



Incorporating air bubbles into water can significantly increase the removal of biofilm in washing, according to member-funded research. With increasing focus on reducing some cleaning agents, this opens up potential new approaches to cleaning.

Surface cleaning trials

Initial trials explored the removal of 'simple' biofilms of *Pseudomonas aeruginosa* from stainless steel samples using plain water or water containing bubbles of air. Subsequent trials examined the removal of a mix of carbohydrate, protein and fat from stainless steel. A commercial ready-meal containing these was minced to form a smooth paste, which was coated on to stainless steel samples and heated. After cooling, the surface was spray-washed with water that either did or did not contain bubbles. Analysis of ATP levels demonstrated that the use of bubbles markedly improved the removal of the contamination.

Incorporating bubbles into the water used for the removal of food soils and microorganisms has a clear advantage. The systems available to create the bubbles are simple and use only ambient and not compressed air. If you wish to carry out contract trials with this technology, please contact us.

For a video providing more information search 'bubbles' at campdenbri.co.uk

Bubbles improve washing and cleaning

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www.campdenbri.co.uk/research/nano-scale-bubbles-cleaning.php

Food safety - systems and culture

Product safety is the primary concern of the food and drink industries. HACCP is well established as the main preventative approach used to assure food safety, and has largely displaced the more traditional philosophy of control based on end product testing. Through HACCP, potential hazards are identified and controlled in the food processing environment. Whilst HACCP itself is being continuously refined, it is also giving rise to the related assurance system of TACCP (Threat Assessment and Critical Control Point), which can be used to protect the food supply chain from outside, often malicious, threats.

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There is also growing emphasis on the 'safety culture' within businesses - not just what the systems say should be done, but the extent to which companies create and maintain a culture in which implementation is actively embedded in behaviours at all levels. You can find out the results of our annual global food safety training survey and more about HACCP and TACCP in this edition of the newsletter.

To find out more about how we can help you to maintain and monitor your product safety throughout its entire journey, and our Culture Excellence programme, please contact information@campdenbri.co.uk.

Steven Walker, Director General



Left to right: Martin Hall, Dr Kim, Jae-Ho, Steven Walker, Dr Park, Chang-Won, Jeremy Davies

Visit from Korea

We were delighted to have recently welcomed visitors from the Korea Food Research Institute, as part of our ongoing Memorandum of Understanding. As well as discussions on collaborative research, Dr Kim, Jae-Ho and Dr Park, Chang-Won were interested to learn how we engage with and support industry, through systems such as our MIGs, to put science and technology to practical use for industry. Research topics discussed included novel functional food ingredients and high quality protein sources.

Switch channel



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www.youtube.com/campdenbri



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<https://twitter.com/campdenbri>



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New head

We are delighted to announce the appointment of **Nick Byrd** as **Head of Chemistry and Biochemistry** at Campden BRI. Nick takes up the role following an impressive track

record of business growth and technical leadership of the analytical team within the department. In particular, Nick has led the developments in the combined use of multiple sophisticated instrumental approaches based around mass spectrometry for streamlined, rapid, accurate and sensitive detection of trace components, contaminants and other 'problem' compounds.

Nutrition and health - new MIG

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The first meeting of the new Nutrition and Health Member Interest Group in June attracted a capacity audience. Through the discussions, the focus of the MIG was refined - with a strong emphasis on how raw materials, ingredients and process technology can facilitate product innovation driven by nutrition and health. The next meeting is on 20 September. Get in touch to find out more or to join this dynamic, industry-led group.

Lab Innovations

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Come to see us at Lab Innovations, 2-3 November (Birmingham, UK) where we are holding the open Campden BRI theatre - featuring three hands-on presentations: "microbial" foods; salt and sodium analysis; analytical sensory science.

This will be complemented by two in-depth seminars - *'Current challenges in food microbiology'* focusing on innovations in rapid microbiological analysis and testing of food and drink, and *'Food microbiology method testing: validation versus verification'* looking at method certification and standards.



Food authenticity testing recognition by Defra

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

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Our expertise in analysis and testing has been recognised by our inclusion in the general proficiency section of the Department for Environment, Food and Rural Affairs (DEFRA) UK Centres of Excellence in food authenticity testing.

We are active in many areas of authenticity testing, such as meat, fish and seafood speciation, olive oil analysis, and spice adulteration. Methods include real time polymerase chain reaction (PCR), DNA sequencing, immunoassays, inductively coupled plasma mass spectrometry (ICP-MS), microscopy, and a wide variety of liquid and gas chromatographic techniques.

Steve Garrett, food authenticity specialist, commented: *"Our analytical testing services are supported by a range of scientific research projects, funded by members. Included in these is a project looking at development of 'next generation' analytical technologies to protect the food industry from fraud. Outputs from this project include evaluation of commercial isothermal DNA amplification assays for meat species and fish (red snapper), and a commercial immunoassay dipstick test kit to detect the presence of cow's milk in products such as ewe and goat's milk cheese."*

We have also developed a fast and sensitive real-time PCR assay for horse DNA in meat products, and looked at volatile profiling of olive oil for rapid authentication."



Food safety plans

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HACCP, quality management and auditing are critical to food safety assurance. Put simply, they are about describing your process, analysing what could go wrong, putting in procedures to prevent them going wrong, and then checking that the systems are working.

HACCP and quality systems

Product safety is the prime concern of all in the food and drink supply chain. Effective HACCP (Hazard Analysis and Critical Control Points) and quality systems underpin food manufacturing. Hazard analysis is cited in both European and UK legislation as a key tool in the assurance of product safety. It is therefore essential that food companies understand where food safety hazards may occur and establish a means to control and monitor the critical points in the process.

Our recently-launched fifth edition of 'HACCP: a practical guide' heads the list of practical publications which

collectively support the development, implementation and use of HACCP systems in food production, primary processing and manufacturing, and are complemented by a wide range of advice and consultancy services - giving you direct access to the team of expert authors.

We can help you in all aspects of quality management - to ensure that your systems meet legal requirements, and the sometimes much stricter requirements of your customers. Amongst the areas in which we can offer help are: awareness training; specification and system design; development of QA management strategies; and pre-audit support and awareness.





TACCP

A major part of ensuring a safe and reliable food supply chain is a defence against outside, often malicious, threats. Different to HACCP, which controls elements within the food production process, Threat Assessment Critical Control Point (TACCP) deals with unpredictable outside threats to the food supply chain.

Through TACCP, we can help you evaluate, document, understand and control the threats that originate from, for examples, criminals who use extortion and individuals with a grudge - in essence all of the risks from external elements that are not under your direct control.

Auditing services

We are regularly involved in a wide range of safety auditing services. Some of these are 'formal', such as against our HACCP Auditing Standards and the Feed Materials Assurance Scheme (FEMAS), which is designed for breweries and distilleries, whilst others are less formal, and are designed specifically to help you evaluate your processes and systems.

Audits do not have to be onerous events when an outside body 'tells you what to do'; they should be taken on to help you achieve what you want to do.

Brewing safety databases

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The safety of brewed products is a key component of our beer knowledge hub, which includes a wide range of databases complemented by targeted alerts and publications, available by e-mail.

The brewing news and brewing literature databases cover a wide range of subjects, and are backed up with specific subscription alert publications, including those covering:

- Beer packaging
- Beer analysis
- Beer microbiology
- Cider science
- Hop science
- Malting science

Go to our opt-in page to subscribe to these and/or other publications, and to receive further information on the products we have available.



Global food safety training survey

The results are available from the fourth annual global survey of food safety training, conducted by Campden BRI and Alchemy, in partnership with BRC, SGS, SQF and TSI. The survey questioned food and drink manufacturers and processors worldwide to identify the needs, effectiveness and challenges of food safety training in the industry. The results reveal some interesting trends:

- Improving food safety culture was the top training goal for almost 80% of those surveyed
- Many companies are not exploiting the specialist expertise available in their HR departments
- Traditional training methods are still favoured over online methods

The survey was sent to over 25,000 food manufacturing sites worldwide, providing a clear snapshot of current activities, challenges and practices in food safety training. The companies represent a cross section of the industry and ranged in size from under 50 employees to over 1,000, in sectors including beverages, cereals and baking, dairy, retail, and packaging. For the full results visit:

www.campdenbri.co.uk/training/globalfoodsafetytrainingsurvey2016.pdf

Food safety training

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Food and drink safety comes very high on our agenda of training activities. In September, for example, we have a range of courses that look at different aspects of safety:

Advanced food safety 12-16 September

www.campdenbri.co.uk/training/food-safety-adv

Amongst many other topics, it looks at the relationship between food hygiene and food-borne illness and the socio-economic cost of food-borne illness.

Threat Assessment Critical Control Point (TACCP) Foundation course, 13 September

www.campdenbri.co.uk/training/threat-assessment

Core to the defence of food is a systematic evaluation of vulnerable elements of the supply chain carried out by an experienced and trusted team (e.g. through TACCP). This has become a requirement of the BRC Global Standard for Food Safety issue 7.

Root cause analysis 14 September

www.campdenbri.co.uk/training/root-analysis

The course covers the background and definitions of Root Cause Analysis (RCA), and explores the requirements of Issue 7 of the BRC Global Standard for Food Safety and associated legislation.

Allergen control 28-29 September

www.campdenbri.co.uk/training/allergen-control

Gain greater appreciation of how to implement and audit an allergens policy in a food handling environment. Practical exercises will reinforce lectures.

www.campdenbri.co.uk/training.php

Member zone

www.campdenbri.co.uk/memberzone.php

to access privileged member information and services

Campden BRI Day highlights

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

Over 500 food and drink industry guests registered for Campden BRI Day, to network, view exhibits, quiz our experts, tour the pilot plant, hear the 38th Annual Campden Lecture, sample the new briefing sessions, and see the awarding of the UK Ecotrophelia student prize and the Kraft Heinz Award for Excellence. Content from the day is now on our website www.campdenbri.co.uk/campdenbri-day.php.

Video - go behind the scenes with our time-lapse video of the build-up, and the day itself.

Lecture podcast - listen to Patrick Coveney, CEO of Greencore Group on why he thinks the UK food and drink industry is great.

Exhibits - see the posters from the 40 exhibits on nutrition and health, safety, quality and knowledge.

Briefings - view the slides from briefing presentations on:

- US Food Safety Modernization Act
- Viruses - the known unknowns
- What do consumers really want? And how can you tell?

Kraft Heinz Award for Excellence - Campden BRI's Emma Hanby won this award for her work in supporting product innovation, including that driven by nutrition and health as part of the Food Health Innovation Service initiative.

Ecotrophelia UK - witness the innovation of the winning team from Nottingham Trent University (see opposite) who now go on to compete in Ecotrophelia Europe in Paris in October.



The Fran Borjan team, Ryan Clifford (left) and Dominic Urban (right) receive the Food Innovation Student Award UK from Sue Bell, M&S

Ecotrophelia

This highly competitive student challenge presents students with the opportunity to take a novel product idea through to the final packaged product, gaining hands-on experience of what it takes to bring an eco-friendly food or drink to market - a great approach to stimulating the industry skills base.

The Gold Prize went to a team from Nottingham Trent University for the development of 'Fran Borjan', a vegan, low fat luxury iced dessert made with algal protein. With a record entry of 19 teams, congratulations are also due to the other finalists, namely El Nacho from College of Agriculture, Food and Rural Enterprise (Silver); Hemptations from Nottingham Trent University (Bronze); Apeel from London Metropolitan University; and Spent'N Gain from the University of Nottingham.

The teams pitched their ideas to a distinguished panel of food experts from Marks & Spencer, Coca-Cola, Mondelez, PepsiCo, Sainsbury's, Tesco and Warburtons, as well as representatives from BBSRC, Food Manufacture and Innovate UK.

See www.ecotrophelia-uk.org for full UK details and ecotrophelia.eu/ for the European competition



R&D Reports

www.campdenbri.co.uk/research/reports.php
for a list and fully searchable database of Campden BRI
R&D reports. Recent additions include:

Reducing fat and sugar in baked goods: research report

www.campdenbri.co.uk/research/sweeteners-fat-replacers.php

Drivers to limit the total fat content of foods include calorie reduction as well as removing specific fat types (notably trans and saturated fatty acids). A novel ingredient has been developed that enables the reduction of fat in baked goods such as cakes and biscuits without any compromise in product quality. This is described in *Reducing fat and sugar in baked goods* (RD403).

Raw ingredient functionality in bakery products

www.campdenbri.co.uk/research/ingredient-functionality.php

More than one third of UK-produced flour is used for applications other than bread. The increasing interest in a wider range of baked goods, including crackers, wafers, doughnuts, batter coatings and flat breads, is driving the need for a better understanding of the functionality of raw ingredients in the final product, to help choose the most appropriate ingredients depending on the application required. The two studies that have just been published look at tortillas (RD404) and puff pastry (RD405) as prototype examples.

Welcome to new members

We are delighted to welcome the following new members:

AFCO C&S Ltd - cleaning and sanitation solutions provider

Alara Wholefoods Ltd - producer of organic, gluten-free and Fair Trade products

Braid Logistics UK - bulk transportation of non-hazardous and food grade liquids

Dax Airscience Limited - provider of low energy bacteria elimination technology

East Coast Bakehouse - manufacturer of baked biscuits and cookies

Fayrefield Foods Limited - packer of cheese and similar products

Jenton International Ltd - manufacturer of packaging equipment and UV disinfection systems

Middledale Foods Limited - supplier of dairy and organic egg ingredients

Muscle Foods Ltd - manufacturer of healthy foods and supplements

Norac Foods UK - agent for food manufacturers based in France

Nutril Ltd - producer of a range of quark products

Spark Brands Ltd - importer and distributor of premium brands from Australia

The Foodservice Centre (FSC) - supplier of convenience food to retailers

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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.

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For other sites, see

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