Study on dioxins in food

5 June 2018
Introduction

- To further understand the local situation of dioxins and dioxin-like PCBs (DL-PCBs) in food
  - particularly foods of animal origin other than hairy drabs)
  - CFS will commence a study starting from June 2018
Background
Nature of dioxins and DL-PCBs (1)

- **Dioxins**
  - PCDDs
  - PCDFs

- **DL-PCBs**
  - PCBs that exhibit toxicological properties similar to dioxins
Nature of dioxins and DL-PCBs (2)

- Persist and are ubiquitous in the environment
- Arise naturally or as by-products of industrial activities, e.g. metal smelting, molding, burning of chlorine containing organic chemicals such as plastics
- Fat soluble and not easily broken down
- Tend to accumulate in the food chain, mainly in the fatty tissue of animals
- Dietary intake is by far the most important exposure
  - Mainly meat, milk, egg, seafood
Health effects

• Toxic effects mainly on a number of systems
  ➢ endocrine system, immune system and developing nervous system

• Cancer-causing potentials
  ➢ The International Agency for Research on Cancer has classified dioxins and DL-PCBs as human carcinogens
Regulatory control in the international arena
At present, Codex has not set any MLs for dioxins in foods
- taking into account the lack of technical expertise in many member nations for measuring dioxins and the expensive testing cost and other considerations

- aim to achieve long-term dioxin reductions by identifying and eliminating pathways from the environment to food supplies
Other economies

- Statutory limits for dioxins and DL-PCBs in specified foods have only been established in economies including the European Union (EU), Korea and Taiwan.
Local situation
Regulatory control

- Section 54 of the Public Health and Municipal Service Ordinance, Cap. 132 requires that foods for sale and are intended for human consumption should be fit for human consumption.

- Currently, there is no specific statutory safety standard for dioxins and DL-PCBs in food in Hong Kong.
Food surveillance programme

- CFS of FEHD has been monitoring dioxins in foods as part of its routine food surveillance programme since 1999
- An action level of 1 pg WHO-TEQ (PCDD/F)/g sample has been adopted
- CFS established action levels of 3.5 pg TEQ/g food sample (wet weight) for dioxins and 6.5 pg TEQ/g food sample (wet weight) for dioxins and DL-PCBs respectively in edible portion of hairy crabs for the purpose of food surveillance in 2016
First Hong Kong Total Diet Study (1st HKTDS)

- Dietary exposures to dioxins and DL-PCBs
  - 21.92 and 59.65 pg toxic equivalent (TEQ)/kg bw/month for average and high consumer of the population
  - < provisional tolerable monthly intake (PTMI) of 70 pg/kg bw/month for PCDDs, PCDFs and DL-PCBs expressed as TEQ established by JECFA in 2001
  - general population was unlikely to experience major undesirable health effects of dioxins and DL-PCBs
  - having considered their carcinogenic risk, effort should be made to reduce the dietary exposure to dioxins and DL-PCBs of the population
Major food contributors

- Fish & seafood and their products: 61.9%
- Meat, poultry & game and their products: 20.0%
- Mixed dishes: 7.0%
- Cereals and their products: 4.9%
- Beverages, non-alcoholic: 2.7%
- Eggs and their products: 1.4%
- Dairy products: 1.3%
- Others: 1.1%
The current study
The current study

- Will span about 2 years with a testing of nearly 200 food samples.
- Dioxins and DL-PCBs in foods of animal origin including various aquatic animals except hairy crabs, edible offal of animal, edible fats, etc. would be analysed by the Government Laboratory.
- Under this study, CFS will conduct risk assessment for food samples detected with relatively high levels of dioxins and DL-PCBs and the management measures of test results depend on the conclusion of risk assessment.
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