

立法會
Legislative Council

LC Paper No. CB(2)719/11-12(08)

Ref : CB2/PL/FE

Panel on Food Safety and Environmental Hygiene

**Background brief prepared by the Legislative Council Secretariat
for the meeting on 10 January 2012**

**Announcement mechanism of the Food Surveillance Programme
implemented by the Centre for Food Safety**

Purpose

This paper provides background information on the announcement of the results of the Food Surveillance Programme ("FSP") and food safety assessment by the Centre for Food Safety ("CFS") to the trade and the public.

Background

2. Established under the Department of Food and Environment Hygiene in 2006, CFS aims to ensure that food sold in Hong Kong is safe and fit for consumption through tripartite collaboration among the Government, food trade and consumers. CFS regularly conducts FSP which is designed to control and prevent food hazards, and is a key component of its food safety assurance programme to find out the safety of food supplied within Hong Kong.

3. Since 2007, CFS has started to adopt a more targeted and client-oriented approach to food surveillance consisting of routine food surveillance, targeted food surveillance and seasonal food surveillance. CFS announces the food testing results in a timely manner in press releases and on the CFS website. Food surveillance results with immediate public health concerns will be released immediately. Results of the targeted surveillance projects are released upon project completion, while the results of seasonal food surveillance projects are announced ahead of the relevant season and festival for consumers to make informed choices. CFS also announces all surveillance results of the previous month by a monthly Food Safety Report published on its website. Apart from announcing results, CFS also gives advice to consumers to minimize health risks posed by problem foods.

4. CFS has set up committees and forums, namely, the Expert Committee of Food Safety, Trade Consultation Forum and the Consumer Liaison Group, to facilitate regular risk communications with experts, academics, members of the food trade and industry, consumers and the public.

Member's concern

5. In his letter dated 15 December 2011, Hon Fred LI has expressed concern about the announcement mechanism of the results of FSP, particularly the late announcement to the public of the results of two food safety studies, namely, "Microbiological Quality of Higher Risk Buns and Sandwiches in Hong Kong" and "The First Hong Kong Total Diet Study: Dioxin and Dioxin-like Polychlorinated Biphenyls ("PCB")".

6. According to CFS, the study of "Microbiological Quality of Higher Risk Buns and Sandwiches in Hong Kong" was jointly conducted by CFS and the Consumer Council between June and August 2011 to give an overview of the microbiological quality of some buns and sandwiches which may have higher microbiological risks. Findings of poor microbiological quality in the bun and sandwiches samples have revealed that post-baking contamination, prolonged storage at room temperature and unhygienic handling are likely the main causes. CFS consequently drafted a set of guidelines on safe production of bun and sandwiches and discussed the guidelines and the results of the study at the meeting of the Trade Consultation Forum on 9 December 2011. The study results, the draft guidelines as well as advices to the public and the trade were published on the CFS website on 15 December 2011, with a gap of five days after the meeting of the trade forum.

7. According to the information obtained on the CFS website, the First Hong Kong Total Dietary Study was commenced in March 2010 and will be completed in 2014. One of the food safety assessments of the study is the dietary exposure assessment of a group of persistent organic pollutants, which was conducted by CFS between June and November 2010. The assessment results have revealed that mandarin fish, oyster and pomfret fish contain the highest levels of dioxins and dioxin-like PCBs, which pose carcinogenic risk to the consumers. These results were discussed at the meeting of the Trade Consultation Forum on 9 December 2011 and uploaded onto the CFS website on 13 December 2011.

8. Hon Fred LI has expressed doubt as to whether the announcement arrangement of CFS for revealing the results of the studies only to the trade conforms to the public interest.

Relevant papers

9. The Abstract of the risk assessment study on the microbiological quality of buns and sandwiches in Hong Kong and the Executive Summary of the "Report No. 1: Dioxins and Dioxins-like PCBs" of the First Hong Kong Total Diet Study are in **Appendices I and II** respectively.

Council Business Division 2
Legislative Council Secretariat
4 January 2012

Microbiological Quality of Higher Risk Buns and Sandwiches in Hong Kong

Abstract

The Centre for Food Safety (CFS) and the Consumer Council (CC) have conducted a study on the microbiological quality of buns and sandwiches in Hong Kong. This study aimed to give an overview of the microbiological quality of some buns and sandwiches which may have higher microbiological risks and are commonly available at local food premises. It also aimed to increase awareness of safe preparation and hygienic handling of these products in the food industry.

The study

2. In this study, a total of 113 buns and sandwiches were collected from food premises, supermarkets and bakery shops, including chain and individual stores, located in different districts in Hong Kong from June to August 2011. All samples were subject to microbiological examination including aerobic colony count (ACC), *Escherichia coli* (total), *Staphylococcus aureus* and *Bacillus cereus* analyses conducted by the Public Health Laboratory Services Branch of the Centre for Health Protection, Department of Health. For items containing meat/egg, *Salmonella spp.* was also analysed whereas for those containing seafood, *Vibrio parahaemolyticus* was also analysed. The microbiological quality of the samples was assessed against the criteria stipulated in the Microbiological Guidelines for Ready-to-eat Food (The Guidelines) issued by the CFS in 2007.

3. The Guidelines stipulate microbiological criteria of the food concerned so as to reflect their hygienic and safety quality. According this set of Guidelines, microbiological quality of food can be classified into one of four classes*, namely Class A, B, C and D.

4. Among the 113 samples taken, the majority (96%) were of Class A or Class B quality. However, 4 samples, including 3 coconut and cream buns and a hot dog, were of Class C quality due to excessive ACC and/or *Staphylococcus aureus* organism. This may indicate sub-optimal hygienic condition and a need for improvement in hygienic condition of the concerned premises.

5. As revealed in the study, post-baking contamination, prolonged storage at room temperature and unhygienic handling were the likely causes for the poor microbiological quality in the samples; highlighting the importance of good hygiene practices in the food industry. In order to help food trade implement food safety measures in their operations so as to produce and sell wholesome and safe buns and sandwiches, the CFS has drafted a set of Guidelines on Safe Production of Buns and sandwiches. After consulting with the trade, the Guidelines will be distributed and uploaded to the CFS website for trade reference.

Advice to the Public

- Patronise reliable and licensed food premises.
- Consume buns and sandwiches as soon as possible.
- Except certain buns, e.g. plain rolls and pineapple buns, with lower microbiological risk and are safe to store at room temperature for a longer period of time, keep perishable buns and sandwiches (including home-made ones) in the refrigerator at or below 4 °C if they are not consumed immediately, and consume them within 1 or 2 days or within shelf-life.

Advice to Trade

- Purchase food ingredients from reliable sources.
- Estimate the demand for buns and sandwiches as well as their fillings carefully to avoid over-production.
- Store perishable fillings at or below 4 °C and avoid cross-contamination.
- Except certain buns, e.g. plain rolls and pineapple buns, with lower microbiological risk and are safe to store at room temperature for a longer period of time, keep perishable buns and sandwiches in the refrigerator at or below 4 °C or discard them after storing at room temperature for more than 4 hours.
- Plan the production schedule ahead to avoid preparing buns and sandwiches too far in advance.
- Always follow good personal hygiene practices.

More Information

- The related article is published in the CHOICE MAGAZINE (Issue 422 released on 15 December 2011) (Chinese only).

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- * Class A: the microbiological status of the food sample is satisfactory.
 - Class B: the microbiological status of the food sample is less than satisfactory but still acceptable for consumption.
 - Class C: the microbiological status of the food sample is unsatisfactory. Licensees of food premises should be advised to investigate and find out the causes and to adopt measures to improve the hygienic conditions.
 - Class D: the microbiological status of the food sample is unacceptable. The food sample contains unacceptable levels of specific pathogens that is potentially hazardous to the consumer.

December 2011
Risk Assessment Section
Centre for Food Safety
Food and Environmental Hygiene Department

EXECUTIVE SUMMARY

The Centre for Food Safety (CFS) is conducting the First Hong Kong Total Diet Study (the 1st HKTDS) aiming to estimate dietary exposures of the Hong Kong population and various population subgroups to a range of substances, including contaminants and nutrients, and thus assess any associated health risks. This report presents the dietary exposure assessment of a group of persistent organic pollutants (POPs), “dioxins and dioxin-like polychlorinated biphenyls (PCBs)”.

2. “Dioxins” refers to polychlorinated dibenzo-para-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), whereas “dioxin-like PCBs” refers to polychlorinated biphenyls (PCBs) that exhibit toxicological properties similar to dioxins. Due to similarity in toxicity profiles and mechanisms of action, dioxins and dioxin-like PCBs are generally considered together as a group although their sources are different. Dioxins and dioxin-like PCBs persist in the environment and bioaccumulate in the food chain. Foods of animal origin, such as meat, dairy products, eggs and fish tend to have higher concentrations of dioxins and dioxin-like PCBs.

3. Concerns on dioxins and dioxin-like PCBs are mainly due to their toxic effects on a number of systems, including endocrine and immune systems, the developing nervous system and their cancer-causing potentials. Three congeners, 2,3,7,8-tetraCDD (TCDD), 2,3,4,7,8-pentaCDF and PCB 126 have been identified as human carcinogens.

4. Due to their persistency and toxicity, PCDDs, PCDFs and PCBs have been listed as POPs under the Stockholm Convention, which requires the

signed Parties to take measures to eliminate or reduce the release of POPs into the environment.

5. In 2001, the Joint Food and Agriculture Organization (FAO) /World Health Organization (WHO) Expert Committee on Food Additives (JECFA) established a provisional tolerable monthly intake (PTMI) of 70 picograms (pg)/kg of body weight (bw) / month for PCDDs, PCDFs and dioxin-like PCBs expressed as toxic equivalent (TEQ). The TEQ value was computed using the toxic equivalency factors (TEFs) established by WHO which were assigned to 17 PCDD/PCDF congeners and 12 dioxin-like PCB congeners for comparing their toxicities relative to the most toxic one TCDD.

Results

6. A total of 142 composite samples were tested for dioxins and dioxin-like PCBs. (They composed of 71 different foods with 3 purchases collected and prepared on each of the two occasions from June to November 2010. A total of 426 individual samples have been taken.) All 142 composite samples were detected with at least one of the dioxin and dioxin-like PCB congeners, in which about two-third (66%) of the test results were found to be above the limits of detection (LOD) of individual dioxin and dioxin-like PCB congeners. Among all the food groups, “fish and seafood and their products” contained the highest level (mean: 0.440 pg TEQ/g), followed by “eggs and their products” (mean: 0.137 pg TEQ/g), “fat and oils” (mean: 0.094 pg TEQ/g) and “meat, poultry and game and their products” (mean: 0.091 pg TEQ/g). The top three food items with highest levels of dioxins and dioxin-like PCBs belonged to the same food group “fish and seafood and their

products” and they were mandarin fish (mean: 1.056 pg TEQ/g), oyster (mean: 0.926 pg TEQ /g) and pomfret fish (mean: 0.885 pg TEQ/g).

7. The dietary exposures to dioxins and dioxin-like PCBs were 21.92 and 59.65 pg TEQ/ kg bw/month for average and high consumer of the population, respectively, which amounted to 31.3% and 85.2% of PTMI.

8. The main dietary source of dioxins and dioxin-like PCBs was “fish and seafood and their products” which contributed to 61.9% of the total exposure, and was followed by “meat, poultry and game and their products” and “mixed dishes” which contributed to 20.0% and 7.0% of the total exposure, respectively. Fish and fishery products are particularly significant source of dioxins and dioxin-like PCBs which accounted for 55.6% of total exposure. Similar findings were also revealed in other dietary exposure studies that aquatic food and meat were the major food contributors.

Conclusions and Recommendations

9. The dietary exposures to dioxins and dioxin-like PCBs were 21.92 and 59.65 pg TEQ/kg bw/month for average and high consumer of the population, respectively which were below the PTMI. Therefore, the general population was unlikely to experience major undesirable health effects of dioxins and dioxin-like PCBs. Nevertheless, having considered their carcinogenic risk, effort should be made to reduce the dietary exposure to dioxins and dioxin-like PCBs of the population.

10. Prevention and reduction of human exposure should be done through source-directed measures. International efforts in the reduction of dioxin

emission and their subsequent contaminations of food are essential to reduce the dietary exposure to dioxins and dioxin-like PCBs of the population.

11. The public is advised to trim fat from meat and consume low fat dairy products. The public is also advised to have a balanced and varied diet which includes a wide variety of fruit and vegetables so as to avoid excessive exposure to dioxins and dioxin-like PCBs from a small range of food items. As fish contain many essential nutrients, such as omega-3 fatty acids and high quality proteins, moderate consumption of a variety of fish is recommended.