

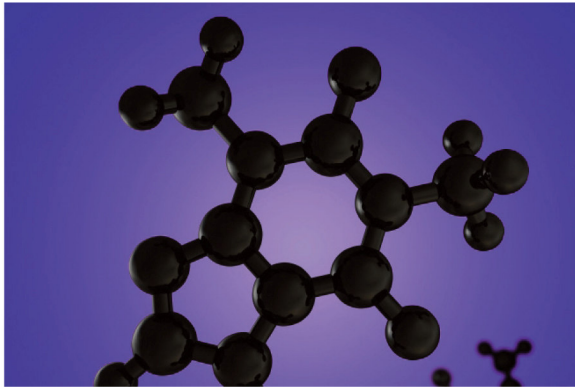


Food Safety Action Plan

REPORT

2010-2011 Targeted Surveys

Allergens



Sulphites in Fruit Spreads

TS-CHEM-10/11

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Executive Summary

The Food Safety Action Plan (FSAP) aims to modernize and enhance Canada's food safety system. As part of the FSAP enhanced surveillance initiative, targeted surveys are used to evaluate various foods for specific hazards.

The main objectives of the undeclared sulphites in fruit spreads survey were:

- to obtain baseline information regarding the presence and levels of undeclared sulphites in fruit spreads, and;
- to identify potential food safety concerns relating to undeclared sulphites in fruit spreads.

A total of 48 fruit spreads, including butters, jams, jellies, marmalades and preserves were analyzed for the presence of undeclared sulphites. The 3 samples that contained sulphites are being followed up by CFIA. Follow up action may involve a food safety investigation, including a health risk assessment conducted by Health Canada and a recall or one of the following: notification of manufacturer/importer and/or additional sampling.

1. Introduction

1.1 The Food Safety Action Plan

In 2007 the Canadian Government launched a five year initiative in response to a growing number of product recalls and concerns about food safety. This initiative, called the Food and Consumer Safety Action Plan (FSCAP), aims to modernize and strengthen the food safety regulatory system. The FSCAP initiative unites multiple partners in ensuring safe food for Canadians.

The CFIA's Food Safety Action Plan (FSAP) is one element of the Government's broader FSCAP initiative. The goal of FSAP is to identify risks in the food supply, limit the possibility that these risks occur, improve import and domestic food controls and identify food importers and manufacturers. FSAP also looks to verify that the food industry is actively applying preventative measures, such as the use of precautionary statements, to protect the safety of the Canadian food supply.

Within FSAP, there are twelve main areas of activity, one of which is risk mapping and baseline surveillance. The main objective of this area is to better identify, assess and prioritize potential food safety hazards through risk mapping, information gathering and testing foods from the Canadian marketplace. Targeted surveys are one tool that is used to test for the presence and level of a particular hazard in specific foods. Targeted surveys are largely directed towards the 70% of domestic and imported foods that are covered exclusively by the *Food and Drugs Act*, and are generally referred to as non-federally registered commodities.

1.2 Targeted Surveys

Targeted surveys are used to test various foods for specific hazards and are meant to complement the CFIA's regular programs and inspection activities. The surveys are designed to answer specific questions about hazards in food. Generally, they test for the occurrence and magnitude of defined hazards in targeted foods, often with the testing focusing on a specific segment of the population (i.e., consumers with an allergy or intolerance).

This targeted survey focused on the presence of undeclared sulphites in fruit based spreads, including butters, jams, jellies, marmalades and preserves. Sulphites may be intentionally added to these types of products as a preservative to prevent spoilage and/or to maintain colour. Sulphites may also be present due to cross contamination, for example if a product containing sulphites is produced using the same equipment as a product that does not contain sulphites.¹

The information gathered will provide baseline information regarding the presence and levels of undeclared sulphites in fruit spreads and identify if follow up with industry is required.

1.3 Acts and Regulations

The *Food and Drug Act* (FDA) is the legal authority that governs the sale of food in Canada. The *Canadian Food Inspection Agency Act* stipulates that the CFIA is responsible for enforcing restrictions on the production, sale, composition and content of foods and food products as outlined in the *Food and Drugs Act* and *Food and Drugs Regulations* (FDA and FDR).

The use of sulphites in food is regulated under the FDA and FDR. Sulphites are permitted for use in certain foods as preservatives, pH adjusters, food additives, starch modifiers, bleaching agents and dough conditioners. Sulphites added as ingredients or components of ingredients must be shown in the list of ingredients pursuant to sections B.01.008 or B.01.009 of the FDR.

Based on current scientific knowledge, sulphites present in a food product at a level of 10 parts per million (ppm) and below are unlikely to cause an adverse reaction in a sensitive individual.^{2,3,4} If sulphites are present in a food product above 10 ppm this may pose a hazard for a sensitive individual and may require declaration as per 5(1) of the FDA.

Health Canada has recently made amendments to the *Food and Drugs Regulations* to enhance the labelling of priority allergens, gluten sources and added sulphites in pre-packaged food sold in Canada. On February 16, 2011 Health Canada published these amendments in the *Canada Gazette*, Part II. The amendments require that food allergen and gluten sources be declared on the labels of pre-packaged foods, having a list of ingredients, whenever the protein, modified protein or protein fractions of the food allergen or gluten source are added to the product. The amendments also require the labelling of added sulphites when they are present in the prepackaged product in a total amount of 10 parts per million (ppm) or more. To facilitate label reading, one of the terms "sulphite", "sulfite", "sulphiting agent" or "sulfiting agent" will be required to appear on the label of the prepackaged product, either in the list of ingredients or in a "Contains" statement.

Due to the complexity of the labelling changes required, and the extended shelf-life of some processed foods, Health Canada provided manufacturers with 18 months from the date of registration of the regulatory amendments to implement any changes required in their labels. Health Canada continues to encourage industry to declare priority allergens, gluten sources and added sulphites on pre-packaged food labels to provide Canadians with the information necessary to make informed food choices. Canada's new food allergen labelling regulations will come into force on August 4, 2012. Further information on these proposed regulations can be found on the Health Canada website.²

2 Allergens Survey

2.1 Rationale

The presence of undeclared sulphites in a food is not a concern for the majority of Canadians. However, undeclared sulphites may represent a serious or life threatening health risk for sensitive individuals. Sulphites are added to some processed foods to maintain colour, prolong shelf life and prevent the growth of microorganisms. Sulphites are also sometimes used as anti-browning agents, to bleach food starches and as processing aids.³ Fruit spreads, including, butters, jams, jellies, marmalades and preserves may contain ingredients that contain sulphites, including fruit juice and pectin.¹

The main objective of this survey is to obtain baseline information regarding the presence and levels of undeclared sulphites in fruit spreads. Information gathered will provide an indication of potential food safety concerns relating to undeclared sulphites in fruit spreads.

2.2 Hazard: Undeclared Sulphites

True allergic reactions to food occur following exposure to allergenic proteins. Sulphites are not proteins, adverse reactions to sulphites in foods are considered a non-allergic food sensitivity. Sulphite sensitivity may lead to the same life-threatening symptoms that occur during an allergic reaction.

Sulphite sensitivity affects 3-10% of people with asthma, the severity of the reaction ranges from mild to very serious.⁴ It has been estimated that in Canada this means sulphite sensitivity affects approximately 200,000 people.² For individuals with a sulphite sensitivity, consumption of a food with a total amount of sulphites lower than 10 ppm is unlikely to lead to possible reactions.^{2,4}

There is no cure for a sulphite sensitivity, and the most important strategy for a person with a sulphite sensitivity, or a person choosing food for an individual with a sulphite sensitivity, is avoidance of sulphites. Foods containing sulphites should be appropriately labelled to ensure consumers have complete, accurate information when choosing food products.

2.3 Sample Distribution

This survey targeted a variety of fruit based spreads, including jams, jellies, butters, preserves and spreads. Samples were collected based on availability in 2010 and 2011 from major retail stores as well as smaller and ethnic retailers. No specific brands were targeted. A total of 48 samples were collected. The distribution of samples by product type is listed in Table 1. It was assumed, in the absence of further information, that labels

indicating the fruit based spread was prepared for a Canadian company that the product was imported.

Table 1: Sample distribution of fruit based spreads by type

Sample type	Domestic	Imported	Total
Butter	1	1	2
Jam	4	9	13
Jelly	2	6	8
Marmalade	1	1	2
Preserve	0	12	12
Spread	8	3	11
Grand Total	16	32	48

2.4 Limitations

A total of 48 samples of fruit based spreads were collected and analysed in 2010 and 2011. Samples were all purchased in various retail locations in Ottawa, ON. This represents a small sample size in comparison to what is available to Canadian consumers throughout the country. The samples collected in this survey do not represent national availability. The data collected from this survey is meant to provide a snapshot of the targeted commodity and has the potential to highlight problem areas that warrant further investigation.

2.5 Methodology

Samples were analyzed by an accredited third party laboratory. Third party laboratories are accredited to ISO/IEC 17025, General Requirements for the Competence of Testing and Calibration Laboratories (or its replacement by the Standards Council of Canada (SCC)).

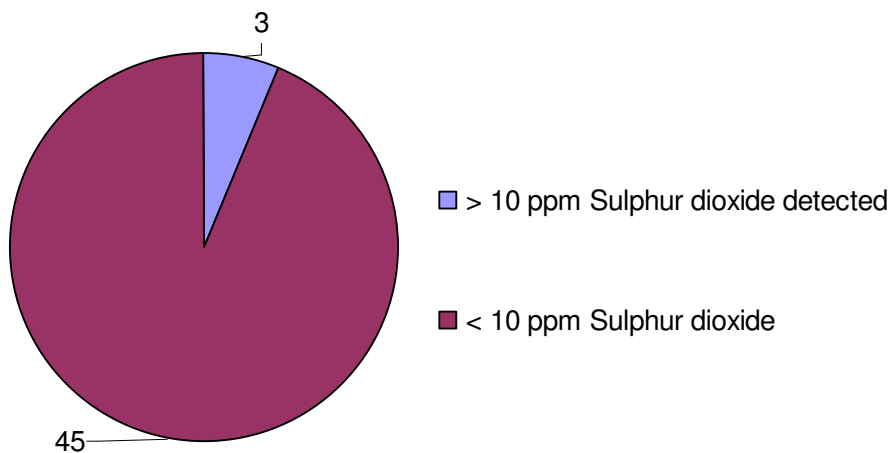
The samples were tested for the presence of added free sulphites using the optimized Monier Williams method and reported as sulphur dioxide. The reporting level for the AOAC optimized Monier William's method is 10 ppm. Results below this level can be natural background levels from other compounds that liberate sulphur dioxide or from reaction or breakdown products in the form of SO₂ when heated under reflux. Therefore, only results above 10 ppm are reported.

3 Results and Discussion

Of the 48 fruit based spreads analyzed, 3 samples contained levels of sulphur dioxide above 10 ppm, see Table 2. Sulphur dioxide was detected in 1 out of 16 domestic (6%) and 2 out of 32 imported samples (6%).

Table 2: Amount of sulphur dioxide detected (above 10 ppm) in fruit based spread samples by sample type and domestic or imported			
Product type	Domestic/Imported	Sulphur dioxide (ppm)	Fruit base
Butter	Imported	77.3	Plum
Jam	Imported	11.5	Quince
Spread	Domestic	14.2	Mixed

Figure 1: Distribution of sulphite test results for all samples analyzed



The three samples that had levels of sulphites above 10 ppm are being followed up by CFIA. Follow up action may involve a food safety investigation, including a health risk assessment conducted by Health Canada and a recall or one of the following: notification of manufacturer/importer and/or additional sampling.

4. Conclusion

Forty eight samples of fruit based spreads were analyzed for the presence of sulphites, three samples (6%) were found to contain levels of sulphur dioxide above 10 ppm. Sulphur dioxide was detected in 1 out of 16 domestic (6%) and 2 out of 32 imported

samples (6%). Based on current scientific knowledge a level of sulphites in a food product above 10 ppm may pose a risk to sensitive individuals. These samples are being followed up by the CFIA.

This survey was limited in the number of samples analyzed; however, it met the objective of gathering baseline information on the occurrence of undeclared sulphites in fruit based spreads.

From these results it can be concluded that sulphites may be present in fruit based spreads. A pre-packaged food product with a list of ingredients and a level of sulphites above 10 ppm should have sulphites listed in the list of ingredients to inform sensitive individuals of its presence. If sulphites are not an intentionally added ingredient or ingredient component, and their addition cannot be controlled through good manufacturing processes, the use of a precautionary statement should be considered.

References

¹ Canadian Food Inspection Agency. *Common Food Allergies. A Consumers Guide to Managing Risk: Sulphite Sensitivity*. (Online) Accessed January 4, 2012.

² Health Canada. *Project 1220 Enhanced Labelling for Food Allergen and Gluten Sources and Added Sulphites*. (Online) Accessed January 4, 2012. http://www.hc-sc.gc.ca/fn-an/label-etiquet/allergen/project_1220_rias_eeir-eng.php

³ Vally, H., Misso, N.L.A. and V. Madan. (2009) Clinical Effects of Sulphite Additives. *Clinical and Experimental Allergy*. 39: 1643-1651

⁴ Zarkadas, M., Fraser, S., Salminen, J. and A. ham Pong. (1999) Common Allergenic Foods and their Labelling in Canada- A Review. *Canadian Journal of Allergy and Clinical Immunology*. 4(3):118-141.