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# 2007 Food Safety Report No. 4

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Centre for Food Safety

Food and Environmental Hygiene Department

**September 2007**



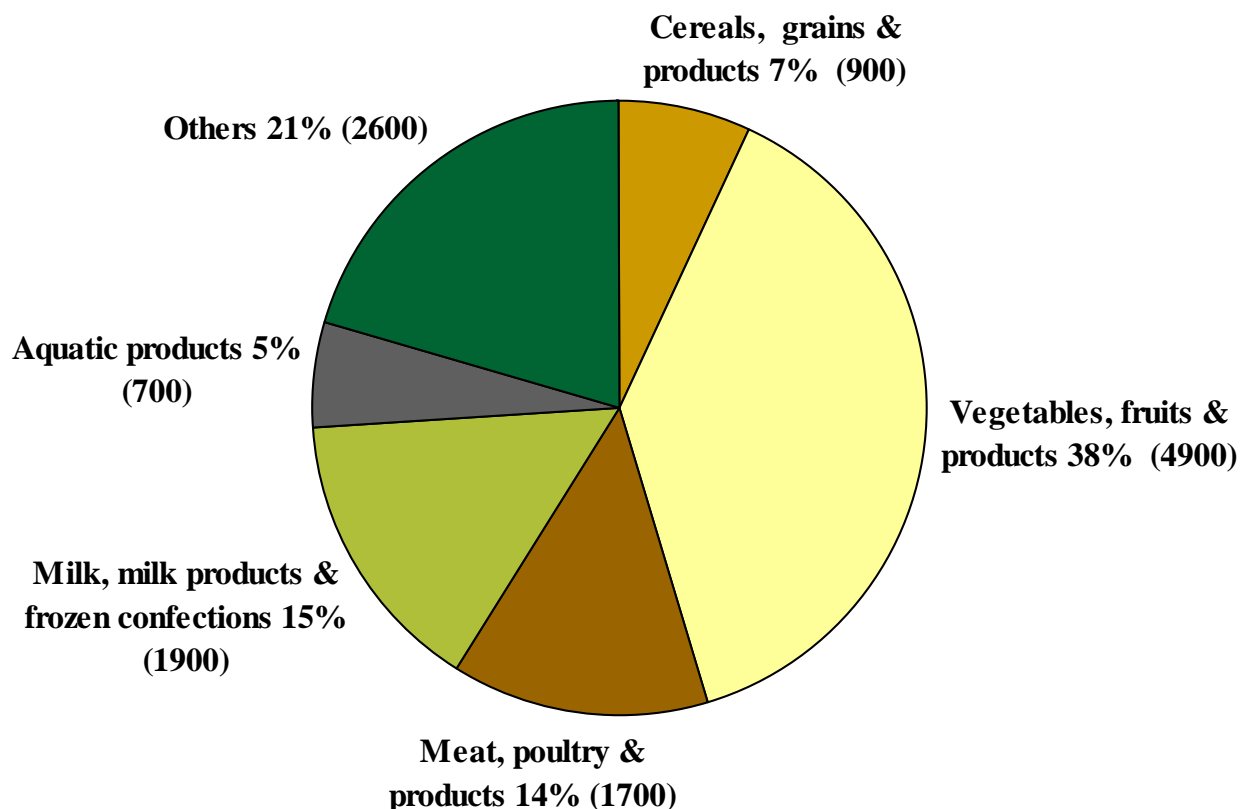
# Introduction

- Under the food surveillance programme of the Centre for Food Safety (CFS), food samples are collected at import, wholesale and retail levels of the market for microbiological and chemical analysis.
  
- Starting from 2007, CFS has adopted a more targeted and client oriented three-tier approach to food surveillance, consisting of:
  - Routine food surveillance
  - Targeted food surveillance
  - Seasonal food surveillance
  
- CFS recently conducted the following seasonal or targeted food surveillance projects in addition to the routine surveillance:
  - Mooncakes
  - Colouring matters in soup mix and spicy snacks
  - Preservatives in preserved fruits and vegetables

(The first two projects' results have been announced previously)
  
- This presentation gives an account of the food surveillance sample analyses that were completed in July and August 2007.

# Types of food tested

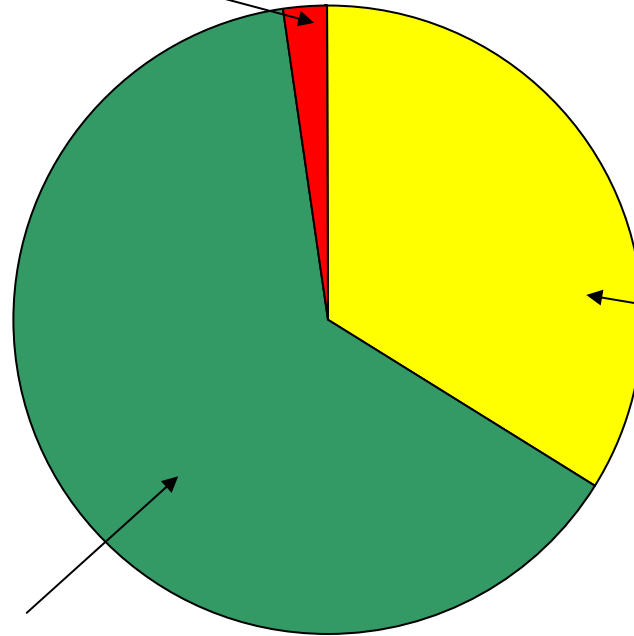
- About 12800 food samples of various food groups were tested.



N.B.: Figures in brackets are rounded

# Types of testing

Radioactivity 2% (300)



Microbiological analysis 34% (4400)

Chemical analysis 64% (8200)

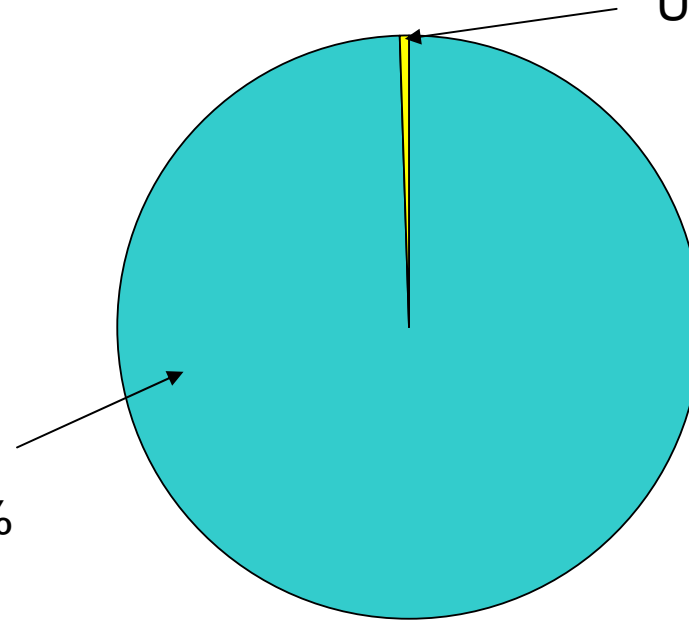
N.B.: Figures in brackets are rounded

# Overall results

- Overall satisfactory rate was 99.4%.
- Totally 79 unsatisfactory samples

Unsatisfactory 0.6% (79)

Satisfactory 99.4%



# Unsatisfactory samples

- 79 unsatisfactory food samples included 4 previously announced results. The remaining 75 unsatisfactory samples are as follow:

<b><i>Food Group</i></b>	<b><i>No. of Samples Tested</i></b>	<b><i>No. of Unsatisfactory Samples</i></b>
<b><i>Vegetables, fruits &amp; products</i></b>	4900	52
<b><i>Cereal, grains and products</i></b>	900	0
<b><i>Meat, poultry &amp; products</i></b>	1700	1
<b><i>Aquatic products</i></b>	700	7
<b><i>Milk, milk products &amp; frozen confections</i></b>	1900	13
<b><i>Others</i></b>	2600	2

# 1. Vegetables, fruits & products

- About 4900 samples with overall satisfactory rate 99.0%
- Analysis included:
  - Microbiological tests
  - Chemical tests
    - > 100 types of 4 major groups of pesticides
      - organo-chlorine (e.g., DDT, HCH)
      - organo-phosphorous (e.g., methamidophos and isocarbophos)
      - N-methylcarbamates (e.g., carbofuran)
      - pyrethroids
    - Metallic contamination (including cadmium, arsenic and lead)
    - Preservatives (including sulphur dioxide, sorbic acid and benzoic acid)
    - Colouring matters
    - Sweeteners

# 1. Vegetables, fruits & products (Cont'd)

## Pesticide residues

- 6 unsatisfactory samples:

Sample	Unsatisfactory testing item	Result
6 vegetable samples (1 Chinese white cabbage, 1 celery, 2 Chinese lettuce, 1 lettuce and 1 green pepper)	Methamidophos	1.9 - 4 ppm <sup>(1)</sup>

(1) The levels are low and should not pose significant health effect on consumers upon normal consumption.



# 1. Vegetables, fruits & products (Cont'd)

## Metallic contamination

- 5 unsatisfactory samples:

Sample	Unsatisfactory testing item	Result
4 vegetables (2 Romaine hearts, 1 watercress, and 1 mixed baby greens)	Cadmium	0.19 – 0.37 ppm <sup>(1)</sup>
1 mushroom	Cadmium	0.63 ppm <sup>(1)</sup>

<sup>(1)</sup> The levels are low and should not pose significant health effect on consumers upon normal consumption.

# 1. Vegetables, fruits & products (Cont'd)

## Colouring matters

- 1 unsatisfactory sample

Sample	Unsatisfactory testing item	Result
Green peas	Brilliant Blue FCF	Detected <sup>(1)</sup>

(1) Permitted colouring matter in certain food but not for fresh vegetables

# 1. Vegetables, fruits & products (Cont'd)

## Targeted food surveillance on preservatives in preserved fruits and vegetables

- Preservatives (e.g., sulphur dioxide, benzoic acid and sorbic acid) are commonly used in preserving fruits and vegetables.
- The CFS notes that there had been levels of excessive preservatives detected in previous samples of dried fruits and pickled vegetables. A targeted food surveillance project is therefore conducted to assess the situation.
- Although preservatives are often used in processing food and should not pose significant health effect upon normal consumption, the trade should adhere to the "good manufacturing practice" (GMP) and comply with the legal requirements when using preservatives.

# 1. Vegetables, fruits & products (Cont'd)

## Results

- Some 460 samples were collected, with overall satisfactory rate 91.4%. There are 40 unsatisfactory samples.

Sample	Unsatisfactory testing item	Result
25 preserved vegetables (including mustard greens, rakkyo, ginger, chillies and choi sum)	Sulphur dioxide	200 – 710 ppm <sup>(1)</sup>
	Benzoic acid	320 – 1600 ppm <sup>(1)</sup>
15 preserved fruits (including dried raisin, apricots, plums, kumquat, blueberries and olives)	Sulphur dioxide	560 – 4200 ppm <sup>(1)</sup>
	Benzoic acid	760 ppm <sup>(1)</sup>
	Sorbic acid	160 – 2300 ppm <sup>(1)</sup>

<sup>(1)</sup> Commonly used preservatives that are of low toxicity and should not pose significant health effect on consumers upon normal consumption

## 2. Meat, poultry & products

- About 1700 samples with overall satisfactory rate 99.9%
- Analysis included
  - Microbiological tests
  - Chemical tests (veterinary drug residues, preservatives, colouring matters and other food additives)
- All samples tested for veterinary drug residues, colouring matters and preservatives were satisfactory.

## 2. Meat, poultry & products (Cont'd)

### Pathogens

- 1 unsatisfactory sample:

Sample	Unsatisfactory testing item	Result
Plain chicken	<i>Staphylococcus aureus</i>	$4.8 \times 10^5/\text{g}$ <sup>(1)</sup>

<sup>(1)</sup> *Staphylococcus aureus* may cause gastrointestinal upset such as abdominal pain and vomiting.

# 3. Aquatic products

- About 700 samples with overall satisfactory rate 98.9%
- Analysis included
  - Microbiological tests
  - Chemical tests (e.g. veterinary drug residues, biotoxins, colouring matters, metallic contamination and preservatives)

# 3. Aquatic products (Cont'd)

## Veterinary drug residues

- 6 unsatisfactory samples were taken during the same operation from consignments without health certificate at import. The rest of the consignments were disposed of.

Sample	Unsatisfactory testing item	Result
6 aquatic products (catfish, channel catfish, edible goldfish, swamp eel, Amur catfish, snakehead)	Malachite green	0.0033 – 0.57 ppm <sup>(1)</sup>
	Nitrofurans	0.0038 – 0.19 ppm <sup>(1)</sup>

(1) The levels are low and should not pose significant health effect on consumers upon normal consumption.



# 3. Aquatic products (Cont'd)

## Pathogens

- 1 unsatisfactory sample:

Sample	Unsatisfactory testing item	Result
Fried mantis shrimps	<i>Salmonella</i>	Present in 25g <sup>(1)</sup>

<sup>(1)</sup> *Salmonella* may cause gastrointestinal upset such as abdominal pain and diarrhoea.

## Colouring matters

- Except the sample of spicy cuttlefish positive for Sudan dyes announced previously, all samples tested for colouring matters were satisfactory.

## Biotoxins

- All samples tested for biotoxins were satisfactory.

## Metallic contamination

- All samples tested for metallic contamination were satisfactory.

## 4. Milk, milk products & frozen confections

- About 1900 samples were tested including ice-cream, cheese, milk and milk products, etc. The overall satisfactory rate was 99.3%.
- Analysis included
  - Microbiological tests (e.g., *Salmonella* and *Listeria monocytogenes*)
  - Chemical tests (e.g. preservatives, colouring matters, sweeteners)
- All samples were satisfactory with respect to pathogen and chemical testing.

## 4. Milk, milk products & frozen confections (Cont'd)

- Besides the previously announced mooncake sample with bacterial count exceeding the legal limit, there were 13 other unsatisfactory samples:

Sample	Unsatisfactory testing item	Result
3 ice-cream	Total bacterial counts	$9.8 \times 10^4 - 3.5 \times 10^5/\text{g}$ <sup>(1)</sup>
* 9 watermelon juice / strawberry cream based bar	Coliform organisms	120 – 280/g <sup>(1)</sup>
** 1 milk beverage	Colony counts	>10 <sup>(1)</sup>

(1) Total bacterial counts, coliform organisms and colony counts are hygienic indicators.

\* The samples were taken at import level and the consignment was disposed of.

\*\* The samples were taken at import level and the consignment was not imported to HK.

# 5. Cereal, grains and products

- About 900 samples including bread, crackers, rice and noodles, etc. The overall satisfactory rate was 99.8%.
- Analysis included microbiological and chemical tests such as:
  - sweeteners
  - colouring matters
  - pesticide residues
  - preservatives
- Beside the 2 previously announced unsatisfactory samples (rice cracker with Acid Red 52 and corn chip with Sudan dyes), all other samples were found satisfactory.

## 6. Other food commodities

- About 2600 samples with overall satisfactory rate 99.9%
- Types of food included:
  - Mixed dishes
    - Pathogens, colouring matters and preservatives
  - Dim Sum
    - Pathogens, preservatives, colouring matters and sweeteners
  - Beverages
    - Pathogens, colouring matter, sweeteners and preservatives
  - Sushi and sashimi
    - Microbiological examination

## 6. Other food commodities (Cont'd)

- ❑ Sugar and sweets
  - Pathogens, sweeteners, colouring matters and preservatives
- ❑ Condiments and sauces
  - Pathogens, colouring matters and preservatives
- ❑ Snacks
  - Sweeteners, colouring matters and preservatives
- ❑ Egg and egg products
  - Pathogens and colouring matters
- ❑ Others

## 6. Other food commodities (Cont'd)

- 2 unsatisfactory samples :

Sample	Unsatisfactory testing item	Result
Macaroni with eggs and ham	<i>Bacillus cereus</i> (pathogen)	2.7x10 <sup>5</sup> /g <sup>(1)</sup>
Bean curd dessert	<i>Bacillus cereus</i> (pathogen)	1.4x10 <sup>5</sup> /g <sup>(1)</sup>

<sup>(1)</sup> *Bacillus cereus* may cause gastrointestinal upset such as abdominal pain and diarrhoea.

# Seasonal Food Surveillance on Mooncakes

- Objective
  - To provide food safety information on mooncakes to consumers and the trade in a timely manner
  
- About 260 samples of various types of mooncakes were collected from retailers and food factories for chemical and microbiological analysis.
  
- Results
  - Overall satisfactory rate was 98.5%.
  - The hygienic indicators (total bacterial counts or coliform organisms) for 4 samples of ice-cream mooncake were found to exceed the legal standards.
  - Pathogen was not detected in the samples. Usual consumption is unlikely to pose significant health effect.



# Targeted Food Surveillance - Colouring Matters in Soup Mix and Spicy Snacks

## ■ Objective

- The CFS has conducted a targeted food surveillance project to assess the use of colouring matters in soup mix and spicy snacks.

- 200 (100 soup mix & 100 spicy snack) samples were collected for testing of colouring matters.

## ■ Results

- Overall satisfactory rate was 98.5%.
- 2 samples (a corn chip sample and a spicy sliced cuttlefish sample) were found to contain trace amounts of Sudan dyes.
- A rice cracker sample was found to contain Acid Red 52.
- Sudan dyes and Acid Red 52 are not permitted colouring matters in food.
- Based on the low levels of Sudan dyes detected and the low toxicity of Acid Red 52, normal consumption is unlikely to pose adverse health effects.

# Follow up actions

- Trace source of food items in question.
- Request vendors to stop sale and dispose of incriminated food items.
- Take follow-up samples.
- Issue warning letters to concerned vendors.
- Take prosecution actions if there is sufficient evidence.
- Regarding the illegal use of preservatives in preserved fruits and vegetables, the CFS will remind the trade to adhere to the “good manufacturing practice” and comply with legal requirement via various communication channels.

# Summary

- The CFS notes that 9% of the samples of a targeted food surveillance project on the use of preservatives in preserved fruits and vegetables were unsatisfactory. Although the preservatives would not pose significant health effects upon normal consumption, their levels violate existing regulation.
- As for the plain chicken, fried mantis shrimp, macaroni with eggs and ham, and bean curd dessert with pathogens, they may cause gastrointestinal upset such as abdominal pain, vomiting and diarrhoea.
- The other unsatisfactory samples were mainly related to the use of excessive/non-permitted food additives, metallic contamination, veterinary drug residues or pesticide residues.

# Advice for trade

- Use only permitted food additives, follow good manufacturing practice and comply with legal requirements.
- When preparing food, especially for those involving intensive preparations :
  - ❑ Maintain good personal hygiene.
  - ❑ Wash raw materials thoroughly.
  - ❑ Cook food thoroughly.
  - ❑ Separate raw food from ready-to-eat food to prevent cross contamination.
  - ❑ Keep food at safe temperatures (4°C or below; 60 °C or above).

# Advice for consumers

- Patronize licensed restaurants and reliable suppliers of food.
- Maintain a balanced diet to minimize risk.
- Wash vegetables and fruits thoroughly.