FOODBORNE VIRAL INFECTIONS: PREVENTION IS BETTER THAN CURE

Almost every week a new foodborne illness outbreak is reported in the media. Many of these are caused by the viral infections norovirus (NoV) and hepatitis A (HAV). Unlike bacterial infections, once present in food, viruses will neither modify the taste nor the appearance of a product. As a result viral infections can more easily go undetected.

Many foodborne outbreaks caused by viruses occur worldwide every year. In the US alone there are estimated to be 9.2 million foodborne illnesses related to norovirus each year and the 19 member states of the European Union (EU) reported a total of 697 norovirus outbreaks in 2008. In outbreaks that have been verified, norovirus was the most frequent cause, followed by HAV. In the EU, viral agents were responsible for 11.9% of the foodborne outbreaks reported to the European Food Safety Authority (EFSA) during 2007 and were identified as the second most common causative agent group, after Salmonella[1].

UNDETECTED VIRAL INFECTIONS

Viruses can be very infectious. Norovirus inoculums as low as ten viral particles may be sufficient to infect an individual. Enteric viruses, like hepatitis A and norovirus, can survive for long periods in food and water.

Generally, viruses are more resistant to chemical and UV disinfection, filtration and pasteurization than micro-organisms but they may be removed by ultrafiltration membranes or inactivated by prolonged heating or optimal UV treatment. However, they survive reasonably well in adverse conditions, microbial proteolysis and fermentation. As they are resistant to several food processes, consumption of processed food products may lead to new human outbreaks. Additionally, infected people also represent a risk as foodborne outbreaks are often linked to food handlers.

[1] Electrocutions associated with Consumer Products
[2] US Consumer Product-Related Injuries and Deaths

REGULATORY STEPS TAKEN

To help overcome the risks associated with food-borne viruses, regulatory officials have developed and continue to pursue several measures:

- European Commission Regulation (EC) No 2073/2005 of 15 November 2005 indicates that "Foodstuffs should not contain micro-organisms or their toxins or metabolites in quantities that present an unacceptable risk for human health", underlining that methods are required for foodborne virus detection.
- An expert working group, created by the European Committee for Standardisation (CEN), is expected to publish a standard method for the detection of norovirus and hepatitis A virus in food products (shellfish, fruits and vegetables, surfaces and bottled water). The standard method will include qualitative and a quantitative measures.
- The CODEX Committee on Food Hygiene (CCFH) is working on a guideline for the application of general principles of food hygiene for the control of viruses in food, which is ready for adoption.
- EFSA published a report in 2011 'scientific opinion on an update on the present knowledge on the occurrence and control of food-borne viruses'.

Viruses may contaminate food at all stages of the food supply chain and transmission may occur by consuming food either contaminated during production (primary production, or processing), or contaminated by infected food handlers. They do not multiply in foods, but may persist for extended periods of time as infectious particles. Therefore, the EFSA panel recommends focusing controls on preventive measures to avoid contamination rather than trying to remove or inactivate viruses from food.

GET THE BEST SUPPORT AVAILABLE

Foodborne viruses are a real concern. To help organizations meet diverse regulation requirements and support their internal risk assessment studies, SGS has developed analytical methods based on the expected CEN standard.

As validated methods are available for many types of food and environmental samples, our analytical services help food companies measure viral risks and integrate foodborne virus testing into their analytical surveillance plans.

Find out more information about SGS Food Safety Solutions.

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