

# Newsletter

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



## Monk fruit extract as a sugar replacer

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Member-funded research has highlighted how specific sweeteners perform differently when product characteristics are changed. Work looking at monk fruit extract in simple (water) solutions showed that it provided some synergy with sugar as regards overall sweetness. To build on this, we assessed the flavour profile of monk fruit extracts in a more complex fruit juice system: a blend of apple, blackcurrant and raspberry juices made from concentrates. Reduced sugar samples were made by the reduction of the apple juice and addition of apple flavouring, malic acid, pectin and sweetener (monk fruit extract, steviol glycosides or a blend of the two).

## Role of sugar

Monk fruit did not appear to have the relative sweetness expected from previous trials. Samples incorporating monk fruit extract displayed lower sweetness levels, and stronger astringency, sour and green apple notes than those incorporating steviol glycosides. This work highlights the role that sugar has in both providing sweetness and enhancing some fruit flavours, as summer fruit attributes were scored lower in reduced sugar samples despite the levels of both blackcurrant and raspberry juices remaining the same. If using the sweeteners at similar levels, it may be necessary to incorporate additional fruit flavourings in the product. To develop acceptable reduced sugar products, a toolbox approach is likely to be required.



## Safety matters

We appreciate that product safety is an absolute imperative for food and drink companies. From primary production, through processing, packaging and distribution, there are many points at which contamination could occur. By helping you to maintain and manage your product safety throughout its entire journey, we can help assure the safety of your product when it reaches the consumer.

We have a comprehensive range of services and expertise to assess, manage and monitor hazards - from food safety systems, such as HACCP, TACCP and risk management, to hygienic design and microbiological, chemical and foreign body sampling and testing.

Food and drink safety is not only central to many of the services we offer at Campden BRI, it is also one of the strategic themes of our underpinning research programme and is core to many of our training courses, seminars, conferences and information services.

If you would like to know more about how we can help you with food safety then contact [information@campdenbri.co.uk](mailto:information@campdenbri.co.uk).

Steven Walker, Director General

## On the web

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

### NPD: safety first

Blog by Linda Everis

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

### Identifying physical contaminants in food

Blog by Kathryn Hope

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

### Mitigating acrylamide formation in food

Podcast by Anton Alldrick

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

### Successful product launch

Blog by Emma Hanby

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

### Sweeteners and fat replacers for reducing calorie content of food and beverages

Project website which includes the latest Research Summary Sheets on Use of Monk fruit extract for reducing calorie content of beverages

[www.campdenbri.co.uk/research/sweeteners-fat-replacers.php](http://www.campdenbri.co.uk/research/sweeteners-fat-replacers.php)

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## Anton and Joy in Dubai

[www.foodsafetydubai.com/workshop.aspx](http://www.foodsafetydubai.com/workshop.aspx)

Our product safety experts Anton Alldrick and Joy Gaze will be playing major roles in the food safety exhibition being held on 25-26 October in Dubai.

Prior to the exhibition Anton will be presenting workshops on *Risk-based food safety management* and *Food allergen management*, while Joy will be speaking about *Setting a microbiologically safe shelf-life*, and *How to check that your heating/cooking produces a safe product*.

## Geoff Taylor contributes to “World’s best wine book”

Our wine and spirits expert, Geoff Taylor, has made a significant contribution to the internationally acclaimed *Oxford Companion to Wine*, edited by Jancis Robinson and described by the Washington Post as the greatest wine book ever published. As contributing editor, Geoff created and updated definitions for a range of technical wine terms.

The Fourth edition of the book was published on 17 September by Oxford University Press.

## International hand washing day

Each year, October 15 is designated International Hand-washing Day. This is highly relevant to the food industry, as hands are one of the major sources and routes for cross-contamination in the food industry. Reducing cross-contamination is key in the production of microbiologically safer, higher quality food. If you haven't had a chance yet to see our video on hand washing, visit [www.campdenbri.co.uk/videos/hand-washing-technique.php](http://www.campdenbri.co.uk/videos/hand-washing-technique.php). There is also 'Hand hygiene: guidelines for best practice' Guideline 62 <http://bit.ly/hand-washing-guide>



## Lab Innovations

Campden BRI theatre presentations

[www.easyfairs.com/labinnovations](http://www.easyfairs.com/labinnovations)  
[daphne.davies@campdenbri.co.uk](mailto:daphne.davies@campdenbri.co.uk)

As part of our involvement in the Lab Innovations exhibition on **4-5 November**, at The Pavilion, **NEC, Birmingham**, we will again be presenting a varied analytical theatre programme:

### Sugar and salt replacers

Health has become a huge focus for consumers and sugar and salt can contribute to poor health if consumed in large amounts over prolonged time periods. In this session we will take delegates on a journey of sweet and salt replacement experiences and how they can impact our food choices.

- What are the flavour delivery implications?
- What differences do we perceive as we change sugar and salt levels?
- Is it worth using replacers from a flavour perspective?

### Now wash your hands!

Hands are used ubiquitously throughout food manufacture. They mix ingredients, transfer items, and construct products. But in the course of their work they can become contaminated. We will consider:

- How contaminated they are
- What bacteria may they carry
- How easily hands transfer contamination
- How we can make them safe

### Beer flavour - an exploration of beer styles

An insight into the fascinating world of beer flavour. We will explain how beer flavour is created and the different flavours that are possible with four basic ingredients.

- What does each ingredient contribute to beer flavour?
- How can manufacturing processes and dispense methods modify beer flavour?
- Modern methods for beer flavour analysis - can the human be replaced by laboratory instruments?



## Superchilling can extend shelf-life and reduce waste

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Recent Defra-funded research undertaken here has shown that superchilling can safely extend the shelf-life of chilled foods without any loss of sensory quality. Superchilling reduces the temperature of food to around 0 to -2°C. Food is then stored at that temperature until being released into the chill chain.

The greatest extension in shelf-life was achieved with prawns. Research showed that superchilling could increase the shelf-life of cook-chill prawns to 22 days, a potential 120% increase on the 10 day chilled shelf-life subject to the protocol being implemented commercially. We also looked at the effects of superchilling on poultry and gammon.

Project coordinator Greg Jones said: *"Superchilling is not a novel technique. It is used on an ad-hoc basis to build stock in times of high demand, such as Christmas or a 'barbecue' weekend. Up until now there has been little data to support its use more widely and little information on the impact of its wider use on product safety. Our research shows that it can be used to extend shelf-life without compromising the quality or safety of these products"*.

In addition to extending shelf-life, we also showed that superchilling can reduce energy use and waste. We calculated the energy required to produce and distribute both superchilled and chilled farmed salmon. Although superchilling fish requires more energy during manufacture, more fish can be packed into each vehicle - because superchilling negates the need for ice during transportation - so fewer journeys are required.

The extended storage life also provides the opportunity to make chilled product to stock rather than to order, limiting waste from over-production that is not immediately dispatched.



## Analysis as part of safety assurance

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When considering safety issues in food and drink production, make sure you come to us for advice on the analytical aspects to ensure that assurance systems are robust.

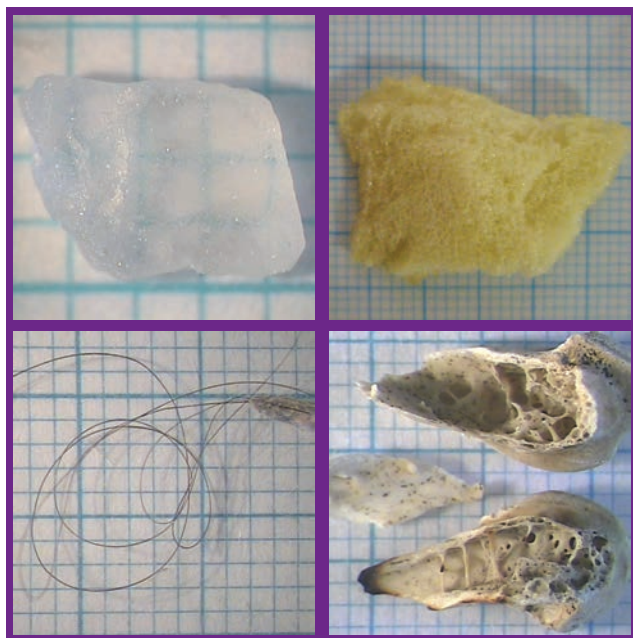
Analysis of food and drink is a major activity for the industry; as well as being a very important part of product development, it provides vital information in the verification and validation of safety assurance programmes. Food analysis plays a role in several aspects of this - from checking **shelf-life** or authenticity to assuring legal compliance. It is important to use the correct analytical tool in order to get meaningful answers to questions. Apart from the well-known food analysis areas such as **chemical** and **microbiological** analyses, we have extensive expertise in food testing from a safety perspective including the identification of chemical, microbiological and physical **contaminants** (e.g. glass, insects, stones and metal), and determining whether a food is **what its label says it is** (which can have important consequences for allergy sufferers). We are also involved in **developing and evaluating** the methods themselves.

# Identification of physical contaminants in food

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The rapid and cost-effective identification of foreign bodies reported from food is an essential part of the investigation of contamination incidents. It is necessary in order to reassure the complainant and also to help prevent a recurrence of the problem. We have offered a service for the identification of glass fragments and other foreign bodies for many years, and have a wealth of experience to bring to each case – so if you are faced with this sort of issue, please get in touch.

An important part of this process is the gathering of initial data on the find, usually by the retail store to which the complainant takes their find. Full details of the precise circumstances of the discovery can often be crucial in the correct interpretation of the evidence.



Many types of foreign body turn up time and time again. A fragment of glass from the bottom corner of a jar is a case in point - these are often produced when someone is trying to scrape the last contents of a jar of jam or peanut butter using a spoon or knife, when a little excess pressure causes a small hole to be punched in the bottom corner of the jar. The fragments so produced have a very characteristic shape, but because the jar is empty, it is discarded without the consumer even being aware of the hole, and the glass fragment becomes associated with whatever food was being prepared that it fell onto, such as a slice of bread.

## research

### Small-scale wheat quality testing for cereals

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The physical and chemical characteristics of wheat flour required for products such as bread, biscuits, pastry or cakes are different. Testing wheat quality allows the suitability of the grain for a particular end use to be determined. However, conventional quality assessment of wheat requires a large amount of white flour - which is often not possible in the earlier stages of breeding programmes and can be costly and time consuming.

To address this we developed a method for quality testing that requires just 50g of wheat. AHDB Cereals & Oilseeds commissioned us to carry out this small-scale testing on the 2013 and 2014 wheat harvest in support of their cropping systems platform, which provides growers and agronomists with regional specific information about wheat variety performance.

We carried out tests to assess the protein composition and dough rheology of the 2013 and 2014 wheat harvest. We have shown that our small-scale quality testing method does not compromise on the accuracy of the results and is representative of large-scale tests. While it does not replace larger-scale rheology analysis and test baking, which are appropriate for well characterised applications such as bread, our small-scale method is cost effective, provides much more rapid results and could be beneficial when screening large numbers of relatively small samples.





## Training events

A full list of 2015 scheduled courses is available on our website [www.campdenbri.co.uk/training.php](http://www.campdenbri.co.uk/training.php) or by requesting a booklet from [training@campdenbri.co.uk](mailto:training@campdenbri.co.uk) +44(0)1386 842104

### November 2015

- |          |   |
|----------|---|
| 2-6      | HACCP - advanced (level 4)  |
| 2-3      | HACCP for feed - intermediate (level 3)   |
| 3-5      | Biscuit technology  |
| 3-4      | Food and drink labelling  |
| 4-5      | Understanding microbiology - foundation   |
| 10       | Calculating meat content  |
| 10-11    | HACCP - intermediate (level 3)  |
| 10-11    | Internal auditing - principles and practices  |
| 10-12    | Thermal processing validation   |
| 12       | Threat Assessment Critical Control Point (TACCP) - foundation level                                   |
| 13       | Thermal processing - quality optimisation   |
| 16-20    | FSSC 22000 Auditor/Lead Auditor course  |
| 17-20    | Safe production of heat preserved foods - the essentials (including principles of canning)            |
| 23-27    | Food safety - advanced (CIEH level 4)   |
| 24       | Advances in food safety management systems*   |
| 24       | Sensory evaluation - an introduction  |
| 25       | Packaging technology for non packaging technologists  |
| 25       | Training matters seminar*   |
| 27       | Food process validation and verification: effective use of microbiological data to ensure food safety |
| 30-4 Dec | HACCP - advanced (level 4)  |

\*24-25 *Optional session* - Risk taking, decision making and attitudes to risk

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

## Advances in food safety management systems seminar

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

With new issues being identified on an almost daily basis, to meet hazards and threats, our food safety management systems must evolve. The now traditional approach of managing food safety through prerequisite programmes and HACCP may no longer be sufficient. The food industry needs to embrace new systems, such as TACCP, to address vulnerabilities to deliberate contamination.

This seminar, on **24 November**, will focus on: New approaches to food safety management; Food safety culture; Third party certification; Managing vulnerabilities

## Training matters seminar

[www.campdenbri.co.uk/training-best-practice-seminar.php](http://www.campdenbri.co.uk/training-best-practice-seminar.php)

It has been said that *the only thing worse than training good employees and losing them, is not training your employees and keeping them*. On **25 November** this seminar will focus on the challenges and issues that food businesses have to deal with, including high staff turnover, heavy reliance on overseas nationals, tight budgets, and the wide range of training providers, training delivery techniques and systems available.

## Food process validation and verification: seminar

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

Provision of microbiological data to confirm the validity of heat processes applied to food and drink is essential for food safety, and is applicable to food manufacture globally. The seminar, on **27 November**, will focus on the individual aspects of validation studies needed. Key areas to be covered will include:

- FDA and european guidelines
- Sampling designs and use of statistics
- Theory and practice of microbiological validation and verification with case study examples of typical validation data
- The mechanics of experimentation for process validation



## Visit Member Zone

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



to access privileged member information and services



## 100th new member in 2015

The Meatsnacks Group has become the 100th new member to join Campden BRI in 2015. The company produces beef snacks, such as beef jerky and biltong, and pork-based snacks such as "Hogbites" and pork crackling, and was formed from the recent merger of The Jerky Group with Cruga, creating the largest ambient beef snack manufacturer in Europe.

Director Alan Craig commented: *"The business has recognised it is operating in a quickly evolving market segment. Safe and inspiring product innovation plays a significant role in reacting to consumer signals, market trends and helping to stay a step ahead of our competitors. We consider the expertise and calibre of people, together with the world class facilities at Campden BRI, an ideal environment from which to respond to these objectives."*

## Information at your fingertips

### Member quick links

- Login
- Food Law Alert
- New Technologies
- Opt in for news feeds
- Project summaries
- Project websites
- Member Interest Groups
- Codes of practice
- Join a Member Interest Group

### Visitor information

(Chipping Campden and Nutfield sites)

- Maps - finding us
- Accommodation in the local area
- 50 things to do
- Safety and security

### Member already?

- Login
- Access to experts

## Welcome to new members

Campden BRI is delighted to welcome the following new members who joined recently:

Anaiah Healthcare Pvt Ltd - distributor of nutritional products

Arotek APS - software provider for food and drink companies

Ipurtech Ltd - producer of innovative air and water purification applications

MBR UV-C Light Products Ltd - producer of cleaning products using UV-C light

Meatsnacks Group Ltd - manufacturer of meat snacks

Proseal UK Ltd - manufacturer of tray sealing machines

Ugly Brand Ltd - producer of unsweetened flavoured water drinks

**Clare Brett** +44(0)1386 842125 [membership@campdenbri.co.uk](mailto:membership@campdenbri.co.uk)

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



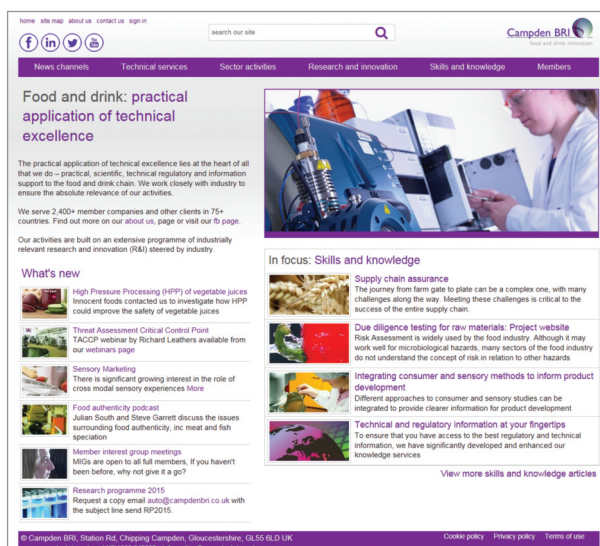
with industry, for industry



## Recoded: reloaded [www.campdenbri.co.uk](http://www.campdenbri.co.uk)

There are apparently more mobile devices than people in the world. The world is home to 7.2 billion gadgets and they are multiplying faster than we are (*Source Daily Telegraph Tues 7 October 2014*). In the region of 7,000 different types of mobile device visit facebook every day! And at [campdenbri.co.uk](http://campdenbri.co.uk) almost 20% of visits to our website are from mobile devices.

With this in mind, we have recoded our site to deliver a richer user experience for mobile and tab visitors. See the result at: [www.campdenbri.co.uk](http://www.campdenbri.co.uk)



## Social media



**Facebook** - find out more about our history and our lighter side [www.facebook.com/campdenbripage](http://www.facebook.com/campdenbripage)

**Twitter** - regular tweets to keep up to date with our latest news and activities <https://twitter.com/campdenbri>

**YouTube** - a range of videos providing an insight into the science and technology underpinning food and drink production [www.youtube.com/campdenbri](http://www.youtube.com/campdenbri)

**LinkedIn** - company updates providing our latest news [www.linkedin.com/company/campden-bri](http://www.linkedin.com/company/campden-bri)

**iTunes** - subscribe to our podcasts

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