

Undeclared Allergens in Bakery Products – April 1, 2015 to March 31, 2019

Food chemistry - Food Safety Oversight Monitoring Program – Report



Summary

The Food Safety Oversight Monitoring Program (FSO) is an annual Canadian Food Inspection Agency (CFIA) surveillance program which verifies compliance in foods to Canadian standards and guidelines for chemical residues, allergens and contaminants. FSO was created to strengthen inspection and program delivery for non-meat sectors such as fish, bakery products, fresh fruit and vegetables. The data collected from this program along with other surveillance activities enables the CFIA to identify trends that may warrant additional control strategies to maintain or improve compliance.

The FSO is one of several tools that the CFIA employs to help maintain the high compliance observed year after year. The FSO is carried out in accordance with Codex Alimentarius principles and guidelines and is an important part of the CFIA food safety framework that monitors Canadian foods for potential hazards. This program provides data to support the Canadian food production system and the integrity of Canada's chemical residue control system. These systems are equivalent to those of our main trading partners like the United States and the European Union.

Food allergies can affect people of all ages. 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.

A total of 687 samples of bakery products were tested for undeclared allergens. 95.9% (659) of samples did not contain any undeclared allergens. 4.1% (28) of samples were positive for undeclared allergens such as milk protein (beta-lactoglobulin (BLG) and casein), egg, peanut and sesame.

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. There was a product recall for 1 sample of cookies due to undeclared egg. 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.

What is food safety oversight

FSO is primarily used by the CFIA to fill in data gaps in regulatory monitoring programs for non-meat commodities such as fish, bakery products, processed and fresh fruit and vegetables. Additionally, the program is used to verify compliance with Canadian regulations for chemical

residues, allergens and contaminants and to identify trends and to determine the effectiveness of policies and programs.

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

Approximately 7% of Canadians have self-reported as having at least 1 food allergy, but the actual number of medically diagnosed 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 estimated to affect up to 5% of adults and up to 8% of children in developed countries². 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 disease³.

The priority food allergens are the 10 most common food components 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 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 list⁵. 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 survey tested for undeclared allergens in bakery products such as breads, cakes and squares. The main objective of this survey was to monitor the presence and levels of undeclared allergens including milk (BLG and casein), gluten, almond, hazelnut, peanut, egg, sesame, and soy in bakery products. All products were tested “as sold”, meaning that they were not prepared as per manufacturer’s instructions (that is, as they would typically be consumed).

What did we sample

A total of 687 samples of bakery products such as bread, cake, pies, cookies, cakes, squares, tortillas, buns, rolls, bagels, pitas, biscuits, waffles, donuts, scones and bars were sampled between April 1, 2015 to March 31, 2019. Samples of products were collected from local/regional retail locations across 11 major cities across Canada. These cities encompassed 4 Canadian geographical areas: Atlantic (Halifax and Saint John), Quebec (Quebec City and Montreal), Ontario (Toronto and Ottawa) and the West (Vancouver, Kelowna, Saskatoon, Winnipeg and Calgary). The number of samples collected from these cities was in proportion to the relative population of the respective areas. Refer to Table 1 for the product types collected in this survey.

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

Table 1. Distribution of samples based on product type and origin

Product type	Number of domestic samples	Number of imported samples	Number of samples of unspecified origin ^a	Total number of samples
Bagels	17	2	21	40
Bars	1	6	13	20
Bread knots/twists/sticks	3	3	1	7
Bread/Baguette	35	3	34	72
Buns/Rolls/Biscuits	36	5	71	112
Cake	14	12	38	64
Cookies	26	11	27	64
Croissant	1	0	9	10
Donuts	18	1	32	51
Muffins	1	3	9	13
Pies/Pie crusts	14	9	20	43
Scones	0	0	8	8
Squares	23	1	26	50
Tortillas/Pita/Taco shells	32	12	28	72
Waffles	10	42	9	61
Grand total	231	110	346	687

^a Unspecified refers to those samples for which a country of origin could not be assigned from the product label or available sample information

How were samples analyzed and assessed

Samples were analyzed by an ISO/IEC 17025 accredited CFIA laboratory. All positive samples are assessed against [Section B.01.010 of the Food and Drug Regulations](#). 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 parts per million (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

Out of 687 samples of bakery products, 659 (95.9%) were satisfactory. BLG, casein, egg, sesame and peanut positives were found in various bakery products as seen in Table 3. These positive results primarily resulted from the detection of low levels of egg and milk. The majority of undeclared allergens were found in bread/baguette and bun/roll/biscuit products.

Table 2. Number of positive samples

Product type	Number of satisfactory samples	Number of unsatisfactory samples	Total number of samples
Bagels	37	3	40
Bars	20	0	20
Bread knots/twists/sticks	7	0	7
Bread/Baguette	67	5	72
Buns/Rolls/Biscuits	107	5	112
Cake	63	1	64
Cookies	60	4	64
Croissant	9	1	10
Donuts	50	1	51
Muffins	13	0	13
Pies/Pie crusts	42	1	43
Scones	8	0	8
Squares	46	4	50
Tortillas/Pita/Taco shells	70	2	72

Waffles	60	1	61
Grand total	659	28	687

Table 3. Concentrations found in samples

Product type	BLG (ppm)	Casein (ppm)	Egg (ppm)	Sesame (ppm)	Peanut (ppm)	Total number of positive samples
Bagels	0.5	1.3	0.9/1.4			3
Bars						0
Bread knots/Twists/Sticks						0
Bread/Baguette	13	1.7/2.4	1.6/3.6			5
Buns/Rolls/Biscuits	1.3/2.1			0.4/2.4/39		5
Cake			1.1			1
Cookies	1.7		0.9/2.0/2.5			4
Croissant			19			1
Donuts					2.2	1
Muffins						0
Pies/Pie crusts				0.9		1
Scones						0
Squares	0.2/10	1.2	0.6/1.9			4
Tortillas/Pita/Taco shells	0.4	1.6/1.9				2
Waffles					0.2	1
Total number of positive results	8	6	11	4	2	28

Note: All samples were tested for a variety of allergens dependant on the ingredients in the food. All blank cells indicate that there were no detectable levels of undeclared allergen.

What do the survey results mean

Based on this survey of 687 samples, 95.9% (659 samples) did not contain any detectable levels of undeclared allergens. Undeclared allergens were found in 4.1% (28 samples) of bakery product samples and consisted primarily of low levels of milk and egg.

The milk protein BLG was present in 8 (1.2%) of the samples tested and the milk protein casein was present in 6 (0.9%) of the samples tested. 11 samples (1.6%) in this survey tested positive for undeclared egg. 4 samples (0.6%) in this survey tested positive for sesame. 2 samples (0.3%) tested positive for peanut (1 donut and 1 waffle sample). Low levels of undeclared allergens could potentially be introduced into products due to cross contamination in an ingredient or in the final product.

There was a product recall for 1 sample of cookies due to undeclared egg.⁶ All positive results were sent to the CFIA's 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 pose a risk to consumers. Health risk assessments are based on exposure to an allergen 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.

This survey generated information on the background level of undeclared allergens in bakery products collected across Canada. Information gathered in this survey along with data from 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

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