Listeria monocytogenes

Fact Sheet

What are Listeria?

Listeria are naturally occurring bacteria that can be found in many environments including animals, soils, and processing facilities. *Listeria monocytogenes* is the only type of *Listeria* that is pathogenic to humans. The capability *of L. monocytogenes* to grow at refrigeration temperatures increases the risk from this pathogen.

What seafood presents a risk?

Seafood that possesses a long shelf-life is considered to present a higher-risk; e.g. smoked fish.

How does seafood become contaminated?

L. monocytogenes is commonly associated with processing environments and can persist in drains, floors and wet areas. Cross-contamination from these areas is the usual source.

Who is at risk?

Some members of the population are considered as high risk groups including pregnant women and their foetuses, neonates, the elderly and the immuno-compromised.

What outbreaks have occurred?

There have been no recorded outbreaks in Australia attributed to Listeria in Australian-sourced seafood; however, there have been recall events of contaminated product. There have been illnesses associated with seafood overseas, including New Zealand.

How much *L. monocytogenes* is a harmful dose?

A harmful dose can range from 10^2 to 10^6 cells dependent on strain and human host.

What are the symptoms?

Symptoms of listeriosis can vary, but can include:

- Influenza-like symptoms such as fever, headaches and muscle aches.
- Can be gastrointestinal illness – vomiting and diarrhoea, although this is less common; and
- Septicaemia – fever, chills, rapid heart rate, breathing difficulties.

What can be done to manage *L.monocytogenes*?

- Educational efforts targeted at high-risk sectors of the population advising them against eating high risk products
- Application of appropriate food processing technologies to high risk products
- Effective cleaning and sanitation of processing areas. Particular care for floors, drains, walls, hollow rollers, conveyor strips, rubbers seals and inaccessible areas in equipment and machinery
- Modern smooth surfaces and competent drainage have been found to reduce the risk of Listeria contamination
- Effective HACCP-based food safety programs
- Effective sampling plans for testing of *L. monocytogenes* in processing plants and end product
- Separation of raw and processed product to prevent cross contamination
- Good personal hygiene during processing in the factory

How can we test for *L. monocytogenes*?

- Australian Standard method AS 5013.24.1-2009 for testing *Listeria monocytogenes* in food and animal stuff is based on ISO 11290-1:1996 method: Horizontal method for the detection and enumeration of *Listeria monocytogenes*.
- For export products the Department of Agriculture has approved a number of rapid methods by using ELISA and PCR techniques (http://www.daff.gov.au/biosecurity/export/meat/elmer-3/approved-methods-for-microbiological-testing-of-meat-and-meat-products).
- It is not uncommon to detect non-pathogenic *Listeria* species during the first stage of culture based testing. These may not be a concern from a safety and regulatory perspective unless further stages of the testing confirm these as *L. monocytogenes.*

Regulatory standards

Australia has standards for *Listeria monocytogenes* under the Australia New Zealand Food Standards Code for ready to eat processed fish and processed bivalve molluscs, available at http://www.foodstandards.gov.au.

International regulatory limits can be found in the Trade & Market Access Database, available at www.frdc.com.au/trade.

Where can I access more information?

SUTHERLAND, P. S., MILES, D. W. & LABOYRIE, D. A. 2003. Listeria monocytogenes. *In:* HOCKING, A. D. (ed.) *Foodborne Microorganisms of Public Health Significance.* Sixth ed. New South Wales: Australian Institute of Food Science and Technology Inc.

CAC/GL 61 - 2007 guidelines on the application of general principles of food hygiene to the control of *Listeria monocytogenes* in foods

Contact us:

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FRDC FISHERIES RESEARCH & DEVELOPMENT CORPORATION

AUSTRALIAN SEAFOOD COOPERATIVE RESEARCH CENTRE

Considering the Benefits and Risks of Seafood Consumption

Eating seafood confers many benefits: it provides top-quality protein, and is an excellent source of important nutrients like iodine, selenium, vitamins A and D, and long-chain polyunsaturated omega-3 fatty acids. However like all foods, some seafood products may contain substances that are harmful to health. Illness from seafood is rare, so the benefits of seafood consumption must be weighed against the risks. For most people, following the recommended national dietary guidelines is the best means of balancing risks and benefits. For some groups such as pregnant women and children, specific advisories on healthy and safe seafood choices should apply. For more information, see http://www.nap.edu/catalog.php?record_id=11762