

Scientists warn over improper vacuum packed fish thawing

Experts from the Michigan State University warn that the packaging of vacuum packed fish should be opened before thawing to prevent bacteria contamination.

Vacuum packaging, also called Reduced Oxygen Packaging (ROP) keeps the fish from drying out by preventing water loss. It is used because it allows for an extended shelf life in the freezer by reducing off odors and texture changes which may result in spoilage. When food is vacuum packed, air is sucked out of the packaging and then the packaging is hermetically sealed.

Vacuum packaged fish results in a tasty and superior product when it is prepared, but what's the concern? *Clostridium botulinum* and *Listeria monocytogenes* are the bacteria of primary concern when thawing vacuum packed fish.

Clostridium botulinum (*C. botulinum*) is an anaerobic bacteria (meaning they live and grow in low oxygen conditions) that forms spores which allow it to survive in unfavorable conditions. When the right conditions are present, the spore will develop into a vegetative cell which can produce a deadly toxin. The toxin causes a life threatening disease called botulism.

In order to prevent the production of the toxin, Michigan State University Extension advises it is important to keep food such as fish that is vacuum packaged (no oxygen) at the proper temperature. *C. botulinum* forms toxin more rapidly at higher temperatures than at lower temperatures. As storage increases above 38 degrees Fahrenheit (3.3 °C), the time required for toxin formation is significantly shortened. Many home refrigerators have temperatures above 38 degrees Fahrenheit. Additionally, if thawing the fish in cold water, the temperature may also be above 38 degrees Fahrenheit.

Labeling on frozen fish products in ROP packaging will state: The fish should be kept frozen until time of use and prior to the fish being thawed under refrigeration or prior to or immediately upon completion of thawing, the fish should be removed from the packaging. By opening the packaging when thawing the vacuum packaged fish, oxygen is present and the spores will not produce the vegetative cells that produce the toxin.

Listeria monocytogenes is a bacterium that can contaminate food. If present, it can cause a serious illness primarily for high risk individuals such as older adults, pregnant women, newborns and adults with weakened immune systems. Unlike many bacteria, *Listeria* can grow and multiply in some foods in the refrigerator.

MSU scientists highlight that vacuum packed fish is not commercially stable or shelf-stable and must be refrigerated. And they warn that even while thawing, it is very important to following thawing guidelines provided by the processor.

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