

Advances in analytical technology

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Advances in analytical technologies have made it possible for companies to develop faster, more efficient analytical methods. These improved methods allow us either to test more rapidly, with more certainty, or to test for hazards that we previously couldn't detect.

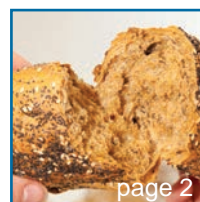


Next generation methods for microbiological and chemical food safety

A new member funded research project will assess next generation technologies in microbiological and chemical analysis that could provide food companies with novel/improved tests to monitor hazards and spoilage issues. The project enables us to rapidly respond to emerging safety issues through the development of new detection methods and analytical techniques. It also provides updates on the practical application of new test systems available on the market.

The project builds on a previous member-funded research project of the same name that ran from 2015 to 2017, which you can read more about on page four and five. ■

Please get in touch to hear more about the project or join the Microbiology or Food and Drink Science MIGs (members only) to help steer it.





AACCI approved

Bread structure

measurement method internationally approved

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Our method "Use of C-Cell to Measure Cell Structure of Baked Goods" has been accepted as an Approved Method by AACCI International (AACCI). The method will help bakers to objectively assess quality.

Crumb structure characteristics of bread and other baked products are traditionally measured subjectively, but this new AACCI Approved Method uses the C-Cell digital imaging system to objectively characterise internal crumb structure characteristics. This could be used, for example,

by bakers to measure their products against set specifications. The method was validated by a collaborative study conducted by our CCAT (Cereals and Cereals Application Testing) working group, with help from eight UK laboratories. ■

Get in touch to find out more about quality assessment in baking.

Bread structure, research, technical services and information

To find out more about our bread structure services search 'bread-structure' at www.campdenbri.co.uk

Contact us

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For other sites, see
www.campdenbri.co.uk/campdenbri/contact.php

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New members

We are delighted to welcome the following new members:

AB Food Technical Ltd - consultant

Autoscribe Ltd - suppliers of software systems to food and beverage companies

B-Hive Innovations Ltd - fresh produce and agricultural support consultants

BRM Brands - manufacturer of cooked meats and sauces

Concha Y Toro - wine makers and distributors

Fairfax Meadow Europe Ltd - meat processors - suppliers to foodservice

Gazebo Fine Foods Ltd - manufacturer of fried snacks and ready meals

Hobbs House Bakery - bakers of bread and some confectionery

Lizzie's Food Factory - bakers of sweet and savoury products

Mathiesons Bakery Ltd - bakers of bread, desserts and cakes

MS Amlin - insurance company

Qualitops (UK) Ltd - agents and brokers for meat products with a manufacturing function

Sterafill Limited - patented a new method of sterilising flexible laminate

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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.





Hot topic

Is plastic too good at what it does?

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In January, UK Prime Minister Theresa May made a commitment to eradicate all avoidable plastic waste in the UK by 2042. Some food and drink companies have already pledged to reduce or eliminate plastic packaging.

The use of plastic in food production and distribution was discussed at the latest meeting of Campden BRI's scientific and technical committee (STC). The committee is made up of retailers, manufacturers, suppliers and food service companies, as well as representatives from government and funding bodies, below is a summary of their discussion.

Why is plastic so good?

Plastic packaging helps to ensure that the food consumers eat is safe. It is a cost-effective way to protect and preserve food and so it extends shelf life and reduces waste. The problem is that much plastic is used once and this has an environmental consequence. However, if less plastic is used it may affect the quality of the packaging, the packaging options available (such as modified atmospheres) and how appealing the product is to consumers.

What's the alternative?

Any alternatives to plastics must keep food safe to eat. However, a big question is whether consumers will accept changes to packaging and any associated impacts, such as price rises, shorter shelf life and decreased product availability.

The choice of packaging material dictates the way food is distributed so changes in the supply chain need to happen alongside any investment in plastic alternatives

Labelling may make plastic alternatives more acceptable to consumers by providing information about the environmental impact of a product, for example, if the packaging is recycled or easily recyclable, if it can be returned and reused, the overall carbon footprint of the product or if the producer is involved in a plastic recovery scheme.

What's the future for plastic?

The future for plastic lies in reduction, replacement, reuse and recycling. Research into alternative packaging materials is vital and there is unlikely to be a 'one size fits all' solution.

Some plastic cannot be recycled and the infrastructure to recycle different types of plastic varies greatly in different areas. It's also important to remember that plastic cannot be recycled indefinitely. Any recycling-based solutions need to be supported by both the right infrastructure and the will to reuse. ■



Chemistry

Chlorate and perchlorate

EFSA is investigating this issue so that a risk assessment of food on sale to consumers can be undertaken. In response to this we sought to develop a rapid and sensitive analytical method based on LC/MS/MS.

We have developed an efficient, simple and rapid procedure using Ultra High-Pressure Liquid Chromatography and Mass Spectrometry (UHPLCMS/MS) and multiple reaction monitoring (MRM) for the detection of chlorate and perchlorate. This method shows exceptional specificity and sensitivity, coupled with simple sample preparation, and can achieve microgram level sensitivity. This makes this method ideal for determining residues in a wide range of foods and beverages. The current limit of detection for this method is set at 0.5µg/kg.

Food authenticity - rapid testing by REIMS

Industry requires fast and sensitive methods for quality assurance purposes. Methods that detect and confirm the identity of a raw material or ingredient enable food operators to monitor their supply chain for inadvertent cross-contamination and prevent.

We assessed the feasibility of REIMS (rapid evaporative ionisation mass spectrometry technology) in food testing and showed that the technique provides an instant response for various identifications. This method could be the fastest technique in a range of food testing applications including food fraud. ■

Herb authenticity

Contamination and adulteration of herbs and spices with other plant materials have led to the need for improved methods of detection. There is a need for alternative non-targeted DNA approaches that can be

Analysis in food safety - research

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www.campdenbri.co.uk/research/micro-food-safety.php

A new member funded project looking at the next generation techniques for microbiological and chemical food safety (see the front cover for more information) has started. The new project builds on a previous one that assessed the use of next generation analytical techniques to provide more rapid results, greater sensitivity and the ability to detect emerging food safety hazards. Some of the outcomes from the project that ran from 2015-2017 follow.

used to screen for unknown plant material. We investigated non-targeted DNA screening by PCR-RFLP profiling and Next Generation DNA Sequencing (NGS).

Our results showed that PCR-RFLP offers the potential to screen for plants species present, but further work is needed to ensure that PCR primers are capable of amplifying from all species. NGS offers the possibility of sensitive detection of adulterant plants species, but it may also detect species present at low levels due to adventitious contamination. ■

Microbiology

In parallel the project also considered microbial food methods. Two of the key outcomes were: receiving UKAS accreditation for virus testing; extending our metagenomic expertise and client services.

Advanced microbial profiling

Metagenomics is a technique that allows huge numbers of different individual DNA sequences to be read at any one time. We analysed DNA profiles generated from spoiled poultry samples to show the benefits of using a metagenomic approach over a culture based analysis. Media culture based analysis uses microbiological media which selects for groups of organisms able to grow under set incubation conditions. Our results showed the influences these choices of culture media can have on the understanding of the microflora. The highest proportion of reads was assigned to *Photobacterium profundum*, an organism currently associated with fish, contradicting the accepted wisdom that *Pseudomonas* spp. would comprise the dominant microflora.

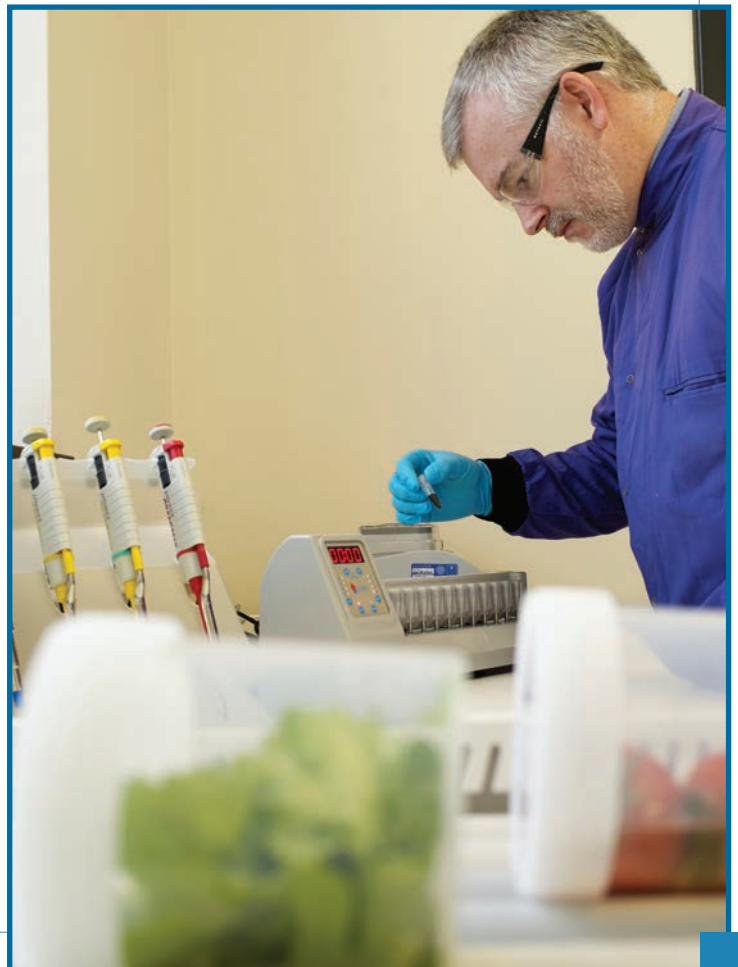
The ability to identify all major groups of organisms in a sample using culture-independent means will give much greater understanding of the true nature of microbial populations in food over time. It remains to be determined if this can be related to culture-based enumeration.

UKAS virus accreditation

There has been a global movement directed towards better understanding and development of food borne virus detection methods in recent years.

Our detection method, based on the current ISO Standard ISO 15216-2013 part 2, has been verified for the detection of norovirus genogroups I and II (Nov) and Hepatitis A (HAV) in a variety of fresh and frozen fruits and produce. This involved an internal evaluation of samples spiked with different levels of the target virus. We are also participating in external proficiency schemes to demonstrate competency.

The method is intended for use as a qualitative determination of the presence or absence of Norovirus GI and/or GII and/or HAV in fresh produce samples. Campden BRI is the only UK laboratory to offer a UKAS accredited detection service for Norovirus and Hepatitis A. ■





Member zone

to access privileged member information and services

Changes to data protection law

Data protection law is changing in May. In order to continue to receive our newsletter, newsfeeds or other communications you may need to update your communication preferences. To do this, visit the opt-in page on our website (campdenbri.co.uk/optin.php), sign-in and select your topics of interest (you can easily register if you haven't already got a sign-in). You can also choose whether to receive our newsletter by e-mail or post. ■

Member benefit - library

information@campdenbri.co.uk

Our library offers a wealth of information related to food and drink science and technology as well as a wide selection of general reference material and trade journals. The library is open to members during working hours.

The libraries holds:

- 6,000+ books
- 100+ current journals/newsletters
- 6,400+ government/EU/FAQ/UN/WHO reports
- 500+ codes of practice
- Campden BRI (and its predecessors') publications
- National and international standards

6 We also have access to a wide range of searchable and subscription brewing and regulatory databases and we offer a full literature searching service as well as assistance with technical enquiries. ■

For help and advice on what information is available and the services we offer contact information@campdenbri.co.uk



There's still time to book your place - Campden BRI Day 2018

Search 'Campden BRI Day' at www.campdenbri.co.uk
Wednesday 6 June

Come and explore how science and technology is being used to tackle industry needs with a focus on innovation, assurance and compliance, and productivity and cost management.

The annual lecture will be delivered by [Ian Wright](#), Chief Executive of the Food and Drink Federation, who will address the challenges currently facing the sector.

There will also be industry briefing sessions on:

- Advances in detecting pathogens in foods
- Food fraud and import/export at a time of change
- BRC Global standard for food safety issue 8: what can we expect? ■

Keep up to date with our research

www.campdenbri.co.uk/research/projects.php

You can keep up to date with our member funded research projects through the project web pages. The web pages contain information on the project as well as details of the outputs, such as MIG (member interest groups) presentations, R&D reports and summaries. ■

www.campdenbri.co.uk/memberzone.php

News

New heads of department

We have appointed Emma Hanby (previously product innovation team lead) as head of service management and Vyv Rudd as head of business development. Emma will be responsible for the delivery of client services and projects and Vyv will be responsible for the strategic development activities.

Elsewhere in the business Craig Leadley (previously process innovation team lead) has been appointed as head of production and processing research and Trevor Cowley has joined us as head of brewing services. Craig will help to identify areas that can be developed through multi-departmental research and Trevor will lead our brewing team at our Nutfield site. ■

Read our blogs

www.campdenbri.co.uk/blogs/campdenbri-blogs.php

Five things to get right when making a sensory claim

By Sarah Thomas

It is becoming increasingly important for producers to differentiate their products in a way that will provide a competitive advantage and entice consumers to purchase the product. One such way is to substantiate a sensory claim in relation to a product attribute such as "crunchy", or through superiority claims in relation to a competitor such as "brand Y is liked better than brand X".

Changes in approval of novel foods

By Alison Sharper

The new Novel Foods Regulation (2015/2283) applies from 1 January 2018 and revoked the previous legislation that had been in force for 20 years. So what changes does this bring to the definition of novel food and its authorisation process?

Case study

Colour stability during shelf life

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Maintaining colour stability and integrity during shelf life can be a challenge for food and drink manufacturers. It can be particularly challenging for products in transparent packaging that are exposed to sunlight or artificial light.

Lycored - a surimi seafood stick manufacturer - approached us to help with shelf life trials. We developed a method to compare ten different colour blends on the manufactured surimi seafood sticks. These were then stored in chilled conditions and exposed to light levels significantly higher than typical food display conditions. Colour stability and migration was then measured, and compared with carmine and paprika over 90 days. ■

Read the full case study on our website - www.campdenbri.co.uk/case/colour-stability.php



Setting shelf life: how to do it better - training course

www.campdenbri.co.uk/training/shelf-life-chilled

Gain an understanding of how to set the shelf life of a product to account for both spoilage and safety risks

Training and events

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

Thermal processing conference

www.campdenbri.co.uk/thermal-processing-conference.php
Conference: Thursday 7 - Friday 8 June 2018

Will focus on the latest industrial, regulatory and academic aspects of producing commercial heat preserved foods. There will be presentations on many topical aspects, including governing the safety and quality of thermal processed foods.

Seminar dates

Microbial identification Thursday 21 June 2018
www.campdenbri.co.uk/bacterial-identification.php

Explores different approaches to separating microorganisms from each other to facilitate investigative microbiology.

Cyber security Friday 22 June 2018
www.campdenbri.co.uk/cyber-security.php

Explore, explain and define the increasing threats and challenges to cyber security faced by the food industry.

ISO/IEC 17025: 2017 technical update

Tuesday 26 June 2018
www.campdenbri.co.uk/cyber-security.php

In order for laboratories to maintain accreditation status, compliance with the new requirements in the updated Standard will need to be demonstrated.

FSS 22000 v4.1 Wednesday 27 June 2018
www.campdenbri.co.uk/food-safety-seminar.php

Will bring you up to date with the changes.



Skills and knowledge

Training

June 2018 courses

- | | |
|-------|---|
| 12-13 | Understanding microbiology |
| 13-14 | HACCP - intermediate (level 3) |
| 14 | Setting shelf life: how to do it better |
| 19-21 | Food safety - intermediate (level 3) |
| 19-20 | Food and drink labelling |
| 19-21 | Bread science and technology |
| 19-20 | Factory inspections - technical issues |
| 19 | Food authenticity testing and the detection of adulterants - insights into analytical methods |
| 21 | Sensory evaluation - an introduction |
| 25-29 | HACCP - advanced (level 4) |

Campden BRI has an excellent track record for the delivery of first class training programmes

www.campdenbri.co.uk/training.php