



EFSA highlight *E. albertii* as an organism of potential concern

The Emerging Risks Exchange Network is a sub-committee of the European Food Safety Authority and they have recently announced that Shiga toxin producing *Escherichia albertii* is an organism which they consider may be an emerging risk in terms of its potential to cause foodborne illness.

An emerging risk is defined as when there is a new hazard that may pose a risk to health. It may be a known hazard that has changed with increased exposure, the population may have developed increased susceptibility, the hazard may have developed increased pathogenicity or the composition or intake of the product which is the vector for the organism may have changed.

E. albertii was previously classified as *Hafnia alvei* and its potential as a foodborne pathogen has been recognised since 2007 when it was found to be the causative organism associated with an outbreak of gastroenteritis in Bangladesh.

E. albertii has been shown to possess the eae gene, which is associated with the ability of bacterial cells to adhere to epithelial cells and is widely regarded as a marker of pathogenicity. Because of this it is thought that some strains may have been previously misidentified as *Shiga Toxin E. coli (STEC)* as the presence of the eae gene is used in the *STEC* confirmation methods.

Although many genetic and phenotypic studies have been published and the genome sequences of more than 200 *E. albertii* strains are now available, the true clinical significance of this species and its foodborne association is not yet fully understood.

FDA announce survey of lettuce in problem growing region

We have discussed the recurrent issues with *STEC* in leafy greens which are grown in California's Salinas Valley in recent bulletins and the Food and Drugs Authority (FDA) have announced that they are going to monitor produce grown in this region from May to November in a bid to determine if *STEC* strains are persisting in the environment and to try to identify the likely routes of contamination.

The FDA have also announced that they are currently investigating an outbreak of *E. coli O145 H:28* which has so far affected 16 people but as yet no common food vector has been identified.

Brazilian Black Pepper - Salmonella

The European Commission has tightened checks on black pepper from Brazil because of increased detections of *Salmonella* reported through the Rapid Alert System for Food and Feed (RASFF).

So far this year there has been 28 RASFF reports of *Salmonella* in black pepper from Brazil with the most notifications reported by Germany. The serotypes detected to date include *S. rubislaw*, *S. infantis*, *S. saintpaul*, *S. coeln*, *S. matadi*, *S. gaminara*, and *S. Javiana*.

Chocolate wafers identified as source of Salmonella outbreak

Officials in Sweden have traced the source of a European wide *Salmonella* outbreak to imported chocolate wafers from Poland.

Earlier this year, 32 people living in 15 counties fell ill after infection with the same strain of *Salmonella enteritidis*. Patient interviews carried out in Sweden established that all of the affected individuals had eaten a branded chocolate wafer bar. Testing of the bars showed that they were contaminated with the same strain of *Salmonella*, which confirmed the source of infection.

Salmonella outbreak in Sweden

An outbreak caused by *Salmonella braenderup* has affected 14 people in 10 different regions of Sweden. The source of the outbreak has not yet been identified but the spread of infected people suggests that the suspected food is widely distributed in the country.

Although it is not a commonly encountered serotype, *Salmonella braenderup* entered the top 20 list of serovars causing confirmed infections in Europe in 2018 with 259 cases and was responsible for 300 infections in 2019.

Danish Salmonella outbreak - update

As reported in last month's bulletin, the Danish outbreak caused by *Salmonella typhimurium* which is linked to the consumption of a herbal medicine called HUSK Psyllium has now affected over 40 people. As well as the product being linked to the outbreak by epidemiological questionnaires, the same strain has now been detected from the implicated products collected from several patient's homes.

The HUSK Psyllium seeds from the infected batch had been imported from India and the manufacturing company has now recalled their entire range of HUSK products.

Cured meat products associated with Hepatitis E

Research published in the Journal of Emerging Infectious Diseases has identified cured meat products as risk factors for hepatitis E virus (HEV). The study found that consuming cured meat products, and liver were significantly associated with HEV infection, confirming previous links to processed meat products.

Scientists investigated risk factors for HEV infections in the blood donor population in England via a case-control study from April 2018 to March 2019. It was found that there were 117 HEV RNA-positive blood donors and 564 HEV RNA-negative donors. Collected information from cases and controls included travel history, animal and environmental exposures, medication, as well as the food they ate and purchasing preferences with detailed questions about the consumption of cured meat products.

The incubation period of HEV can be two to nine weeks, so patients were asked about the 9-week period before the date of their HEV RNA positive blood donation. This identified common products such as cured meat products and liver.

The researchers stated that "identification of these cured meat products highlights the importance of accurate information about cooking requirements as well as the role and importance of animal husbandry to prevent HEV infection in animals. Targeting HEV infection at the source would prevent foodborne transmission to the population".

EFSA publish guidance on shelf life

The European Food safety Authority (EFSA) has published a document in its April 2021 (Volume 19 issue 4) Journal which addresses most of the frequently asked questions surrounding the process of establishing a microbiological shelf life of a product. Shelf life determination is one of the main considerations in any new product development, and in the document a risk-based approach was used to develop guidance to be followed by food business operators (FBOs) when deciding on food information relating to storage conditions and/or time limits for consumption after opening a food package and thawing of frozen foods.

The guidance states that after opening the package, contamination may occur, introducing new pathogens into the food and the intrinsic (e.g. pH and aw), extrinsic (e.g. temperature and gas atmosphere) and implicit (e.g. interactions with competing background microbiota) factors may change, affecting microbiological food safety. Setting a time limit for consumption after opening the package (secondary shelf - life) is complex in view of the many influencing factors and information gaps.

The guidance document has a decision tree to assist FBOs in deciding whether the time limit for consumption after opening, due to safety reasons, is potentially shorter than the initial 'best before' or 'use by' date of the product in its unopened package. For products where opening the package leads to a change of the type of pathogenic microorganisms present in the food and/or factors increasing their growth compared to the unopened product, a shorter time limit for consumption after opening is deemed to be appropriate.

Although the guidance acknowledges that freezing prevents the growth of pathogens, it states that most pathogenic microorganisms may survive frozen storage, recover during thawing and then grow and/or produce toxins in the food, if conditions become favourable for growth. Moreover, additional contamination may occur from hands, contact surfaces or contamination from other foods and utensils.

The report concludes that good practices for thawing should, from a food safety point of view, minimise the risk of contamination by pathogens between the food being thawed and other foods and/or contact surfaces, especially when removing the food from the package during thawing. The guidance includes a best practice summary for thawing foods to support FBOs.

When microorganisms become the food itself

My entire working life revolves around the interactions of microorganisms with food, but a recent article entitled Microbes: Food for the Future describes how new innovative technologies may utilise microbial protein meaning that the food is actually derived from the microorganisms themselves.

The article states that the production of microbial protein in controlled and intensive systems called "bioreactors" is receiving increasing attention from research and industry. Microbial protein has low arable land requirements and does not directly compete with crop-based food commodities.

The review considers the potential and limitations of four Microbial protein sources currently tested at pilot level or sold as food or feed ingredients: hydrogen oxidizing bacteria, methanotrophs, fungi, and microalgae (cyanobacteria). The environmental impacts such as energy, land, water use, and Greenhouse Gas emissions were assessed and compared favorably with those of plant, animal, insect, and cultured meat-based proteins.

This is not totally new technology as the popular meat free alternative Quorn is a brand that uses a meat substitute called mycoprotein, derived from a natural fungus. The fungus is fermented in order to grow the mycoprotein, which is then made into various Quorn products.

Salmonella typing by PCR as performed by the ALS Microbiology Specialist Team

And finally this month, can I point you in the direction of an excellent article written by my colleague Andy Tomlin who is one of the Microbiology Specialists at our Rotherham site on how new PCR technology has now made Salmonella serotyping now accessible to the routine laboratory. His article was published in the New Food magazine and can be accessed by the following link

<https://www.newfoodmagazine.com/article/144397/salmonella-serotyping-from-reference-to-routine-lab/>