



### Worldwide Infant formula milk recall

There have been multiple recalls of powdered infant formula baby milk in at least 37 different countries following an outbreak in the United States that has seen at least four children hospitalised. Three of the infections have been identified as being caused by *Cronobacter sakazakii* and one is from Salmonella.

The U.S. Food and Drug Administration (FDA) have announced that the implicated products have been manufactured at the Abbott Nutrition facility in Michigan.

The FDA has initiated onsite inspections at the facility, and in a press release on February 17<sup>th</sup> they have stated that their findings to date include positive *C. sakazakii* results from environmental samples and adverse inspectional observations by the FDA investigators. A review of the firm's internal records also indicated historical environmental contamination with *C. sakazakii* and the firm's previous destruction of product due to the presence of this organism.

*Cronobacter sakazakii* (previously classified as *Enterobacter sakazakii*, and named after the Greek Titan Cronos, who swallowed his infants after they were born in fear of being replaced by them), can cause severe life-threatening infections in infants such as sepsis and meningitis. Symptoms may include poor feeding, irritability, temperature changes, and jaundice. *Cronobacter* infection may also cause bowel damage and may spread through the blood to other parts of the body.

Although *C. sakazakii* causes disease in all age groups, infections caused by this pathogen are particularly fatal in premature babies and those younger than two months. The pathogen has been isolated from various environments such as powdered infant formula manufacturing facilities, healthcare settings, and domestic environments, increasing the chance of infection through cross-contamination.

Like Salmonella, *Cronobacter* can be present in biofilms and can also persist and remain viable in low moisture/low water activity environments (such as infant formula) for up to 12 months.

In the UK the recall notice issued by the Food Standards Agency stated that both recalled products are foods used for special medical purposes and would ordinarily be used only under strict medical supervision.

### All too familiar product recalls

On February 2<sup>nd</sup> Americans celebrate "Groundhog Day" where according to tradition, if a groundhog comes out of its hole on this day and sees its shadow it gets scared and runs back into its burrow predicting six more weeks of winter weather, whereas no shadow means an early spring. The phrase took on another meaning thanks to the 1993 film of the same name where a cynical television weatherman covering the annual Groundhog Day event in Punxsutawney, Pennsylvania, becomes trapped in a time loop, forcing him to relive the February 2<sup>nd</sup> "Groundhog Day" repeatedly.

Perhaps it was because of the date, but there has certainly been a "Groundhog Day" feel to the majority of product recalls this month, as they all seem to be depressingly familiar.

There have been more recalls of Enoki Mushrooms due to the presence of *Listeria monocytogenes*; more Tahini/Halvia/Chia/breaded chicken/raw pet food products have been withdrawn due to Salmonella concerns, and there has been continued scares regarding washed and bagged leafy greens due to STEC and Listeria. All of which have been covered on numerous occasions in Micro Bulletins over the last 12 months.

Whether this is because of increased surveillance brought about by the previous issues or inherent problems associated with the growing conditions or the harvesting and manufacture of these types of products remains to be seen.

### Green Pesto recalled

The FSA has also communicated that Waitrose is recalling Waitrose & Partners Green Pesto with Basil because salmonella has been found in the product.

The product appears to have been sold in 145g plastic containers so is unlikely to have been subjected to thermal processing post filling as would no doubt be the case in similar bottled products.

## European Salmonella outbreak linked to eggs

The European Centre for Disease Prevention and Control (ECDC) and the European Food Safety Authority (EFSA) have issued a joint rapid assessment regarding an ongoing outbreak of *Salmonella enteritidis* sequence type (ST) 11 associated with the consumption of eggs and egg products.

Between September last year and January there have been 272 reported cases of this ST in several European countries including France, Spain, Denmark, Holland, and the UK.

Some of the cases reported in France in 2021 had visited restaurants serving eggs which had been distributed by a Packing Centre in Spain. The eggs originated from three Spanish farms, one of which tested positive for the outbreak strain. Fresh shell eggs from the farms linked to the outbreak were withdrawn and redirected for use in heat-treated egg products.

However, tracing the source of the outbreak hasn't proved to be straightforward as none of the other affected countries received eggs from the same farms or from via the implicated Packing Centre during summer 2021. Consequently, the source of infection for cases in late 2021 and in countries other than Spain and France could not be established.

This 2021 outbreak is linked by sequence type to a historical cross-border outbreak reported by the Netherlands in 2019. Eggs consumed by cases in the Dutch outbreak were traced back to a Spanish farm, but it was not possible to identify an epidemiological link with the 2021 outbreak.

This suggests a wide distribution of the outbreak strain that could affect the food supply chain and/or earlier steps in the production chain. There may be multiple heterogeneous sources of *S. Enteritidis* ST11, and the outbreak strain could also be circulating at other farms, inside or outside Spain.

The report concludes that the risk of new infections caused by the outbreak strain and contaminated eggs remains high in the EU/EEA, and it is therefore important to foster cross-sectoral investigations of contaminations in the egg supply chain in countries where *S. Enteritidis* ST11 has been detected.

## Assessment of the Microbiological safety of raw milk cheeses

I am currently reading a book on the Microbiome which extols the benefits of eating a diet which helps to increase the diversity of microorganisms in the gut, and it advocates eating fermented products, especially raw milk cheese. This makes me wonder if there was a conflict between the nutritional healthy microbiome advice and that of food safety, so it was with interest therefore that I found a current research article on the assessment of the microbiological safety of cheeses made from unpasteurised milk.

In the study, published in this month's Journal of Food Protection, a total of 629 samples of cheese were collected from retailers, catering premises, and manufacturers throughout England. The majority (80%) were made using cow's milk, with 14% made from sheep's milk and 5% from goat's milk. Samples were from 18 different countries of origin, with the majority originating from either the United Kingdom (40%) or France (35%).

When interpreted against European Union microbiological criteria and United Kingdom guidance, 82% were of satisfactory microbiological quality, 5% were borderline, and 12% were unsatisfactory. Four samples (0.6%) were potentially injurious to health due to the isolation of STEC from one,  $>10^4$  cfu/g of coagulase-positive Staphylococci in two, and  $>100$  cfu/g of *Listeria monocytogenes* in the fourth sample.

The report showed that indicator *E. coli* and *Listeria* species were detected more frequently in soft compared with hard cheese, and that higher levels of indicator *E. coli* were significantly associated with a greater likelihood of detecting Shiga toxin genes (*stx*<sub>1</sub> and/or *stx*<sub>2</sub>).

As with all microbiological testing, the time that a sample is tested is crucial to the outcome of the results. In the United States, the sale of cheese made from unpasteurised milk is only allowed if it has been aged for at least 60 days at a temperature of at least 1.7°C, on the basis that the combination of low pH, low *a<sub>w</sub>*, high salt, and competitive flora would reduce the numbers of any pathogens present in the cheese over time.

Meanwhile, another report published this month in the journal Microorganisms claims that a *Salmonella enteritidis* outbreak in 2020 which affected 80 people in Italy was due to the consumption of raw sheep milk cheese.

On reflection, I think that my own personal Microbiome will have to make do with pasteurised cheese in the future.

## Loch Maree Hotel botulism outbreak 100 years ago.

This year marks 100 years since the UK's first documented *Clostridium botulinum* food poisoning incident. In scenes reminiscent of an Agatha Christie novel, eight guests at the Loch Maree Hotel in the Northwest Highlands died after consuming contaminated duck pate sandwiches. The victims included an elderly couple from Dublin; a 22-year-old Oxford graduate, son of a distinguished London King's Counsel; a retired London barrister; the wife of a Seaforth Highlander on leave from India, and two ghillies.

Mass murder was suspected at one point and the hotel was searched for poison and the owner and cook were both questioned by the police. Public interest grew intense, and it wasn't until the medical officer of health, reported to the procurator fiscal that the disease looked identical to a case of sausage poisoning in Germany in the 1890s, and poisoning from bottled olives in the United States in 1920, that the cause was found to be botulism from a single jar of duck pate produced by Lazenby & Sons of London. The incident led to the establishment in Scotland of canning regulations, while anti-toxins were made available in 16 centres across the UK. Botulism became a notifiable disease in the UK and the events at Loch Maree are now used as a case study in the detection of food poisoning.