



PCA trial concludes with punitive prison sentences

The former President of the Peanut Corporation of America (PCA), Stewart Parnell was sentenced to 28 years in jail for his part in the 2009 Salmonella outbreak which led to the deaths of 9 people and caused more than 700 people to fall ill across 46 states in America. His brother, who was a peanut broker for the firm, was sentenced to 20 years. Other employees pleaded guilty to fraud and the sale of mislabelled and adulterated food and were given lesser sentences of 3, 5 and 6 years. In total, the 5 executives who were targeted for prosecution will serve a total of 62 years.

The trial concluded that defendants had deliberately fabricated laboratory results to produce fraudulent certificates of analysis which accompanied shipments of peanuts. The trial jury was told that peanut paste was shipped before the results for bacterial testing were received, with negative lab tests from earlier batches attached to reassure customers. When positive test results came back, the company did not notify its customers.

At the time, the outbreak highlighted how just one contaminated ingredient could become incorporated into many different finished products containing peanut butter causing resultant widespread infections.

Salmonella outbreak from imported cucumbers

In September, the United States succumbed to another Salmonella outbreak which infected 732

people and caused 4 fatalities which was due to contaminated cucumbers imported from Mexico.

The hospitalisation rate in this outbreak is 29%, which is 9% higher than is typical in Salmonella infections. However rather than the strain (identified as Salmonella poona) being more virulent, the authorities believe that this is because most of the patients in this outbreak are children under the age of 18. Children are more susceptible to complications from bacterial infections because their immune systems are still developing.

PHE adopt MALDI-TOF as standard method

Public Health England have published a consultation document for a new draft procedure for Matrix-assisted Laser Desorption Ionisation – Time of Flight (MALDI-TOF) mass spectrometry. This methodology is now in widespread use in many clinical laboratories for the identification of microbiological pathogens.

MALDI-TOF is a soft ionisation technique used in mass spectrometry, allowing the analysis of biomolecules (such as DNA, proteins, peptide and sugars) and large organic molecules (such as polymers, dendrimers and other macromolecules). The ionisation is triggered by a laser beam. It is a rapid and highly reliable analytical tool for the characterisation of a diverse collection of microbes encountered in the laboratory.

This technique can be used to analyse the protein composition of a microbial cell and has emerged as a new technology for species identification. It has been shown to be a powerful technique because of its

reproducibility, speed and sensitivity of analysis. The advantage of MALDI-TOF MS as compared with other identification methods is that the results of the analysis are available within minutes to a few hours rather than several days.

Many of the conventional methods of identification still rely on identifying the unique growth characteristics of the target organism, which by definition means we have to culture the organism for at least 24hrs to observe processes such as sugar fermentation or decarboxylation reactions. MALDI-TOF is one of a growing number of “culture free” methodologies which detect the molecular structure of the organisms without the need to grow the bacteria on culture media, which obviously enables the lab to achieve an identification of the organism far quicker than with conventional methodologies.

The ALS lab in Chatteris gained UKAS accreditation for identification of *Listeria monocytogenes* by MALDI-TOF in May of this year and is one of the first contract food testing laboratories in the UK to adopt this methodology.

FSA publish guidance document on Listeria

The Foods Standards Agency has produced a guidance document on reducing the risk of vulnerable groups in contracting Listeriosis. Although relatively rare, Listeriosis can be very serious for vulnerable groups and has a high hospitalisation and fatality rate compared to infections with other bacterial pathogens. The document defines vulnerable groups as being cancer patients, patients undergoing immunosuppressive or cytotoxic treatment, unborn and newly delivered infants, pregnant women, people with diabetes, alcoholics (including those with alcoholic liver disease). The immune system capacity decreases progressively in the elderly, so elderly individuals are also included in this group.

This document illustrates the difficulty in assessing what “safe” levels of bacteria are in foodstuffs as foods which may have levels of bacteria which are below established criteria may still be potentially harmful for vulnerable groups.

E coli 0157 associated with venison products

Nine cases of infection with the same strain of *Escherichia coli* O157 PT32 have been reported from across Scotland, associated with the consumption of venison products.

In all cases, those infected had either consumed products (steaks, grillsteaks, sausages and meatballs) which had been purchased raw from a wide range of outlets and cooked at home or were fellow household members and likely to be secondary cases.

HPS, Food Standards Scotland, and NHS board health protection colleagues are investigating.

Is “anti-bacterial” soap more effective than “normal” soap?

For many years I have tried to persuade my wife not to buy the more expensive “anti-bacterial” soaps when out shopping and now it seems that new research has backed up my “miserly” tendencies.

South Korean research published in the Journal of Antimicrobial Chemotherapy analysed one of the most commonly used anti-bacterial ingredients - triclosan - and found that in normal use conditions it performed no better than conventional soap in combating bacteria such as Salmonella, Listeria and MRSA. However, using traditional antimicrobial sensitivity lab tests the triclosan-containing soap showed significantly greater bactericidal effects after 9 hours. Their conclusion was that the short contact time to which the organisms are exposed during normal hand washing is not sufficient for the anti-bacterial agents to exert any significant effect.

This has parallels in food manufacturing where in many instances hygiene teams are under pressure to complete cleaning within a set time window before production recommences. This may lead to an ineffective use of sanitisers if the required contact times are not achieved.