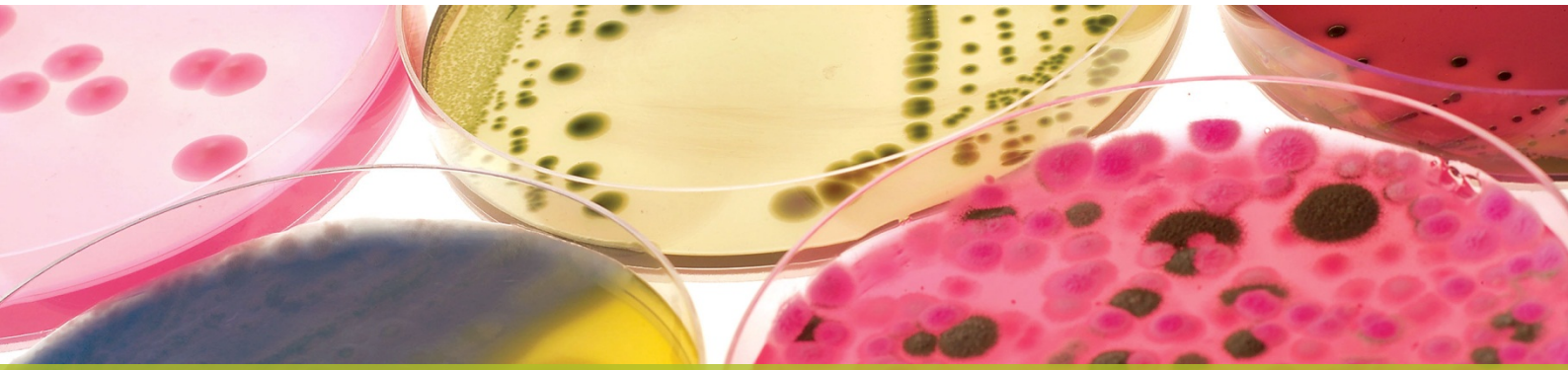
Food & Pharmaceutical



Microbiology bulletin 29 December 2015

FSA release 2nd year, 1st quarter results

Last month the Food Standards Agency (FSA) published the first set of results from its second year survey of campylobacter on fresh shop-bought chickens. The results for the first quarter of testing, from July to September 2015, show a decrease in the number of birds with the highest level of contamination (>1,000cfu/g) from the same months last year.

These most heavily contaminated birds are the focus of the current target agreed by industry, which is equivalent to no more than 7% of chickens at retail having the highest levels of contamination. The FSA claim that research has shown that reducing the proportion of birds in this category will have the biggest positive impact on public health.

The new data shows 15% of chickens tested positive for the highest level of contamination, down from 22% in July to September 2014. Campylobacter was present on 76% of chicken samples, down from 83% in the same months of last year.

Salmonella cucumber outbreak – numbers still rising

Although the Salmonella outbreak associated with imported cucumbers (as mentioned in the October bulletin) was identified in August, the number of cases are still continuing to rise, suggesting that this is due to cross contamination from cucumbers bought or consumed months ago.

The Salmonella poona outbreak caused 838 people to be ill and has led to 165 hospitalisations and 4 deaths.

The source of the outbreak was traced to Mexico where it was claimed that the cucumbers were prepared, packed and held in unsanitary conditions.

EFSA recommends research into EAEC

A panel of the European Food Safety Authority has identified a requirement for research and surveillance into Enteroaggregative Escherichia coli (EAEC) as a foodborne pathogen. The panel stated that when investigating foodborne outbreaks testing for EAEC should become routine in light of its apparent increasing involvement in mixed pathogen outbreaks.

EAEC are a major cause of acute diarrhoeal illness in infants in many low income countries and in travellers visiting and returning from such countries. In higher income countries it is increasingly involved in food related incidents and outbreaks. These foodborne outbreaks tend to be caused by contamination by asymptomatic food handlers and poor sanitation.

EAEC are characterised by their ability to adhere to tissue culture cells in a distinct stacked brick pattern mediated by aggregative adherence fimbriae.

There are currently no recommended definitive methods to identify EAEC from food, although Whole gene sequencing, PCR assay and Hep-2 cell adherence assays have all been used in analysing clinical samples

Probiotic pasta

Italian researchers have claimed to have developed a pasta fortified with a probiotic strain of *Bacillus coagulans* which remains viable during the pasta production and cooking process.

The strain has been reported to improve symptoms of gastrointestinal disorders such as irritable bowel syndrome and to enhance immunological responses.

A cooking time of 5-7 minutes ensured that the pasta was sufficiently cooked but allowed a significant number of the *B coagulans* cells to survive.

Re-tests fail to confirm presence of pathogen

Follow up testing by the US FDA of a Celery and Onion mix - recalled after being linked to an E coli 0157:H7 outbreak - has failed to confirm the presence of the pathogen.

The agency said that other bacteria present in the sample could have inhibited the growth of the pathogen; alternatively it may have been present in low numbers or could have died by the time the confirmatory testing was done. The manufacturers claimed that the recall was a false alarm.

This re-emphasises the fact that any result reflects the microbiological composition of a product at the time of testing only and that many factors will influence the ability of any lab to obtain similar results from either repeat or retained samples.

Agar production affected by seaweed shortage

There has been some worrying news that pre-poured media manufacturers have had to suspend the supply of some media due to a shortage of the seaweed used to make them. Apparently a number of factors have caused the shortage. Seaweed quotas have been reduced to increase long term sustainability, yields have been down due to poor harvests and the consumption has been increasing.

Bacteriological agar is made from a species of seaweed called Gelidium. The resulting agar has a low gelling temperature which allows addition of supplements to the agar without heat damage. Agars must not contain any growth inhibitors such as trace metals, soluble carbohydrates or proteins.

The use of agar as a bacteriological growth medium was first developed by Walther Hesse (with a little help from his wife) in the 1880's. He had initially used a gelatin-containing medium, but the medium had a tendency to melt during the summer months, and many of the organisms he cultured were capable of degrading the gelatin medium, ruining his experiments.

Legend has it that Hesse went on a picnic with his wife Angelina and noticed that the jellies and puddings that she had brought along did not melt in the hot summer weather. When asked why this was so, she replied that they contained agar, and that she was following a traditional recipe which had been given to her from a Dutch neighbour.

Further development of agar by Hesse showed that it would not easily melt (though would remain molten at lower temperatures once it did), was not easily degraded by microorganisms and was a flexible medium, allowing the growth of bacterial cells within its structure.

Hesse worked in Robert Koch's laboratory in Berlin and Koch used the medium developed by Hesse in his ground breaking research on tuberculosis bacteria.

Santa too poorly to deliver presents

Food Standards Scotland (FSS) has launched a cheeky safety campaign in an effort to reduce the number of people contracting food poisoning over the festive season. The campaign features Santa Claus stricken by a bout of food poisoning.

In a survey commissioned by the FSS, 78 per cent of Scottish people don't worry about getting food poisoning despite 43,000 food poisoning infections, 5,800 GP visits and 500 hospital admissions across the country every year.

Season's Greetings

May I take this opportunity to wish you all a safe and peaceful Christmas and a happy, healthy and prosperous New Year.