



A new member-funded research project is exploring the development and exploitation of mass spectrometry-based methods for quantifying a range of food and drink allergens. It includes those in complex, 'difficult to work with' matrices. This will give industry even better control of the specific ingredients that cause serious adverse reactions in some people.

Detecting allergens by protein profiling

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'Fingerprinting' of foods

Mass spectrometry (MS) is widely used in pharmaceutical and food applications, which in some cases involves complex matrices. Proteins and their peptide derivatives are responsible for food functionality, nutritional properties (e.g. satiety), and food structure, as well as food allergies. The MS characteristics of complex matrices can also be used for 'fingerprinting' of foods. This approach could lead to reliable food safety assurance, food fraud control, enhanced product development and efficient nutritional applications.

This project will develop liquid chromatography-mass spectrometry confirmatory methods for food allergen testing and the identification of the allergen source. It will also look at multi-allergen testing methods, protocols for handling the difficult matrices that are sometimes involved, and the detection and quantification of selected peptides and proteins.

Allergen management

It is now believed as many as 1-2% of adults and 5-8% of children have a food allergy. The most notorious allergens are peanuts, but shellfish, milk proteins, egg proteins and seeds can also pose problems. Food allergies and intolerances are now well recognised as a food safety issue that must be managed.

There have been significant improvements in the labelling of allergenic ingredients in food due to changes in food labelling legislation. However, allergens can unintentionally end up in foods during manufacturing and processing. Allergen management should be an integrated part of a company's overall food safety management system.

Built on research and industry support over many years, we offer advice and consultancy on all aspects of allergen management in food - from risk assessment and forming an allergen policy to practical allergen control, testing and advice on allergen labelling and legislation.

Steven Walker, Director General

UK Vineyards 50th birthday

Both Geoff Taylor and Rachel Rees were invited attendees at the UK Vineyards Association's 50th Birthday celebrations. These took place at Clarence House in late January, and as wine experts both were introduced to HRH the Duchess of Cornwall. The UK wine industry is growing dramatically and Campden BRI is supporting this growth with a range of technical services.

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Auditing your laboratory

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CLAS (the Campden Laboratory Accreditation Scheme) is one of the leading independent laboratory accreditation schemes for food industry laboratories. It was established specifically to meet the need for a recognised standard for food, drink and allied laboratories. Having your laboratory accredited to CLAS will help you achieve consistent, reliable and verifiable results. Nowadays this is often seen as essential in securing relationships with existing clients and acquiring new ones. Benefits deriving from CLAS include:

- Verification of technical competence
- Confidence in results
- Single audit to meet all business/customer needs
- Assistance in due diligence defence
- Contribution to other quality systems/certifications (e.g. BRC, ISO 9000, nabim, Animal Health Ireland)
- Advice on resolution of non-conformances
- Suggestions to improve operations and enhance efficiency

CLAS covers a range of laboratories - food, drink, water, environmental, toiletries - involved in microbiology, chemistry, milling or sensory activities.

New on the web

[Fibre - an innovative approach to healthier baked goods](#)

Blog by Nicole Maher

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

[Alix Cornish discusses food structure and image analysis](#)

www.campdenbri.co.uk/news/food-structure-image-analysis.php



TACCP guidance

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Threat Assessment and Critical Control Point (TACCP) helps food producers identify weak points in their supply chain and processing activities that may be vulnerable to fraud. It then helps the business minimise the chances of such an attack.

The British Retail Consortium Global Standard for Food Safety, issue 7 requires businesses to carry out a documented Vulnerability Assessment on all raw materials used. BRC certificated food producers need to have implemented the assessment, or risk failing the certification process. Companies should not wait until just before their audit to implement a system, because it involves a lot of extra considerations, which require looking at processes and the supply chain quite differently. This is becoming an absolute requirement of both food certification bodies and food retailers. Those supplying food in the UK and beyond are going to have to comply and implement some form of TACCP.

TACCP (Threat Assessment and Critical Control Point): a practical guide, Guideline G72, published in 2014 reflects the principles and practices of TACCP, and other methods employed in the assurance of food and drink safety and security. It is available from the Campden BRI website (search TACCP on www.campdenbri.co.uk).



A resilient food industry

The food and drink industry is under constant scrutiny. It is regularly challenged by consumer and legislative demands, as well as fighting insecurity in supply chains and various forms of criminal activity from outside (e.g. fraud, terrorism). Companies must have in place systems to cope with these, and practical measures to ensure that the systems are working. We have several member-funded projects that contribute to this.

Fraud and raw material risk assessment

www.campdenbri.co.uk/research/due-diligence-testing.php

In common with other management systems, activities related to fraud prevention need to be validated and verified. It is clearly not realistic for food businesses to test every batch of every raw material for evidence of food fraud. Therefore, a risk model is needed that not only considers the probability of the fraud occurring but also the robustness of the quality assurance system in general and the testing regime in particular to detect food fraud. We reviewed the state of the art with regards to risk management and food defence generally and prevention of food fraud specifically, and

then developed a model to enable food businesses not only to identify those raw materials most likely to merit testing for food fraud (risk assessment) but also to modulate relevant testing regimes within the quality assurance system (risk prioritisation). The model also allows companies to determine the possible effects of proposed changes to the testing regime currently in place.

Assessing risks

www.campdenbri.co.uk/research/supply-chain-management.php

Following on from the raw material risk model project, a new project will look at risk mitigation across the whole supply chain. Increasingly, companies need support in identifying, assessing and managing risks that could





compromise the integrity of the food and drink supply chain - leading to safety, quality and authenticity problems. Tools and guidance for this need harmonising, rationalising and, in some cases, updating. This project will develop a tool to help companies evaluate and manage risks and threats in assuring resilience of their supply chain, and to provide improved guidance and harmonised terminology in this area. This will bring together HACCP, TACCP and general food safety management programmes.

Authenticity testing

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

Product testing plays a major role in ensuring that products are what they say they are. Our recently completed project has looked at detection of cow's milk in ewe's milk cheese, DNA assays for detecting meat species (Loop-Mediated Amplification), and confirmation of red snapper (which is potentially subject to substitution by other cheaper species of fish) by Recombinase Polymerase Amplification DNA.

The project has also resulted in the publication of the Food Authenticity Resources Bulletin - a quarterly publication designed to keep member companies up-to-date with issues associated with food authenticity, adulteration and fraud.



Chemical risk assessment service

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We have launched a risk assessment service, based on computer models, to assess the hazard of chemicals and identify if a contaminant could potentially pose a risk to human health.

This service

- will help companies deal with the uncertainty when they identify a chemical in their product for which there is no legal limit or for which there is inadequate data
- will advise if the compound is a risk and what action to take
- can also be used to identify potential issues with new products.

This in-silico service will be particularly suitable for ingredient manufacturers, food processors, packaging companies and anyone working in new product development. Contact us to see how it can help you.



Processing courses

Safe cooking process validation 4 April looks specifically at all aspects relating to the microbiology of cooking processes
www.campdenbri.co.uk/training/cooking-process

Safe production of heat preserved foods 25-28 April (formerly 'Principles of Canning') provides a basic understanding of how to safely produce heat preserved foods
www.campdenbri.co.uk/training/principles-canning

Training events

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

April events

- 3-6 Sensory evaluation workshop
- 3-7 FSSC 22000 Auditor/Lead Auditor
- 4 HACCP - foundation (level 2)
- 4 Safe cooking: process validation
- 4 Aseptic food processing seminar
- 5-6 Food and drink labelling
- 5-6 HACCP - intermediate (level 3)
- 6 HACCP - refresher
- 25-28 Safe production of heat preserved foods - the essentials (including principles of canning)
- 25-27 Brewing - an introduction
- 26-28 Practical microbiology - intermediate

Thermal process validation 16-18 May will give delegates confidence in understanding the thermal process
www.campdenbri.co.uk/training/thermal-processing

Thermal processing quality optimisation 19 May will discuss approaches to optimise the quality of in-pack heat processed food
www.campdenbri.co.uk/training/thermal-processing-quality-optimisation

Seminar

Aseptic processing: seminar 4 April
www.campdenbri.co.uk/aseptic-food-processing.php

Consumers' awareness of and demand for high quality food products means that aseptic processing is a 'hot topic' again. The combination of continuous heat treatment and aseptic packaging can provide high quality food in a cost-effective way: shelf life is extended, hygiene and food safety are enhanced, and storage is convenient.

Member zone

www.campdenbri.co.uk/memberzone.php

to access privileged member information and services

Welcome to new members

We are delighted to welcome the following new members:

Amazon EU Sarl (UK Branch) - retailer

Arthur Branwell & Co Ltd - dried food ingredient processor and trader

Avure Technologies - specialist in HPP systems for food and beverage processing

Burts Potato Chips Ltd - manufacturer of hand cooked potato crisps

Colin Mear Engineering Limited - supplier of processing and packaging machinery

Food Innovations - manufacturer of baking decorations and accessories

Futamura UK - producer of cellulose-based films

Herrjunga Cider AB - producer of cider, mulled wine and soft drinks

H Taylor & Sons Ltd - butcher

Impact Vision Inc. - developing software for characterising food quality

Luke Evans Bakery - bakery

R M Curtis & Co Ltd - manufacturer of ambient-stable food products

Sco-Fro Group Ltd - importer of frozen seafood products

Single Source Limited - manufacturer of ambient-stable dried foods

Staubli (UK) Ltd - manufacturer of robots for the food and beverage sector

Synlait Milk Limited - manufacturer of milk-based commodity products

Tomlinsons Dairies - liquid milk and cream processing company

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



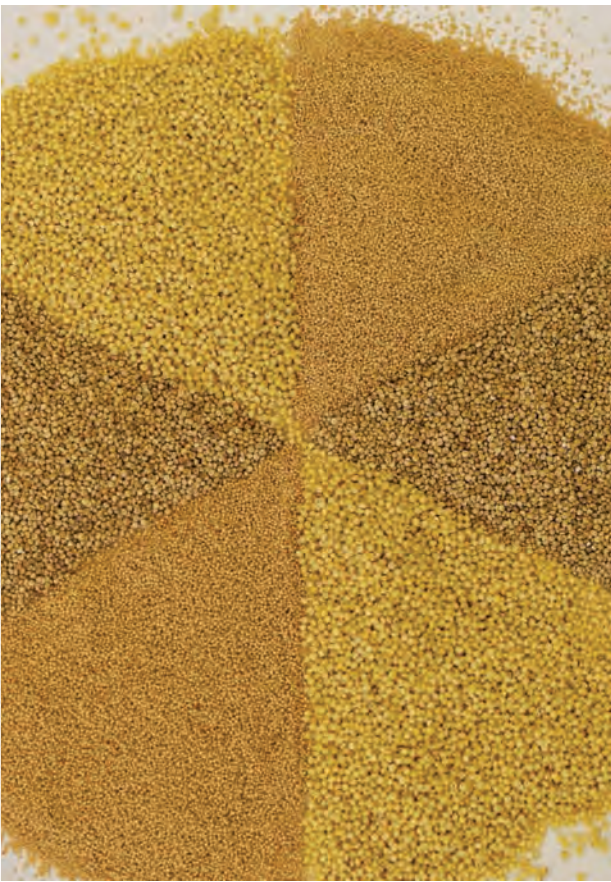
Improved ready meal for cardiovascular health

Recent research as part of our nutrition and health strategic programme assessed a computational reformulation strategy for manufactured composite food products such as ready-meals to improve the cardiovascular health of regular consumers of these products.

The strategy was based on nutrient targets, in this case defined by the DASH-sodium and OmniHeart studies. Following the reformulation of a benchmark product typical of a composite ready-meal, the reformulated product was assessed alongside the benchmark precursor in terms of both nutritional composition and consumer hedonic preference.

Results showed that the nutrient profile of the reformulated product was improved significantly over that of the benchmark product in all cases. Furthermore, with the exception of saturated fat and cholesterol, all nutrients either met or exceeded the targets.

Ready-meal reformulation for improved cardiovascular health (RD416) is available to members on our website (www.campdenbri.co.uk/research/reports.php)



Utilising ancient grains: research report

The pseudocereals amaranth, quinoa and buckwheat morphologically resemble true cereals but are genetically unrelated. They have a high quality and quantity protein profile, along with numerous other compositional components with potential health benefits. And due to the different storage proteins they possess over true cereals they are also gluten-free.

Ancient Grains - Insights into Potential Applications (RD415) evaluates pseudocereals by assessing nutritional and functional aspects of the grain and flour to gain insights into potential applicability for:

- Replacing wheat to enable gluten-free applications
- Enhancing nutritional profiles through composite flour technology

The report can be found on the project website at www.campdenbri.co.uk/research/emerging-ingredients.php

Virus focus group

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The virus focus group meets twice a year to steer our 'virus controls' member-funded project and provides an interface with our virus programme in general. Members of the group are updated on the project progress and feedback is obtained from the group on future research plans. At the most recent meeting in November 2016, Martin D'Agostino updated the group on the detection of foodborne viruses.

The group currently has 14 members from different sectors of the food industry - manufacturing and retail as well as producers of decontamination systems. The next meeting is planned for September, and the group is still open for new members to join, so please get in touch.

Campden BRI Day 2017

Network, catch-up with peers and soak up knowledge. Make a date in your diary for Campden BRI Day 2017 on Wednesday 7 June. Further information will be published on our website about briefing sessions, site tours and the Annual Campden Lecture in the coming weeks. To register and for highlights of the 2016 event visit www.campdenbri.co.uk/campdenbri-day.php

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

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