

Packaging challenges

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Plastic packaging is widely used in the food and drink industry. However, consumers are increasingly aware of the environmental impact that plastics are having when discarded irresponsibly.

At a recent Member Interest Group (MIG) meeting we asked delegates what the key technical challenges of removing or reducing plastic packaging would be for their business. Common themes were the impact on food safety and shelf-life, and impact on cost, causing higher prices for consumers.

A new member-funded research project will investigate alternative materials and the technical challenges faced by packaging/food companies in reducing or removing plastics. This will provide members with an understanding of how to design safe, more readily recyclable packaging.

As part of the three-year project, a survey will be undertaken to give members an insight into consumers' understanding of recycling and their acceptance of alternative materials. The results of this research will allow members to make longer term strategic choices and respond to technical challenges when considering plastics. ■

Keep up to date with this project by attending our Packaging MIG, visiting the website or by getting in touch



Newsletter





Ask an expert

The importance of rheology

Rheology refers to the flow behaviour of materials. It depends on its properties, primarily viscosity. It is an important measurement, with some companies designing entire factory processes around single viscosity readings. Consumer acceptability of many foods is also largely determined by texture, such as how thick or creamy they are.

In a recent video, food scientist, Jo Baker-Perrett discusses how viscometers and rheometers are used to measure viscosity and

viscoelasticity. He highlights the importance of measuring these properties as they change when subjected to force (e.g. during processing or pumping of an ingredient).

If you're interested in reducing costs by sourcing cheaper ingredients, improving or characterising quality, improving your processing, reformulating by moving to a clean label or comparing your products against competitors, we can provide tailored product characterisation training - which includes, amongst many things, rheology. ■

Search 'product assessment' at campdenbri.co.uk for more information.

View the video at www.campdenbri.co.uk/talking-heads/rheology.php

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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:

Clarebout Potatoes - producer of pre-fried and deep-frozen french fries

TNUVA - food production and marketing

Suma Wholefoods - importing and distributing vegetarian products

Assured Food Standards (Red Tractor) - UK's farm assurance scheme

Food Technical Services - consultancy

McCormack Farms - growing and packing of baby leaf salads and herbs

Dragonfly Foods Ltd - tofu and soy products

Nissui Pharmaceutical Co Ltd - manufacturer of microbiological media

Jelly Drops Ltd - manufacturer of hydrating sweets for dementia sufferers

Amo Ltd - growing and harvesting Moringa leaves

Sous Vide Meal Solutions Ltd - processing and cooking meat

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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.

Campden BRI attends Pangborn Sensory Science Symposium

28 July - 1 August 2019

Edinburgh International Convention Centre, Edinburgh, UK

This biennial event is a great opportunity to explore how sensory and consumer science can adapt and contribute to our fast-evolving world.

Our consumer and sensory experts will be on hand to provide delegates with specialist advice and will also be presenting our work on:

- clean label - meeting the challenges
- sugar reduction - how low can we go?
- creating a healthy snack - applying a Max-Diff and Choice-based conjoint
- the impact of packaging sound on consumers
- approaches to applied consumer method
- sensory product quality training in industry ■

Contact peter.burgess@campdenbri.co.uk to find out more or see www.pangbornsymposium.com/

Microwaving - a better thermal process?

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The demand for high-quality food has put pressure on manufacturers to trial new thermal processing technologies. By rapidly heating a product, continuous microwave processing (CMP) is one technology that can achieve this.

Unlike conventional methods, CMP heats both the liquid and particulates of a product to minimise the overall time spent at an elevated temperature. This prevents over processing and ultimately better preserves a product's colour, texture and nutrients, while maintaining a safe pasteurised or sterilised product.

CMP trials at Campden BRI have found it an effective method of preserving the vibrant green colour of pea and ham soup when compared to conventional methods of heating. ■

Get in touch to find out more about our trials with continuous microwave processing

New regulations

Advertising and claims in India

On 19 November 2018, to protect consumer interests, the Food Safety and Standards Authority of India (FSSAI) published the "Food Safety and Standards (Advertising and Claims) Regulations 2018". Legislation relating to claims did not exist in India up until that point and in the past food businesses had to seek prior approval from FSSAI for using claims on their products.

The new regulations establish a list of permitted claims and the criteria for their use which food business operators may make on their products without seeking prior approval from the food regulator. However, other claims which are not laid down in the legislation would still require approval from the food regulator and be substantiated by scientific evidence.

More specifically these regulations provide definitions, general principles and rules for the use of nutrition claims (including nutrient content claims or nutrient comparative claims), free-from claims (including no-added sugars, sodium salts and additives), rules for health claims, claims related to dietary guidelines or healthy diets, conditional claims, prohibited claims, procedures for approval of claims and procedures for resolving non-compliances.

These new regulations are due to enter into force on 1 July 2019 and any person and/or organisation which is found to be in breach of its rules will be penalised with a fine. ■

For more information, please contact Xiangwen He (Sharon): sharon.he@campdenbri.co.uk



What is advanced microbial profiling and how can it be used?

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Traditional methods of troubleshooting problems caused by microorganisms require culturing of that microorganism. This has limitations linked to the conditions used to grow microbes.

AMP (advanced microbial profiling) is a powerful DNA technique used to determine the unique mix of the microorganisms (microbiome) in a sample without needing to culture them in a lab. AMP can benefit the whole of the food industry. By showing 'everything that is there' - not just those microbes that can be cultured - it can help address problems that would otherwise go unsolved.

Advantages of AMP

AMP is a technique that takes advantage of recent advances in DNA sequencing technology allowing huge numbers of different individual DNA sequences to be read at any one time. This means that the individual DNA sequences of a mixed bacterial population can be read directly from a single DNA extract of a food sample. The advantages of this are that previously uncultured organisms can be identified and little manipulation is needed to produce data regarding the bacterial composition of the sample.

Advantages of AMP over traditional culturing techniques:

- identifies organisms that are difficult or impossible to culture in the lab
- identifies both healthy and injured organisms
- can analyse dozens of samples simultaneously
- can analyse thousands of microbial marker genes simultaneously in a single sample



Applications of AMP

We used AMP technology for a research project into enhancing shelf-life evaluation by investigating:

- which organism is really responsible for spoilage (even if it cannot be cultured)
- experimental biases that occur when using selective agar-based approaches
- microbiome changes during superchilling
- how to trace meat to where it was processed
- the impact of animal husbandry on microflora

Read about the research here-
www.campdenbri.co.uk/research/shelf-life-evaluation.php

Future research

A new member-funded research project will build on this work. It will re-evaluate microbial specifications for a range of chilled products and analyse the effect that naturally occurring microflora have on the growth of pathogenic microflora. This will allow specifications to be set specifically for those organisms of concern, potentially extending shelf-life. Indication of the effects that spoilage flora have on pathogens will give producers more confidence in the ability of their products to remain safe, should contamination occur.

If you would like to find out more about our involvement in this technique search 'AMP' at campden.co.uk

White papers

www.campdenbri.co.uk/white-papers.php

New insights for spoilage, shelf-life and contamination of meat and fish products with advanced microbial profiling (AMP)
by Greg Jones

Microbial metagenomics and the food industry
by Greg Jones

Microbial whole genome sequencing and the food industry
by Greg Jones ■



Experts on video - advanced microbial profiling

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In this video, microbiologist Greg Jones explains in detail how we can observe the abundance of different microorganism populations within a sample. He discusses how, when compared to traditional culturing, AMP offers a different way to investigate the microflora in a product. He highlights how this recent technique can give more accurate data when comparing the proportions of individual species, and how this data can be used by industry.

Greg focuses on how the application of AMP and good experimental design can make it a powerful technique - for example, how the ability to analyse and compare the microflora within different areas of a factory can help track an organism's origin.

Research from Campden BRI is currently exploring other ways that AMP can be applied to the food industry. Greg discusses the ways in which we are looking to use this method to assess microbial population changes over time within various food products. ■

View the video here at
www.campdenbri.co.uk/talking-heads/advanced-microbial-profiling.php

Member zone

to access privileged member information and services

Voting for member research - update your records

Each year we carry out approximately £2.5 million worth of research funded by member company subscriptions. Member engagement is critical to the industrial relevance and technical success of this extensive research programme.

Members help identify project ideas through the member interest groups (MIGs) - and were busy doing this through the May round of MIG meetings. We then develop and refine the proposals over the summer, for members to vote on in autumn. The most popular projects are selected, and each is allocated to a MIG to steer the project throughout its life. You can find out about the projects that are currently running and which MIGs are steering them via the research pages of our website.

Please get in touch if you need to check that we have the latest contact details for your company's voting representatives - don't miss out on exerting your influence. And to influence a project while it is running, you are welcome to join the relevant steering MIG. ■

Contact: membership@campdenbri.co.uk

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Member zone

Find contacts, log-in, deal with password issues, see who else is a member and find out about membership

www.campdenbri.co.uk/memberzone.php



Meet a MIG - Fermented and Alcoholic Drinks

The third member interest group in our *Meet a MIG* series is Fermented and Alcoholic Drinks, or FAD, as it is known to its friends. The group has a range of interests related to alcoholic beverages including raw materials and ingredients, manufacturing and supply, product safety and quality, and consumer aspects. In addition to beer and brewing, FAD members discuss topics relating to cider, wine and spirits.

As well as drawing together guest speakers from industry and providing a place to network with peers and keep up with developments in legislation, the FAD MIG steers relevant member-funded research at Campden BRI.

One project that is dear to this MIG's heart is exploring natural preservation systems in drinks. Another focuses on the quality and safety of cereal-based products and ingredients for the food and brewing industry and also involves the evaluation of a range of core analytical methods.

But there's plenty more on their agenda: allergens, plastic and recycling, dealcoholisation, nutrition labelling, sugar tax - and when is something a trend or a fad? We're pretty sure FAD isn't! ■

Want to join in the conversation? Just email migs@campdenbri.co.uk and we'll add you to the group

www.campdenbri.co.uk/memberzone.php

Campden BRI Day 2019

Wednesday 12 June

Campden BRI Day provides the perfect opportunity for members and invited guests to network with industry colleagues, listen to the Campden lectures by speakers Sarah Bradbury from Tesco and John Carter from Danone, view scientific and technical exhibits, interact with our experts, and tour our pilot plant.

As part of the afternoon, our experts will be delivering three, short, topical briefings covering:

- microplastics in beverages: status update
- food and drink regulation in a changing landscape
- innovation and the adventurous consumer ■

Attendance is free - to register and for more information search 'CBD' at campdenbri.co.uk



Modified atmosphere packing 'The CO₂ effect'

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Modified atmosphere packing uses gas to retard microbial growth, reduce biochemical changes and maintain organoleptic qualities whilst reducing the need for additives.

The gases - usually nitrogen, oxygen and/or carbon dioxide - can be used to modify the atmosphere in several ways, including with a vacuum or by just flushing with gas. Different gases are used depending on a food manufacturer's intentions. For example, CO₂ has an antimicrobial effect whereas displacement with nitrogen prevents oxidation. ■

Get in touch if you would like to find out more, or to discuss how this technology could help you

Mitigating food fraud

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The possibility of being supplied fraudulently adulterated raw food materials is a risk many companies face. To avoid this and ensure that all product descriptions and claims are legal, accurate and verified, companies adopt a range of assurance and traceability systems, supported with appropriate analytical techniques.

To aid compliance, our member-funded research project will assess the practical application and limitations of simple analytical screening approaches. It will produce guidance for the preparation and use of authentic food materials for development of databases to enable checking of food ingredients.

The project is taking a number of approaches to build an understanding of the best use of analytical screening tools. This includes identifying which food types and application scenarios to study and the preparation of calibration sets on 'authentic' samples. ■

Please get in touch if you would like to find out how this research can help you.



Flavour and taint troubleshooting with food and drink

Blog by Rob Levermore

Search 'blogs' at campdenbri.co.uk

Training and events

A full list of scheduled courses is available on our website www.campdenbri.co.uk/training.php or you can contact us to request a brochure or discuss tailored training options: training@campdenbri.co.uk +44(0)1386 842104

Training

July 2019 courses

- 1-5 ~~Food safety - advanced (level 4)~~ now full
- 2 Nutrition and health claims
- 3-4 Principles of pasteurisation
- 8-12 FSSC 22000 auditor/lead auditor course
- 9-10 An introduction to food law
- 9-10 HACCP - intermediate (level 3)

Seminars

Are baked goods safe? - food safety challenges in the bakery

20 September 2019

www.campdenbri.co.uk/bakery-safety-challenges.php

Many manufactured baked goods are produced 'sterile' but can subsequently be blighted by post-process contamination. In this seminar, our experts will look at the different microbiological and chemical spoilage issues that can arise and measures you can take to prevent them.

Advances in food authenticity and microbiology: Do those genes suit you?

12 November 2019

www.campdenbri.co.uk/food-authenticity-microbiology.php

This seminar will delve into how current and future molecular methods are being used in food microbiology and authenticity testing. It's a great opportunity to hear from industry and academic experts as they cover the latest techniques and the practical applications. ■



Skills and knowledge

FSSC 22000 auditor/lead auditor course

www.campdenbri.co.uk/training/fssc22000-auditor

This course is aimed at those who are intending to audit (either internally or externally) or be audited. As an intensive five-day course, it is based around the FSSC 22000 requirements and covers the food safety management system in its entirety.

Course content:

- the purpose of a food safety management system
- principles, processes and techniques used for the assessment and management of food safety hazards
- the purpose, content and interrelationship of ISO 22000 and PAS 220/ISO 22002-1
- how to interpret the requirements of ISO 22000 and PAS 220/ISO 22002-1
- how to undertake the role of an auditor, to plan, conduct and report an audit of a food safety management system ■

www.campdenbri.co.uk/training.php