JUNE 2010 ISSUE 06

Campden BRI
food and drink innovation

newsletter

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Lord Rooker visit

The FSA Chairman learns about our many activities.

Fungal identification

Recent research into the potential of commercial assays for fungal (yeast and mould) identification and characterisation will help in efforts to control fungal spoilage in foods and drinks.

Fungi are widespread in nature, and have been isolated from many food groups. Some strains are beneficial, for example in fermentation and flavour development, but others can result in food spoilage. In order to control fungal spoilage, it is essential that effective methods are available for the identification and characterisation of these organisms. This study looked at yeast and mould identification and fungal characterisation assays; both biochemical and molecular (genetic)-based techniques were considered.

The most important advance in this area has been the introduction of rapid techniques, including automated biochemical systems, DNA sequence-based identification, and genetic typing methods such as repetitive sequence-based polymerase chain reaction (rep-PCR).

Our findings suggest that commercial systems can deliver rapid identification results to industry to assist in troubleshooting in contamination issues. For some systems, this has been optimised to enable same-day results, particularly for yeast isolates. Another key point of interest is the benefit of using a combination of approaches in some cases. This project complements our work on persistent yeast and mould strains in food production environments and their control.

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New glove box essential for research work

As part of our work in the EU SO2SAY project, looking at alternatives to sulphite, we are running a work package on novel modified atmosphere processing. For this, a suitable glove box has been obtained within which different products can be both prepared and packed under different modified atmospheres, including nitrogen, carbon dioxide, argon and carbon monoxide excluding oxygen.

As well as use in the SO2SAY project, there is great potential for using this piece of equipment in other work, especially by companies requiring a method to reduce enzymic browning, for example in cut fruit and vegetables.

The glove box includes a system to remove atmospheric air and replace it with the selected gas mixture, whilst keeping oxygen to a minimum. It works by initially flushing with nitrogen to displace the oxygen and then flushing through the selected gas. The atmosphere has to be maintained within the glove box for the required time period and then safely removed (particularly carbon monoxide). An oxygen sensor is also included to measure the oxygen levels within the glove box.

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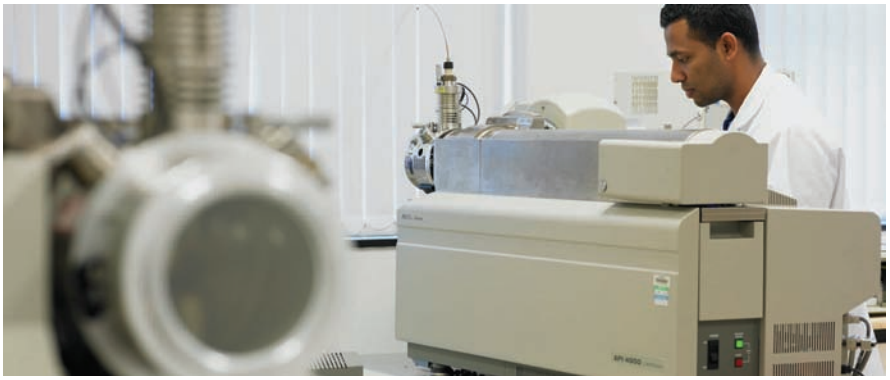

New mass spectrometer

The acquisition of a new mass spectrometer through a collaborative agreement with Agilent Technologies will enable us to further improve our services in the analysis of a range of contaminants, as Julian South, Head of Chemistry, explains:

"This really is a major addition to our analytical capabilities. This state-of-the-art machine will allow us to perform a range of analyses, which were originally carried out using HPLC, with improved sensitivity and accuracy. The new LC-MS/MS method will be used to analyse contaminants such as acrylamide, melamine, pesticides and illegal dyes (such as the Sudan colours), as well as vitamins. We also plan to develop services for veterinary residue analysis using the instrument.

The partnership with Agilent, one of several we have had together, is a recognition of our expertise in this field and of our ability to demonstrate and train others in the use of the technique."

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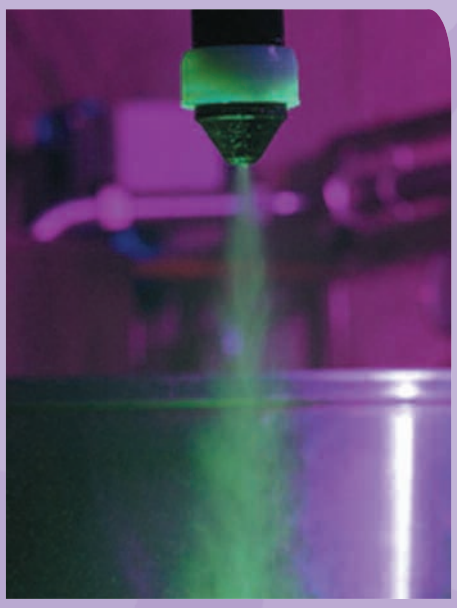
Service FEATURE



Factory hygiene - novel decontamination techniques

Effective decontamination of facilities is important for assuring food safety and reducing spoilage. Some microbial strains have become persistent in food production areas and novel techniques are needed to control them. Amongst the relatively new ideas that we have been exploring to supplement traditional techniques is that of decontaminating the processing area as a whole. Alicja Malinowska of our Food Hygiene Department explains:

"We have focused on 'whole room' systems using vaporised hydrogen peroxide and ozone, which are available commercially, to explore their practical application in the food and drink industry. We are developing guidance on the range of systems available, their selection and their use for whole room disinfection. This research will also allow us to provide industry with a highly relevant technical contract service.

We have found that vaporised hydrogen peroxide is a very useful dry process - for example, in facilities where electronic equipment and sensitive materials cannot withstand liquid applications. It was excellent against spores and also gave significant reductions of Staphylococcus aureus, Pseudomonas aeruginosa and Listeria monocytogenes. However, we noted possible resistance of some microorganisms.

Ozone spontaneously decomposes to oxygen and so is appropriate for use in food production areas. It requires high humidity and is most effective in a temperature-controlled environment - its stability decreases as the temperature increases. In laboratory trials, microbial reduction was directly related to ozone concentration and contact time. It was found that higher levels for several hours may be appropriate for whole-room disinfection of Listeria spp. Ozone use was also trialled in three factory visits, where it was found to be effective in reducing general microbial contamination of environmental surfaces. A 4-week continuous factory trial demonstrated an average reduction equivalent to that previously obtained with quaternary ammonium compounds."

> Advice to clients

The experience gained from these studies has allowed us to offer a service to validate the efficacy of whole room disinfection systems in food factories - either for routine factory decontamination, following a contamination incident, or as a replacement for traditional disinfection.

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Lord Rooker (centre) meets Professor Steven Walker (left) and Martin Hall (right)

Lord Rooker visits Campden BRI

Lord Rooker, Chairman of the UK Food Standards Agency (FSA), recently visited us and heard about a series of high-profile FSA funded projects that we have carried out on food analysis, labelling and food safety.

He toured the process plant and consumer studies areas, and discussed our work on reduced-salt and reduced-fat foods, product development and reformulation, and sensory analysis. Whilst visiting the laboratories he also saw work on food allergen management, hygiene and foodborne pathogens, and the latest methods for detecting food contaminants, as well as learning about our expertise in HACCP, legislation and compliance.

Professor Steven Walker

We are pleased to announce that Steven Walker, Campden BRI Director-General, has been awarded a Visiting Professorship at Harper Adams University College. This appointment started on 1 May 2010. It recognises Steven's high profile engagement with the food and drinks industry at both a technical and commercial level, and the importance of Campden BRI in general to the industry.

Introduction to Turkey - 19 July

The International Agri-Technology Centre (IATC Ltd) and UK Trade & Investment are holding a free morning seminar here to highlight support available to SMEs looking to do business in Turkey. The seminar will be followed by a free networking lunch and an opportunity to meet with companies visiting the UK from Turkey, including the UKTI Commercial Officer who will be accompanying the delegation. The seminar will cover:

- Opportunities in the 'Agri-technology' sector in Turkey
- How to do business in Turkey
- Services available to develop business internationally
- EU funding opportunities
- UK case study

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Packaging - drop testing

During distribution, packages will inevitably be dropped from time to time. By selecting the correct type of packaging, the risk to the contents can be reduced. We now offer drop testing to help companies assess how their packaging will perform.

The standardised drop test determines a container's ability to retain and protect its contents by dropping it from a predetermined height onto a concrete base, thus mimicking some of the risks associated with manual and mechanical handling. Tests are performed on flats, corners and edges of containers to recreate the different orientations in which a package can be dropped. This is one of a suite of packaging strength methods available from Campden BRI related to transit testing or distribution chain testing.

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Seminars

Campden site unless stated otherwise

Thermal processing 23-24 June 2010

Interactive packaging 1 July 2010

Country of origin labelling
17 September 2010

Laboratory accreditation forum
26 October 2010

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Microbiological challenge testing - Guide

Microbiological challenge testing is the laboratory simulation of what can happen microbiologically to a product during distribution and subsequent handling if it were to be contaminated with a microorganism. The use of challenge testing to assess product safety and stability has increased over the past few years, particularly with respect to *Clostridium botulinum* and *Listeria monocytogenes*, where evidence is required to demonstrate that there is minimal potential for growth of these organisms throughout shelf-life.

A new guideline (*Challenge testing protocols for assessing the safety and quality of food and drink - Guideline No. 63*) contains the necessary information for companies wishing to follow a standardised protocol for challenge testing their food products.

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WELCOME TO NEW MEMBERS

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

AC Wellard & Partners Ltd - a manufacturer of prepared fruits & vegetables and pasta salads

Alara Wholefoods Ltd - an organic and gluten free muesli manufacturer

Berwyn Catering & Events - a company specialising in food manufacture and event catering based in London, England

Calypso Soft Drinks - a company specialising in the manufacture of soft drinks

Daybreak Foods - a company specialising in the supply of private label dried pasta, olive oil, tinned tomatoes, Italian pasta sauces, pickled onions and lemon juice

Deli 24 - a manufacturer of chilled ready meals

Difrax BV - a Dutch company involved in the research, development and trade in baby items related to food & drink

Food Processing Development Centre - a Canadian regional food processing development centre

Heath Lambert Group - an independent insurance broker and employee benefits consultant

Loblaw - a Canadian retailer

MIH Technologies - a company specialising in the manufacture of chemicals for the food and water industries

Next Generation Gourmet - a manufacturer of soy based, vegetarian / vegan ready meals, snacks and desserts

Polestar Foods - a manufacturer of frozen desserts based in Leamington Spa, England

Romer Labs UK Limited - a laboratory developing food testing kits and providing analytical services

Scratch Meals - a company specializing in providing fresh meal kits

South Caernarfon Creameries - a farmer owned dairy co-operative, producing milk and manufacturing cheese

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Please notify the Membership Department of any name or address changes with respect to our mailing list.