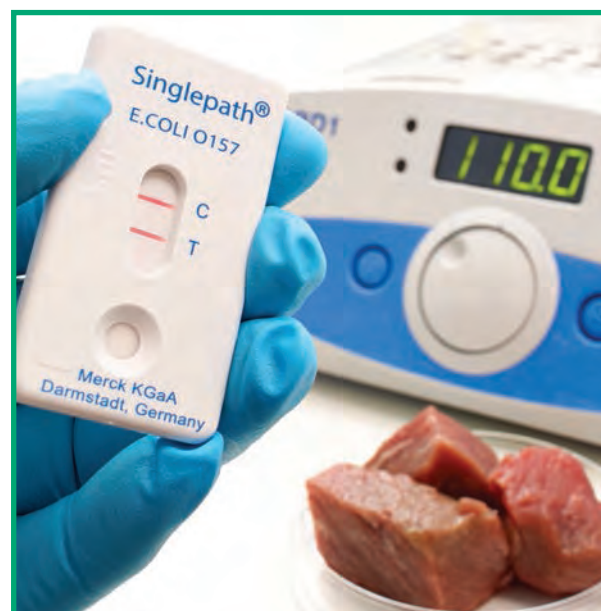
by Lynneric Potter

Many industries use plastic in their production and/or packaging systems. The food sector is looking at alternative materials and systems to reduce the use of plastic packaging. Some companies have already pledged to reduce or eliminate plastic packaging, or to ensure it is recyclable. Packaging carries out three main functions: protection, preservation and promotion of the product. The challenge is to find a replacement that does all three and is also cost effective, safe, and looks good. ■

#### Understanding presumptive positives in meat testing

by Julie Archer

The majority of *Escherichia coli* strains are harmless and are generally seen as hygiene indicators in the food industry. However, a small number of strains of the Shigatoxin producing *E. coli* (STEC) are highly virulent and have a low infective dose. Specific DNA based PCR methods enable STEC *E. coli* to be identified. However, care should be taken when interpreting the results. ■



# Training and events

A full list of scheduled courses is available on our website [www.campdenbri.co.uk/training.php](http://www.campdenbri.co.uk/training.php) or request a brochure from [training@campdenbri.co.uk](mailto:training@campdenbri.co.uk) +44(0)1386 842104

## Seminars

### Food packaging: smart choices for a sustainable future

5 October 2018

[www.campdenbri.co.uk/packaging-seminar.php](http://www.campdenbri.co.uk/packaging-seminar.php)

Use of single use plastics in the food and drink industry is under scrutiny. The aim of this seminar is to help industry make informed choices on the types of materials and design of packaging to reduce plastic use and increase recyclability.

### Hot topics in food microbiology conference

10-11 October

[www.campdenbri.co.uk/microbiology-hot-topics.php](http://www.campdenbri.co.uk/microbiology-hot-topics.php)

Keep up to date with current and future microbiological issues affecting the safe production of food at the annual hot topics in microbiology conference. This conference will look at various areas of concern and there will be opportunities for discussion on a wide range of microbiological issues with news and updates on food production related topics.

### BRC issue 8 briefings

19 October 2018 or 16 November 2018

[www.campdenbri.co.uk/brc-v8-seminar.php](http://www.campdenbri.co.uk/brc-v8-seminar.php)

Issue eight of BRC Global Standard for Food Safety was released in August and companies will be audited against the new standard from February 2019. These seminars provide a timely opportunity to hear about the many changes to the standard and what your business will have to do to comply. ■



Skills and knowledge

## Training courses

### October 2018 events

- 2-3 HACCP - intermediate (level 3)
- 4 Sugar reduction in foods
- 9-11 FSPCA preventive controls for human food
- 9-10 Threat assessment critical control point (TACCP) - intermediate level
- 9-10 Food technology for non food technologists
- 11 USA food and drink labelling course
- 15-19 HACCP - advanced (level 4)
- 16-18 Brewing - an introduction
- 16-18 Thermal processing validation
- 16 Weights and measures
- 17-18 Understanding microbiology
- 19 Thermal processing - quality optimisation

### Starter training courses

Those new to the food industry, or changing roles to a less familiar discipline, will need foundation training in different technical areas - we can help

[www.campdenbri.co.uk/training.php](http://www.campdenbri.co.uk/training.php)