



Canadian Food
Inspection Agency

Agence canadienne
d'inspection des aliments

Food Allergen Targeted Surveys

Undeclared Allergens in Coffee Products

April 1, 2017 to March 31, 2018



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. They are often used by the CFIA to focus surveillance on potential areas of higher risk. Surveys can also help to 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 in coffee products of various types and flavours. Three hundred and sixty samples were tested and 1.7% (6) of the samples were found to contain undeclared allergens including the milk protein beta-lactoglobulin (BLG), as well as egg, gluten, and soy. Most positive results for undeclared allergens were associated with instant coffee products.

All positive results 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 CFIA is based on the seriousness of the contamination and the resulting health concern as determined by a health risk assessment. None of the products sampled 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 CFIA 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?

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. Reactions to food allergens depend on the individual's sensitivity and can range from mild to severe or life threatening. Interestingly, the degree of reaction in an individual can vary from day to day. Gluten can 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. This makes proper identification and labeling of allergens in food by the manufacturer essential.

Approximately 7% of Canadians have self-reported as having at least one food allergy, but the actual number of medically confirmed food allergies is expected to be slightly lower¹. It is believed that the rate of food allergies is increasing, particularly among children. Food allergies are currently estimated to affect up to 5% of adults and up to 8% of children in developed countries². Approximately 1% of the total population are affected with celiac disease³.

The priority food allergens are the 10 most common food components 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 wheat⁴. 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. Gluten can cause digestive problems and other issues for people with certain health conditions such as celiac disease and gluten sensitivity.

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 CFIA for undeclared allergens in coffee and flavoured coffee products. The main objective of this survey was to obtain baseline information regarding the presence and levels of undeclared allergens including milk (BLG and casein),

gluten, almond, hazelnut, peanut, egg, sesame, and soy in coffee products. The following types of products were sampled for this survey: ground coffee, instant coffee, and single serve coffee. All products were tested “as sold”, meaning that they were not prepared as per manufacturer’s instructions (as they would typically be consumed).

What did we sample?

Coffee products of all types and flavours were sampled from May 2017 and March 2018. Samples were collected from local/regional grocery stores located in 6 major cities across Canada. These cities encompassed four 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 (one of or more in the list of ingredients was fine for testing) – almond, hazelnut, milk/dairy, peanut, soy, egg, sesame, wheat, barley, oats, rye, triticale, kamut, spelt, or gluten
- products with no list of ingredients for which it is required
- products with a precautionary statement for all priority allergens
- non-prepackaged products
- products past the “use by” or “best before” date
- products in liquid form

Table 1: distribution of samples based on product type and origin

Product Type	Domestic	Imported	Unspecified Origin	Total
Ground	21	32	7	60
Instant	0	127	23	150
Single Serve	47	18	85	150
Total	68	177	115	360

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 17025 accredited food testing laboratory under contract with the Government of Canada. The samples were tested as sold, i.e. the product was tested as is and not as prepared according to package instructions. All positive samples are assessed against Section B.01.010 of the Food and Drug Regulations.

What were the survey results?

Approximately 1.7% of all coffee products sampled in this survey tested positive for undeclared allergens. This includes 3% of all domestic products and 2% of all imported products tested. These positive results primarily resulted from detection of low levels of milk and egg. Over 98% of the samples tested did not contain any detectable levels of undeclared allergens. The majority of undeclared allergens found were in instant coffee products.

Table 2: levels of allergens in coffee and flavoured coffee products

Sample Type	Almond ppm	BLG ppm	Casein ppm	Egg ppm	Gluten ppm	Hazelnut ppm	Peanut ppm	Sesame ppm	Soy ppm
Mellow Roast Instant Coffee					11				
Instant Coffee & Sugar		6							
Instant Coffee Mix 3-in-1				1.3					
Mellow Blend Instant Coffee		0.2							
Irish Cream Coffee Pods				0.9					
Medium Roast Single Serve Coffee Pods									0.1
Total Positive Results	0	2	0	2	1	0	0	0	1

ppm indicates parts per million, equivalent to 1 mg / kg of sample

What do the survey results mean?

Based on this survey of the 360 samples, 98.3% did not contain any detectable levels of undeclared allergens. The total occurrence of undeclared allergens and gluten in the variety of types and flavours of coffee products was 1.7% and consisted primarily of low levels of milk and egg. Undeclared allergens were most frequently present in imported instant coffee products.

Milk

The milk protein BLG was present in two (0.6%) of the samples tested. The levels found were low and deemed not to pose a risk to consumers.

Egg

Two products (0.6%) in this survey tested positive for low levels of undeclared egg. Neither of the positive results were assessed as presenting a health risk to consumers.

Gluten

Undeclared gluten was found in one (0.3%) of the products sampled for this survey. While no specific background level is mentioned in the Food and Drug Regulations, 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 disease⁵. This product was assessed as being of no risk to consumers.

Soy

One product (0.3%) tested positive for a low level of undeclared soy. The amount present was determined not to pose a health risk to consumers.

None of the positive allergen findings were determined by CFIA and Health Canada to present a risk to consumers. As a result, no root cause analysis pertaining to the source of the allergen was conducted by the CFIA.

All positive results 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 any follow-up action taken by CFIA is based on the seriousness of the contamination and the resulting health concern as determined by a health risk assessment. Not all detectable levels of undeclared allergens and gluten posed a risk to consumers. The health risk assessment was based on exposure to the allergen through consumption. The exposure is calculated by using the typical serving sizes for each food based on the Canadian Food and Drug Regulations; Schedule M. Assessment based on serving size means that not all detectable levels of undeclared allergens and gluten in food will cause a reaction in an allergic individual. In all cases, positive results obtained are evaluated and a food safety investigation is conducted. In circumstances where the testing results indicate that the products can be a risk to consumers, the appropriate level of risk management action is taken which can include product recall from the market. Other possible actions resulting from positive results can range from testing more samples to inspection of the facility where the product was processed or sold.

This survey generated new information on the background level of undeclared allergens in coffee products collected from six 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 CFIA's surveillance activities are also used to inform the Canadian public and stakeholders by raising consumer awareness and help build public confidence in their food supply by removing non-compliant products.

References

1. Soller, L., Ben-Shoshan, M., Harrington, D. W., Fragapane, J., Joseph, L., Pierre, Y. S., Clarke, A. E. (2012). Overall prevalence of self-reported food allergy in Canada. *Journal of Allergy and Clinical Immunology*, 130(4), 986-988.
2. Sicherer, S. H., & Sampson, H. A. (2014). Food allergy: Epidemiology, pathogenesis, diagnosis, and treatment. *Journal of Allergy and Clinical Immunology*, 133(2), 291-307.e5.
3. [Celiac Disease Foundation](#); (2018). United States. Celiac Disease Foundation.
4. [Health Canada](#). (2018, May 14). Common food allergens. Retrieved from
5. [Codex Alimentarius Standard for Foods for Special Dietary Use for Persons Intolerant to Gluten](#) - Codex Stan 118-1979. (2008) United States. Food and Agriculture Organization of United Nations & World Health Organization.