



How to react to non-pathogenic *Listeria* isolations

I am often asked the question by clients, “what significance should be given to isolations of non-pathogenic *Listeria* spp in finished product samples or environmental swabs?”

I respond by asking whether the client is a glass half full or half empty person. If you are a glass half full person, then you don't have the pathogenic species so you have nothing to worry about. However, the response I would advise is to be a glass half empty person and acknowledge that all different species of *Listeria* grow in similar conditions, so the presence of one species does not exclude the presence of another; in fact it increases the possibility.

Adoption of the latter approach has been given further credence by new research published in *Food Microbiology* 46 (2015), which suggests that in mixed populations the non-pathogenic species of *Listeria* can out-compete *Listeria monocytogenes* during the selective enrichment phase of the isolation process. When both *L. monocytogenes* and *Listeria welshimeri* were inoculated onto different food matrices, the presence of *L. welshimeri* resulted in the failure to recover the *L. monocytogenes* in 3 out of 4 of the different types of samples tested.

This means that if lab results appear to show that only the non-pathogenic strains are detected, a mixed *Listeria* population in the swab or food sample may have originally included *L. monocytogenes*.

Should ALOA be more selective?

Another recent article concerning *Listeria* can be found in the journal of *Food Microbiology* 193 (2015). This article states that the ALOA (Agar *Listeria* according to Ottaviani and Agosti) - which is the mandatory medium used for the detection and enumeration of *Listeria monocytogenes* - is not as selective as previously thought.

The authors showed that different genera of bacteria such as *Bacillus* spp, *Enterococcus* spp, and *Staphylococcus* spp could all grow on ALOA displaying the typical colonial morphology of the target organism, *L. monocytogenes*.

The results significantly extend the list of bacteria previously known as capable of growing on ALOA as blue-green colonies and suggest that there may be room for further improvements in the mediums inhibitory properties towards Gram-positive bacteria (other than *Listeria*) in foods.

The research also illustrates the importance of confirmations and reminds us that just because an isolate displays the typical colonial morphology of the target organism, we cannot make assumptions of the identity of the bacteria until all the confirmatory tests are complete.

Further STEC E coli cases in Dorset

A third child is being treated in hospital for serious kidney problems following an *E. coli* infection in Dorset.

Public Health England (PHE) said tests had shown it was the same strain of *E. coli* O55 that had affected 26 other people in the county.

In May, two children were also admitted to hospital with haemolytic uraemic syndrome. No common source has been identified. A cluster of cases of the bacterial illness in Dorset was investigated in November 2014, with further cases reported in May and July. Areas previously affected include Blandford, Portland, Bournemouth and Poole.

There have also been some cases outside the county which had links to people from Dorset. Clusters of this particular strain had not been identified in England since records began in 1994.

Research on *Helicobacter spp*

Research published in the American Society of Microbiology showed that *Helicobacter pullorum* was isolated from 4 out of 17 samples of chicken. The study suggests that the emerging pathogen *H. pullorum* can be transmitted to humans (in a similar way to *Campylobacter*) by contact with raw chicken or consumption of undercooked poultry. In addition, some genetic traits found in the four strains provide relevant clues as to how this species may promote adaptation and virulence.

FSA re-issue advice on safe packing

In light of the new law introduced last month which will require large shops in England to charge 5p for single-use plastic carrier bags, the Food Standards Agency reiterated their advice to shoppers on how to safely pack their shopping to reduce the risks of cross contamination. Although shops should still supply free bags for raw meat and poultry, it will be interesting to see if we observe a “spike” in infections during this transitional period.

The Food Standards Agency 12-month *Campylobacter* Retail Survey showed that 7% of the outer packaging tested positive for the presence of *Campylobacter*, suggesting that this poses a considerable cross contamination risk if whole birds are placed with ready to eat foods in reusable bags.

Multiple outbreaks linked to Chipotle restaurants

There have been 3 separate outbreaks linked to Chipotle restaurants in America.

Norovirus was to blame for a food-borne illness outbreak last month that sickened nearly 100 customers and employees at Chipotle Mexican Grill in Simi Valley. Seven of the 18 employees who got sick have tested positive for Norovirus.

The Minnesota Department of Health (MDH) have identified tomatoes as the source of the *Salmonella* outbreak that has affected dozens of people who ate at Chipotle restaurants in Minnesota since late August. Investigators are working with state and federal partners to trace the tomatoes back to the farm of origin.

Finally, the investigation into an outbreak of *E. coli* O26 illnesses that may be related to Chipotle restaurants in Washington and Oregon has grown to 41. The illnesses have been associated with meals served between October 14 and October 23 at restaurants in four Washington counties and two Oregon counties. Eight people have been hospitalized.

Just in case you are wondering.....a chipotle is a smoke dried jalapeno.

Genetically engineering plants to produce Colicins

Colicins are antimicrobial proteins produced by strains of *Escherichia coli* which can kill or inhibit the growth of other organisms (including other pathogenic strains of *E coli*) with a potential reduction of up to 5 logs. New research has looked into the possibility of genetically engineering edible plants to naturally produce a mixture of colicins.

Preliminary investigations involved placing the colicins on the leaves of the plants and mixtures of colicin M and colicin E4 showed very high activity against the common VTEC serotypes.

Practical applications of other natural antimicrobial agents such as bacteriophages are also being investigated.