



Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

# Viruses in Imported Frozen Scallops - April 1, 2020 to March 31, 2022

## Food microbiology - Targeted surveys - Final report



## Summary

A targeted survey<sup>1</sup> analysed 229 samples of imported frozen scallops over a 2-year period from April 1, 2020 to March 31, 2022. All samples were tested for the presence of Hepatitis A Virus (HAV) and Norovirus (NoV) (Genotypes I and II (GI, GII)).

All 229 (100%) samples tested were found to be satisfactory. HAV and NoV GI, GII were not found in any samples.

Overall, our survey results indicate that imported frozen scallops sold in Canada are generally safe for consumption. However, as with all foods, and especially with those that may be consumed with minimal or no further preparation, good hygienic practices are recommended for producers, retailers and consumers.

## Why was this survey conducted

The survey was conducted to generate baseline information on the safety of imported frozen scallops sold at retail in Canada. Frozen scallops are a popular seafood among Canadians<sup>2</sup> and can be consumed in a variety of ways. They are often eaten after grilling, pan-searing, baking, frying or sautéing or sometimes eaten raw in scallop sushi, sashimi, scallop ceviche or cold smoked. Unfortunately frozen scallops have been associated with recalls<sup>3,4</sup> and food-borne illnesses outbreaks<sup>5</sup>.

Scallops can be contaminated with viruses through contact with human waste at any step in the food supply chain such as during growth, harvest, post-harvest handling, processing, packaging, distribution, and/or at retail. Unlike bacteria, viruses are unable to grow on foods, however they can remain viable for extended periods of time and may cause illness if ingested. Therefore, the presence of viruses on scallops is of concern as they are commonly consumed by Canadians and may be consumed with minimal or no further preparation.

## When was the survey conducted

The survey was conducted over a 2-year period from April 1, 2020 to March 31, 2022.

## **Where were the samples collected from**

Samples were collected from national retail chains and local/regional grocery stores located in the following 11 major cities across Canada:

- Halifax
- Moncton
- Quebec City
- Montreal
- Toronto
- Ottawa
- Vancouver
- Victoria
- Calgary
- Saskatoon
- Winnipeg

The planned number of samples to be collected from each city was based on the population of the province in which the city was located relative to the total population of Canada.

## **How many and what kind of samples were collected**

A total of 229 imported pre-packaged frozen scallop samples were collected. A sample consisted of a single or multiple consumer sized packages of the same lot weighing at least 300g.

## **What were the samples tested for**

All 229 samples were tested for the presence of HAV and NoV GI, GII.

## **What methods were used to test the samples**

Samples were analyzed using methods that detect the presence of ribonucleic acid (RNA) of HAV and NoV GI, GII.

## How were the samples assessed

There are currently no Canadian standards regarding the presence of viruses in frozen scallops. As the analytical methods used in this survey can only determine the presence or absence of viral RNA, they are unable to discriminate between living (infectious) and dead (non-infectious) viruses. Therefore, the detection of viral RNA was assessed as “investigative” and required further consideration to determine appropriate follow-up actions.

**Table 1 – Assessment criteria**

Virus	Satisfactory	Investigative
HAV	Not detected	Detected
NoV GI, GII	Not detected	Detected

## What were the survey results

HAV and NoV GI, GII were not found in any samples (table 2).

**Table 2 - Assessment results**

Virus	Number of samples tested	Satisfactory (%)	Investigative (%)
HAV	229	229	0
NoV GI, GII			0
<b>Total</b>	<b>229</b>	<b>229 (100)</b>	<b>0 (0)</b>

Survey results are also presented by country of origin (table 3).

**Table 3 - Assessment results by country of origin**

Country of origin	Number of samples tested (%)	Satisfactory
China	137 (59.8)	137
Peru	59 (25.8)	59
United States	19 (8.3)	19
Argentina	9 (3.9)	9
Japan	5 (2.2)	5
<b>Total</b>	<b>229 (100)</b>	<b>229</b>

## What do the survey results mean

A 2001 study<sup>6</sup> conducted in Spain tested 17 samples (representing a total import volume of approximately 300 tons) of bivalve mollusks imported from South America for HAV, including 5 samples of scallops. HAV RNA was detected in 1 of the 5 scallop samples whereas no HAV RNA was detected in samples tested under the present study. Differing findings between studies may be attributable to differences in product type tested, methodology, study design, etc.

Overall, our survey results indicate that imported frozen scallops sold in Canada are generally safe for consumption. However, as with all foods, and especially with those that may be consumed with minimal or no further preparation, good hygienic practices are recommended for producers, retailers and consumers.

## What is done with the survey results

All results are used to:

- inform risk management decisions
- support program design and re-design
- develop laboratory methods

## Can I access the survey data

Yes. The data will be accessible on the [Open Government Portal](#).

# References

1. Canadian Food Inspection Agency, [Food chemistry and microbiology](#).
2. Public Health Agency of Canada, [Foodbook Report](#). 2015.
3. Canadian Food Inspection Agency, [Certain Sequest brand Frozen Bay Scallops are recalled](#). 2013.
4. Food Safety News, [FDA confirms Hepatitis A in scallops; multi-state recall begins](#). 2016.
5. Viray, M., et al., [Public health investigation and response to a hepatitis A outbreak from imported scallops consumed raw—Hawaii, 2016](#). 2019.
6. Romalde, J., et al., [Global market: shellfish imports as a source of reemerging food-borne hepatitis A virus infections in Spain](#). 2001.