Canadian Food Inspection Agency | Agence canadienne d'inspection des aliments

Salmonella in Imported Whole Poppy Seeds - April 1, 2023, to March 31, 2025

Food microbiology - Targeted surveys - Final report



Canada

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Summary

A targeted survey[1] analyzed 108 samples of imported whole poppy seeds over a 2-year period from April 1, 2023, to March 31, 2025, for the presence of the pathogen S*almonella* spp.

All (100%) of the 108 samples tested were found to be satisfactory. S*almonella* spp. was not found in any samples.

Overall, our survey results indicate that imported whole poppy seeds sold in Canada are generally safe for consumption. Nonetheless, as with all foods, and especially those that may be consumed without further preparation, good hygienic practices are recommended for producers, retailers, and consumers.

Why the survey was conducted

The survey was conducted to generate information on the safety of imported whole poppy seeds sold at retail in Canada. Poppy seeds are popular among Canadians as they are a versatile ingredient that adds flavour and texture to a variety of foods. For example, poppy seeds can be used as a garnish or ingredient in ready-to-eat (RTE) foods such as baked goods, salads, or salad dressings. They are also popular due to their nutritional value and purported health benefits[2] such as improving heart health, lowering blood pressure, boosting energy, enhanced digestion, and alleviating stress.

Poppy seed production involves cultivation, harvesting, drying, seed extraction, cleaning, and packaging. Poppy seeds have a long shelf life of several years.

Unfortunately, poppy seeds have previously been associated with food safety recalls[3,4,5]. Contamination with bacterial pathogens can occur at any step in the food supply chain such as during primary production, harvest, processing, packaging, distribution, at retail and/or during preparation for consumption. Consequently, if pathogens are present, there is a potential for foodborne illness as poppy seeds may be consumed without further preparation.

When the survey was conducted

The survey was conducted over a 2-year period from April 1, 2023, to March 31, 2025.

Where the samples were collected from

Samples were collected from national retail chains and local/regional grocery stores located in the following 6 major cities across Canada:

- Quebec City
- Montreal
- Ottawa
- Toronto
- Calgary
- Vancouver

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.

Total number and description of samples collected

A total of 108 imported whole poppy seed samples were collected over the 2-year survey period. All of the samples collected were pre-packaged. A sample consisted of a single or multiple consumer sized containers of the same lot weighing at least 150 g.

What the samples were tested for

All samples were tested for the presence of the bacterial pathogen *Salmonella* spp.

Methods used to test the samples

Samples were analyzed using analytical methods published in Health Canada's *Compendium of Analytical Methods for the Microbiological Analysis of Foods*[6] that were suitable for the testing of poppy seeds.

How the samples were assessed

The samples were assessed using criteria based on the principles of Health Canada's *Health Products and Food Branch Standards and Guidelines for Microbiological Safety of Food – An Interpretive Summary*[7].

Table 1 - Assessment criteria

Bacteria	Satisfactory	Unsatisfactory
Salmonella spp.	Not detected in 25 g	Detected in 25 g

Survey results

All (100%) of the 108 samples tested were found to be satisfactory. *Salmonella* spp. was not found in any of the samples.

Table 2 - Analysis assessment results

Bacterial analysis	Number of samples tested	Satisfactory	Unsatisfactory
Salmonella spp.	108	108	0

Information about the country of origin and production practice of the samples analysed are presented in tables 3 and 4 respectively.

Table 3 - Number of samples tested by country of origin

Country of origin	Number of samples tested (%)
Australia	6 (5.6)
India	35 (32.4)
Netherlands	1 (0.9)
Turkey	9 (8.3)
Unknown[a] (packaged in Canada)	7 (6.5)
Unknown[a]	50 (46.3)
Total	**108 (100.0)**

Table 4 - Number of samples tested by production practice

Production practice	Number of samples tested (%)
Conventional	106 (98.1)
Organic	2 (1.9)
Total	**108 (100.0)**

What the survey results mean

A previous study[8] conducted in the United Kingdom (UK) sampled edible dried seeds (including poppy seeds) from retail and tested them for *Salmonella* spp. and generic *E. coli*. The results of the UK survey were similar to the results of this survey as *Salmonella* spp. was not detected in any of the 202 samples tested.

Overall, our survey results indicate that imported whole poppy seeds sold in Canada are generally safe for consumption. However, as with all foods, and especially those that may be consumer without 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

Where to access the survey data

The data will be accessible on the Open Government Portal.

[a] Country of origin could not be assigned from the product label, or available sample information.

References

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