



Canadian Food  
Inspection Agency

Agence canadienne  
d'inspection des aliments

# Undeclared Allergens and Gluten in Tea and Flavoured Tea – April 1, 2018 to March 31, 2019

## Food allergen - Targeted surveys



# Summary

Targeted surveys provide information on potential food hazards and enhance the Canadian Food Inspection Agency's (CFIA's) routine monitoring programs. These surveys provide evidence regarding the safety of the food supply, identify potential emerging hazards, and contribute new information and data to food categories where it may be limited or non-existent. We use them to focus surveillance on potential areas of higher risk. Surveys can also help identify trends and provide information about how industry complies with Canadian regulations.

Food allergies can affect people of all ages but are particularly common in children. Food allergens can represent a serious or life threatening health risk for allergic individuals. Additionally, although it is not considered an allergen, undeclared gluten may contribute to chronic health issues for those individuals with celiac disease or gluten sensitivity. Allergens and gluten can be found in food due to their presence in the raw ingredients or they can be accidentally introduced along the food production chain due to cross contamination. Regardless of the source of the allergens, industry must ensure that the food produced is safe for human consumption, either by complying with specific Canadian regulations where applicable or by keeping the levels as low as reasonably possible.

The main objective of this survey was to obtain baseline information regarding the presence and levels of undeclared allergens and gluten in tea and flavoured tea. Of the 199 samples tested, 12 were found to contain undeclared allergens, specifically gluten and sesame.

6 positive results for gluten higher than 20 parts per million (ppm) as well as 1 positive result for sesame were forwarded to the CFIA's Office of Food Safety and Recall (OFSR) to determine if the levels found would pose a health concern to allergic individuals. The extent of the follow-up actions taken by the agency is based on the level of the contamination and the resulting health concern as determined by a health risk assessment. None of the products sampled in this survey were found to present a health risk.

# What are targeted surveys

Targeted surveys are used by the CFIA to focus its surveillance activities on areas of higher health risk. The information gained from these surveys provides support for the allocation and prioritization of the Agency's activities to areas of greater concern. Targeted surveys are a valuable tool for generating information on certain hazards in foods, identifying and characterizing new and emerging hazards, informing trend analysis, prompting and refining health risk assessments, highlighting potential contamination issues, as well as assessing and promoting compliance with Canadian regulations.

Food safety is a shared responsibility. The Agency works with federal, provincial, territorial and municipal governments and provides regulatory oversight of the food industry to promote safe handling of foods throughout the food production chain. The food industry and retail sectors in Canada are responsible for the food they produce and sell, while individual consumers are responsible for the safe handling of the food they have in their possession.

# Why did we conduct this survey

Approximately 7% of Canadians have self-reported as having at least 1 food allergy, but the actual number of medically confirmed food allergies is expected to be slightly lower<sup>1</sup>. It is believed that the rate of food allergies is increasing, particularly among children. Food allergies are estimated to affect up to 5% of adults and up to 8% of children in developed countries<sup>2</sup>. Food allergens are food proteins that can cause a reaction of the body's immune system, and can represent a serious or life threatening health risk for allergic individuals, or contribute to chronic health issues for those with pre-existing health conditions like celiac disease. Celiac disease is a chronic reaction where the body reacts to a component of gluten which can damage or destroy certain intestinal cells. Approximately 1% of the total population are affected with celiac disease<sup>3</sup>.

The priority food allergens are the 10 most common food allergens that are associated with severe allergic or allergy-like reactions in Canada. These allergens consist of peanuts, tree nuts, sesame, seafood (fish, shellfish and crustaceans), eggs, milk, soy, mustard, sulphites, and wheat<sup>4</sup>. Gluten, while not a true allergen, is a family of proteins found in certain grains like wheat, rye, barley, kamut, and spelt and is included in this list<sup>5</sup>. Gluten can cause digestive problems and other issues for people with certain health conditions such as celiac disease and gluten sensitivity. This makes proper identification and labeling of allergens in food by the manufacturer essential.

Undeclared allergens can be found in foods due to their presence in the raw ingredients, or can be accidentally introduced along the food production chain through cross contamination. Regardless of the source of the allergens, industry must ensure that the food they produce is safe for human consumption. This can be achieved by complying with specific Canadian regulations where applicable, or by keeping the levels as low as reasonably possible.

This was the first survey conducted by the agency for undeclared allergens and gluten in tea and flavoured tea. The main objective of this survey was to obtain baseline information regarding the presence and levels of undeclared allergens including egg, sesame, soy, peanut, almond, hazelnut, gluten, and milk proteins (casein and BLG) in tea and flavoured tea.

All products were tested “as sold,” meaning that they were not prepared as per the manufacturer’s instructions or as they would typically be consumed.

## What did we sample

All products were sampled between April 2018 and March 2019. Samples were collected from local and regional grocery stores located in 6 major cities across Canada. These cities encompassed 4 geographical areas: Atlantic (Halifax), Quebec (Montreal), Ontario (Toronto, Ottawa) and the West (Vancouver, Calgary). The number of samples collected from these cities was in proportion to the relative population of the respective areas.

The following products were not included in the survey:

- products with **all** of the following allergens in the list of ingredients – almond, hazelnut, peanut, sesame, soy/soybean, egg, milk/dairy, and wheat, barley, oats, rye, triticale, kamut, spelt, or gluten
- products with a precautionary statement for all priority allergens
- non pre-packaged products
- products with multi-flavours
- products in liquid form
- products past the best before date

**Table 1: Distribution of samples based on product type and origin**

| Sample type                           | Domestic  | Imported   | Unspecified <sup>a</sup> origin | Total      |
|---------------------------------------|-----------|------------|---------------------------------|------------|
| Black tea                             | 43        | 3          | 0                               | 46         |
| Green tea                             | 3         | 41         | 0                               | 44         |
| Herbal/Specialty tea                  | 23        | 5          | 1                               | 29         |
| Oolong tea                            | 0         | 34         | 0                               | 34         |
| Other (for example, tea pod “K-cups”) | 11        | 4          | 4                               | 19         |
| White tea                             | 0         | 24         | 3                               | 27         |
| <b>Total</b>                          | <b>80</b> | <b>111</b> | <b>8</b>                        | <b>199</b> |

<sup>a</sup> unspecified refers to those samples for which a country of origin could not be determined from the product label or available sample information.

## How were samples analyzed and assessed

Samples were analyzed by an ISO/IEC 17025 accredited food testing laboratory under contract with the Government of Canada. The samples were tested as sold, meaning that the product was tested as-is and not as prepared according to package instructions.

In Canada, food allergens and gluten must be declared in the list of ingredients if they are present in the prepackaged product in order to comply with the requirements of the [Food and Drug Regulations Section B.01.010.1](#). A prepackaged product will be deemed non-compliant if any level of undeclared allergens and gluten is detected.

Health Canada considers that gluten-free foods, prepared under good manufacturing practices, which contain levels of gluten not exceeding 20 ppm (due to cross contamination) meet the intent of the [Food and Drug Regulations Section B.24.018](#) for a gluten-free claim.

## What were the survey results

Over 93% of all tea and flavoured tea sampled in this survey did not contain any detectable levels of allergens. The results for the 12 samples found positive are shown in table 2.

**Table 2: Levels of undeclared allergens and gluten in tea and flavoured tea in ppm**

| Sample Type          | Sample Description                          | Gluten (ppm) | Sesame (ppm) |
|----------------------|---|--------------|--------------|
| Green tea            | China green tea - 1                         | 35           |              |
| Green tea            | China green tea - 2                         | 40           |              |
| Green tea            | Green tea 20 individually packaged tea bags | 52           |              |
| Green tea            | Green tea naturally occurred antioxidants   | 39           |              |
| Green tea            | Organic green tea                           | 9            |              |
| Herbal/Specialty tea | Chocolatey chai herbal tea                  | 34           |              |
| Herbal/Specialty tea | Lemon ginger herbal tea                     | 5            |              |
| Herbal/Specialty tea | Organic sweet fennel herbal tea             | 12           |              |
| Herbal/Specialty tea | Peppermint, ginger, fennel herbal tea       |              | 1.1          |
| Other tea            | Chai latte cups                             | 9            |              |
| Other tea            | Green tea Keurig certified k-cup pods - 1   | 7            |              |
| Other tea            | Green tea Keurig certified k-cup pods - 2   | 44           |              |

Note: All samples were tested for a variety of allergens dependant on the ingredients in the food. Only positive results for allergens were included in the table.

## What do the survey results mean

Of the 199 samples tested in this survey, over 93% did not contain any detectable levels of allergens and gluten, while only 12 samples were found to contain varying levels of gluten or sesame.

All plant-derived foods such as teas contain polyphenols<sup>6</sup>. However, the presence of the polyphenols in teas leads to low recovery levels for casein, peanut and sesame tests, which means the accuracy for these 3 tests is low. Casein testing was excluded from this survey.

The extent of the follow-up actions taken by the CFIA is based on the level of contamination and the resulting health concern as determined by a health risk assessment. Appropriate follow-up actions include additional sample testing, facility inspection and product recall. The health risk assessment is based on exposure to the allergens and gluten through consumption. The exposure is calculated by using the typical serving sizes for each food. Assessment based on serving size means not all detectable levels of undeclared allergens and gluten in food will cause a reaction in an allergic individual.

The best currently available scientific evidence indicates that levels of gluten below 20 ppm in gluten-free foods would be protective of the health of the vast majority of people with celiac disease<sup>5</sup>. Therefore, only 6 positive results for gluten as well as 1 positive result for sesame were forwarded to the CFIA's OFSR for follow-up. None of the products sampled in this survey were found to present a health risk.

## **Gluten**

Undeclared gluten was found in 11 samples tested. Black and green teas are naturally gluten-free products<sup>7</sup>. However, as reported in Hidden Sources of Gluten<sup>8</sup>, tea with additional ingredients such as flavorings has a higher risk of gluten contamination. Low levels of gluten found in this survey could be accidentally introduced into the product due to cross contamination in an ingredient or the final product. Of the 6 samples containing over 20 ppm of undeclared gluten, 4 were green tea which is 9% of the total number of green tea samples tested. An American survey conducted in 2013 by the Food and Drug Administration investigated the undeclared presence of gluten in green and white teas<sup>9</sup>. A total of 20 packages of green, white, green and white, and peppermint teas were sampled and analyzed. The study found that 8 samples were positive for gluten, ranging from 4 to 96 ppm. 5 out of 8 samples contained undeclared gluten exceeding 20 ppm. Positive samples containing over 20ppm undeclared gluten were most frequently found in green tea in both FDA's survey and this survey.

## **Sesame**

Only 1 sample contained undeclared sesame. The low level of sesame found in this survey could be introduced into the product due to cross contamination in an ingredient or the final product. It was followed up by OFSR, and was determined not to pose a health risk to consumers.

## **Summary**

This survey generated new information on the background levels of undeclared allergens and gluten in tea and flavoured tea collected from 6 cities across Canada. Information gathered in this survey, in conjunction with other data including the Canadian Total Diet Study and Statistics Canada's Canadian Health Measures Survey food consumption data, are critical in assessing the health risk that our food supply poses to Canadian consumers. The results of the CFIA's surveillance activities are also used to inform the Canadian public and stakeholders by raising consumer awareness and building public confidence in their food supply by removing non-compliant products.

# References

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