Canadian Food Inspection Agency
Agence canadienne d'inspection des aliments

Undeclared Allergens in Flavour Packets - April 1, 2014 to March 31, 2015

Food allergen - Targeted surveys

Canada

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 additional information regarding the presence and levels of undeclared allergens in a variety of flavour packets. 993 samples were tested, and 19% (185) of the samples were found to contain at least 1 undeclared allergen including gluten, soy, mustard, sesame, peanut, almond, hazelnut, egg, and milk proteins casein and beta-lactoglobulin (BLG). Most positive results indicated the presence of allergens in spices and seasoning products.

All positive results obtained during the course of these surveys 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. 10 products were deemed to represent a health risk and were recalled. Of the recalled products, 9 were spices and seasoning products.

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[1]. 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[2]. 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[3].

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[4]. 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[5]. 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 second survey conducted by the agency for undeclared allergens in flavour packet products. The first survey was conducted in 2010/11 sampled 100 products and tested for undeclared soy, almond, hazelnut, egg, peanut, sesame, gluten, and milk. 1 quarter of the samples were found to contain 1 or more allergen. Undeclared soy was detected most frequently in approximately 39% of products, followed by milk and gluten at 24% and 21% respectively.

The main objective of the present survey was to obtain additional baseline information regarding the presence and levels of undeclared allergens including egg, mustard, sesame, soy, peanut, almond, hazelnut, gluten, and the milk proteins casein and BLG in flavour packets.

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

What did we sample

All products were sampled between May 2014 and March 2015. 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, mustard, sesame, soy/soybean, egg, milk, and wheat, barley, oats, rye, triticale, or gluten
- products with a precautionary statement for all priority allergens
- products with no list of ingredients if required
- products very close to or past the best before date

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

Product type	Domestic	Imported	Unspecified[a] origin	Total
Beverage mixes	5	33	12	50
Sauce mixes	56	51	112	219
Soup mixes	6	33	15	54
Gravy mixes	13	12	42	67
Spices/herbs/seasonings	83	231	289	603
Total	**163**	**360**	**470**	**993**

[a]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 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

Approximately 81% of the samples tested did not contain any detectable levels of undeclared allergens. Of all flavour packet products sampled in this survey, 19% tested positive for undeclared allergens. These positive results primarily resulted from detection of varying levels of gluten, soy, mustard, and sesame, although all allergens were detected in at least 1 product each. The majority of undeclared allergens found were in spice and seasoning products.

Table 2. Levels of undeclared allergens and gluten in flavour packets in ppm

Sample type	Almond (ppm)	BLG (ppm)	Casein (ppm)	Egg (ppm)	Gluten (ppm)	Hazelnut (ppm)	Mustard (ppm)	Peanut (ppm)	Sesame (ppm)	Soy (ppm)
Beverages	0.5									
Sauces		0.1-0.6	1.8-3.5		18-110		0.5-2.9	0.4-0.7		0.5-11.2
Soups				1			0.9-3.8			1.5
Gravies		3.1					0.6-158			0.9-1.9
Spice/herb/ seasonings	1-111	0.1-490	1.2-2000	0.6-4.9	5-540	0.5	0.5-30.9	0.3-320	0.5-2300	0.5-40
Total positive results	**10**	**14**	**8**	**4**	**63**	**1**	**39**	**23**	**34**	**41**

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

Based on this survey, the total occurrence of undeclared allergens and gluten in the variety of flavour packets was approximately 19% (185) and consisted primarily of varying levels of gluten. This includes 14% of domestic products, 24% of imported products, and 16% of products of unspecified origin. Undeclared allergens were most frequently present in spice and seasoning products that were of imported origin.

In most cases the source of undeclared allergens can only be determined with a food safety investigation. Generally, a formal investigation is often impossible with imported products.

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.

Gluten

Gluten was the most frequently detected allergen in this survey. It was detected in approximately 6.3% (63) of products, most of which were spices. Lower levels of gluten have in other instances been detected in spice products due to cross-contamination during manufacturing or distribution practices; grains containing gluten are widely used in the production of many pre-packaged foods[6]. It is also possible for contamination to occur as a

result of agriculture co-mingling. Spices are typically sourced from small farming establishments in rural locations at which other crops such as wheat are grown alongside spice products[7]. While difficult to determine without extensive investigation, higher levels of extraneous fillers have been known to be the result of food adulteration. At times, this has been found to be the result of an economically motivated act in which ingredient additions or substitutions are used while manufacturing the product to decrease processing costs and increase profit[8]. Only 1 of the products found to contain gluten was assessed as presenting a risk to consumers and was therefore recalled[9].

Soy

Undeclared soy was found in 4.1% (41) of the products tested in this survey at levels ranging from 0.5 to 40 ppm. These levels were considered low enough not to present a risk to consumers. It is impossible to determine the source of the soy protein without further investigation. The results of this survey showed lower levels of soy when compared to the 2010/11 survey which found undeclared soy protein in 39% of samples.

Mustard

Varying levels of undeclared mustard were found in 3.9% (39) of the products tested. Based on these results, 1 product was deemed to pose a health risk and was recalled[10]. The remainder of the products were determined to be safe for consumers.

Sesame

Sesame was detected in 3.4% (34) of products in this survey. The source of the undeclared allergen cannot be determined without further investigation. Only 3 of the products were deemed to present a health risk to consumers and were subsequently recalled[11,12,13].

Peanut

Approximately 2.3% (23) of the products sampled tested positive for undeclared peanut. Of these products, 2 were recalled as they were assessed as presenting a health risk[14,15]. Both of the recalled products were also found to contain undeclared almond.

Milk

The milk protein BLG was found in 1.4% (14) of the products in this survey. Casein was detected in 0.9% (8) of the products sampled. All but 1 of the products that contained undeclared casein also contained undeclared BLG. This survey resulted in 2 product recalls due to the presence of milk, both of which were seasoning mixes[16].

Almond

Almond was detected in 1% (10) of the samples tested. Only 2 of these products were determined to pose a risk to consumers and were recalled[14,15]. Both of the recalled products also contained undeclared peanut.

Hazelnut

Hazelnut was found in 0.1% (1) of the products sampled for this survey. The level detected was relatively low and deemed not to present a risk to consumers.

Egg

Undeclared egg was detected in 0.4% (4) of the samples tested. Only 1 product containing egg protein was deemed to pose a risk to consumers and was recalled[17]. The other 3 products contained lower levels and were assessed as being safe.

Summary

All positive results were forwarded to the CFIA's OFSR to determine if the levels found would pose a health concern to allergic individuals. With the exception of the 10 samples which resulted in product recalls, all other positive allergen findings were determined not to pose a risk to consumers.

This survey generated additional information on the background level of undeclared allergens in flavour packet products 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 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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