

# 食物安全焦點

## Food Safety Focus

二零一一年八月·第六十一期  
August 2011 · 61st Issue



食物環境衛生署食物安全中心出版 Published by the Centre for Food Safety, Food and Environmental Hygiene Department

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### 焦點個案

#### Incident in Focus

食物安全中心

風險評估組

科學主任林伏波博士報告

Reported by Dr. Violette LIN, Scientific Officer,

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許多人以為碘缺乏情況不會發生在發達國家或海產豐富的沿海地區(例如中國內地和澳洲的沿海地區),但其實不然。有研究指,住在嚴重缺碘地區的人比住在沒有碘缺乏地區的人智商可能要低13.5分。

### 全球及本地攝入碘的情況

世界衛生組織(世衛)在二零零七年發表一項報告,推算全球約有31%的人口碘攝入量不足,其中孕婦/授乳婦女、嬰兒/幼童及東南亞居民為三個高危羣組。由本港學者及專家組成的香港碘缺乏病專家小組,亦曾於二零零三年評估本港有關數據,認為本港一些準母親有碘近乎不足的情況。

為了解本港情況,食物安全中心(中心)在二零零九年抽取本港食物樣本,評估香港成年人從膳食攝入碘的情況。有關食物消費量數據取自二零零五至零七年香港市民食物消費量調查。該報告於上月發表,發現本港市民的碘攝入量中位數為每日44微克,而93%的成年人的碘攝入量低於世衛建議的分量。

### 經由膳食達到碘需要量

縱使更新的臨牀和生化(如尿碘水平)數據可有助進一步評估對人體造成的實際影響,目前研究結果已顯示市民有需要注意個人的碘攝入量。要注意的是,有潛在性甲狀腺疾病患者和長時間攝入很少碘的人應徵詢醫生意見,不宜突然增加碘攝入量。

屬於碘攝入量不足之高危羣組的人士應考慮透過下列方法達到個人膳食碘需要量:

#### (1) 進食碘含量豐富的食物

事實上,若保持穩定每日補充,人體只需少量的碘(見世衛建議的碘攝入量)便已足夠。如大量攝入,碘很快會

## 你的碘攝入量足夠嗎?

### Have You Taken Enough Iodine?

Contrary to popular belief, iodine deficiency can occur in highly developed countries or coastal areas where seafoods are abundant, such as those in Mainland China and in Australia. Studies found that individuals living in areas with severe iodine deficiency could have intelligence quotient (IQ) of up to 13.5 points below those in areas without such problems.

### Iodine Intakes at Global and Local Levels

世衛建議的碘攝入量(微克/日) WHO Recommended Iodine Intake (µg/day)	
• 學前幼童(0至59個月) Preschool children (0 to 59 months)	90
• 學齡兒童(6至12歲) Schoolchildren (6 to 12 years)	120
• 青少年(12歲以上)及成年人 Adolescents (above 12 years) and adults	150
• 孕婦及授乳婦女 Pregnant and lactating women	250

World Health Organization (WHO) released a report in 2007 which estimated insufficient iodine intakes in 31% of the world's population. Of these, those in South-East Asia, pregnant/lactating women, and infants/young children are the most vulnerable ones. The Hong Kong Expert Panel Group on Iodine

Deficiency Disorders, formed by local academics and experts, also in 2003 examined local data and considered borderline iodine deficiency exists in some local expectant mothers.

To understand the local situation, the Centre for Food Safety (CFS) sampled local food and assessed the **Dietary Iodine Intake in Hong Kong Adults** in 2009. The consumption data was obtained from the **Hong Kong Population-based Food Consumption Survey 2005-2007**. The report released last month revealed a median iodine intake of 44 µg/day and 93% of the adult population with intake below WHO's recommendation.

### Meeting the Dietary Iodine Requirement

While updated clinical and biochemical (e.g. urinary iodine level) data would help to further evaluate the actual human effects, the findings provide some evidence that there is a need for the public to become better aware about their own iodine intake. A note of caution: patients with underlying thyroid diseases and those who are used to very low intakes of iodine for a prolonged period should consult their doctors and are not suggested to increase iodine intake suddenly.

Those who are in the vulnerable groups should consider meeting their dietary iodine requirement by the following approaches:

#### (1) Consume Foods High in Iodine

Human body actually needs only a small amount but regular daily intake of iodine (see WHO recommended iodine intake). When ingested in large amounts, iodine is readily excreted through the kidneys into the urine. While excessive iodine

焦點個案  
Incident in Focus

經腎臟排到尿液中。長時間攝入過量碘可能影響正常的甲狀腺功能，一般健康的成年人可安全承受每日達1 000微克碘攝入量。

市民應在膳食選擇內涵蓋碘含量豐富的食物，並採取措施減少碘流失，這是因為碘在烹煮過程會溶於水中。為盡量保存食物中的碘，市民可採用蒸或以少油炒的方法烹調食物，並原隻烹煮乾淨的甲殼類動物。

(2) 食用碘鹽

根據世衛建議，碘鹽可以解決居民缺碘的情況。目前雖然全球約有70%的家庭可使用到碘鹽，但是碘鹽在本港仍未普及。

分量方面，世衛認為以成年人膳食計，用碘鹽代替每日從整體膳食所攝入的五克普通食鹽大致上是安全的。如依照世衛建議每公斤食鹽添加20至40毫克碘計，食用碘鹽就可每日從膳食額外攝入100至200微克碘。視乎食肆或其他加工食物所使用的碘鹽，實際增加的碘攝入量可能有異或較低。

一般家庭使用時，應將碘鹽放在密封的有色容器內，並置於陰涼乾燥的地方，並最好在上菜時才下碘鹽，這是因為碘鹽內的碘一般不穩定，會因潮濕、受熱和陽光照射而流失。

中心發表的上述研究指出，下列食物含豐富的碘質（微克/公斤）： Foods rich in iodine (µg/kg) as found in the abovesaid CFS study included the following:	
· 乾海帶及紫菜 Dried kelp and laver	8 900 – 2 600 000
· 藻類零食及壽司用紫菜 Seaweed snack and nori sheet for sushi	6 400 – 38 000
· 介貝類水產及海魚 Shellfish and marine water fish	32 – 2 100
· 奶類製品 Dairy products	40 – 1 400

intake for a long time may disrupt the thyroid gland's normal functions, healthy adults can safely tolerate an intake up to 1 000 µg/day.

The public is advised to include foods that are rich in iodine in their dietary choice and take precautions to reduce iodine loss as iodine may dissolve in water during cooking. To retain its maximum amount, try to steam or stir-fry foods with little oil, and cook clean crustaceans intact.



在膳食選擇內包括碘含量豐富的食物，例如(a)介貝類水產及海魚(b)藻類，有助達到碘需要量。

Including iodine rich foods in the diet such as (a) shellfish and marine water fish, and (b) seaweeds helps to meet iodine requirement.

(2) Use of Iodised Salt in the Diet

WHO has recommended iodised salt as the solution for countries where iodine deficiency is of public health concern. Iodised salt is not yet widely available in Hong Kong though around 70% of households throughout the world have access to it.

Regarding the quantity, WHO considered that replacing 5 grams of ordinary salt from all sources in an adult's diet with iodised ones each day is generally safe. This will add an extra 100 to 200 µg of iodine to the daily diet, if the salt is fortified according to WHO's recommendation at 20 to 40 mg iodine per kg of salt. The actual increase in intake may vary, and likely lower, depending on the use of iodised salt in food premises or other processed foods.

When used in domestic setting, iodised salt should be stored in a tight and coloured container at a cool dry place and preferably added immediately before the food is served. It is because the iodine contained in iodised salt is generally unstable and may be lost due to humidity and exposure to heat and sunlight.

注意要點：

1. 碘攝入量不足是全球健康的關注。
2. 藻類及藻類製品、介貝類水產和奶類製品的碘含量豐富。
3. 世衛建議可以使用碘鹽代替餐桌鹽，以防碘缺乏。

Key Points to Note:

1. Insufficient iodine intake is a global health concern.
2. Seaweeds and seaweed products, shellfish and dairy products are rich in iodine.
3. WHO recommends using iodised salt to replace table salt to prevent iodine deficiency.

給消費者的建議

1. 保持均衡飲食，並選擇碘含量豐富的食物。
2. 為盡量保存食物中的碘，採用蒸或以少油炒的方法烹調食物，並原隻烹煮乾淨的甲殼類動物。
3. 以碘鹽代替餐桌鹽，每日從整體膳食攝入的鹽分應少於五克。

Advice to Consumers

1. Include iodine rich foods as part of a balanced diet.
2. Steam or stir-fry foods with little oil, and cook clean crustaceans intact to retain the maximum amount of iodine in foods.
3. Replace table salt with iodised salt, the consumption of which should be kept below 5 grams per day from all sources.

給業界的建議

1. 保持碘鹽供應。
2. 正確標示碘鹽，例如提供使用指示，以盡量減少碘流失。
3. 在碘鹽的標籤上列明碘含量。

Advice to the Trade

1. Make iodised salt available to the public.
2. Provide proper labelling of iodised salt, such as instructions on its usage to minimise its iodine loss.
3. Declare the amount of iodine on the label of iodised salt.





## 被淘汰的除害劑 — 問題何在？

## Obsolete Pesticides – What Is Wrong?

食物安全中心  
風險評估組  
科學主任林漢基博士報告  
Reported by Dr. John LUM, Scientific Officer,  
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Centre for Food Safety

除害劑不斷發展，當科學家不斷研製出新的除害劑時，部分舊除害劑便會遭淘汰。這些舊除害劑問題何在？為何會被停用呢？

### 除害劑為何會被淘汰？

當市場上出現效果或成效較佳而價格較相宜的新型除害劑時，自然會漸受歡迎，而其他相類型的除害劑就會逐漸被淘汰。另一方面，部分除害劑由於對人造成急性或長遠毒性影響，又或會危害環境而被國際機關限制其使用甚或禁用。我們不妨一起看看下列例子。

### 會引起急性中毒問題的除害劑

世界衛生組織(世衛)根據除害劑對人體健康造成的急性危害，在《世衛有關按危害等級劃分的除害劑分類建議》(只備英文版)中把除害劑劃分為以下五級：

- Ia: 劇毒
- Ib: 高毒
- II: 中等毒
- III: 低毒
- U: 不大可能造成急性危害

屬於 Ia 或 Ib 級的除害劑毒性最高，只需相對較小暴露量就能殺死實驗動物(例如一組實驗動物只需進食按每公斤體重計算少於五毫克的Ia 級除害劑就會有半數死亡)。許多有機磷酸鹽除蟲劑屬於 Ia 級物質，人們特別關注這些除害劑對哺乳類動物神經系統所造成的影響。事實上，在世衛所列的“劇毒”級除害劑中幾乎有半數屬於有機磷酸鹽類。目前許多國家已嚴格限制使用甚至禁用有機磷酸鹽除蟲劑。一款毒性較低、參照菊花中天然除蟲劑而人工合成的擬除蟲菊酯，已替代有機磷酸鹽類除蟲劑的使用。

### 對人體健康有長遠不良影響的除害劑

部分除害劑雖然急性毒性影響較低，但會造成長遠不良影響，特別是令人患癌或影響生殖系統。舉例來說，除草醚是一種急性經口毒性低的除草劑，但實驗證明動物吃下除草醚會影響發育中的胎兒(即致畸)，令成年動物患癌。因此，內地、美國及加拿大等多國已禁用或停用除草醚，改用草甘膦等較新、較安全的除草劑。

### 會遺禍環境的除害劑

有些除害劑會在環境中(如水和土壤等)沉積，繼而影響動植物生長，最終可能會透過不同的生態層次進入食物鏈內。因此，可能會長時間殘留在環境中的有害除害劑或其他有毒化學物不宜使用。許多有機氯除蟲劑曾在世界各地廣泛使用，現因上述原因而不再用於農務上。滴滴涕是其中一個最為人熟悉的例子。滴滴涕對水生動物具有劇毒，其代謝

The development of pesticides is an on-going process and new pesticides are developed by scientists to replace old ones. What is wrong with these old pesticides and why are they stopped from use?

### Why Do Pesticides Become Obsolete?

When new pesticides that are cheaper with a relatively better efficiency or efficacy are available on the market, they will gain popularity and their counterparts will be phased out gradually. On the other hand, the international authority may restrict or even prohibit the use of certain pesticides due to their acute or long-term toxicity to human as well as their risks to the environment. Let us look at some examples in the following paragraphs.

### Pesticides with Acute Toxicity Concern

The World Health Organization (WHO) classifies pesticides by hazard based on their acute risk to human health. Each pesticide is put into one of five classes, as published in the [WHO recommended classification of pesticides by hazard](#):

- Ia: Extremely hazardous
- Ib: Highly hazardous
- II: Moderately hazardous
- III: Slightly hazardous
- U: Unlikely to present acute hazard

Those that are classified as Ia or Ib are the most hazardous and capable of killing experimental animals at a relatively lower dose of exposure (e.g. those Ia pesticides could kill half of a group of test animals with less than 5mg/kg body weight). Many organophosphate (OP) insecticide are Class Ia substances and their effects on mammalian nervous systems are of particular concerns. In fact, almost half of all the pesticides classified by WHO as “Extremely hazardous” are organophosphates. Use of organophosphate insecticides has been severely restricted or even banned in many countries. A less toxic alternative to organophosphates in use is synthetic pyrethroids, which are chemicals based on natural insecticides derived from chrysanthemum flowers.

### Pesticides with Undesirable Long-term Effects on Human Health

Some pesticides are not acutely toxic to human but have more concerned undesirable long-term effects, especially cancer causing or affecting the reproductive systems. For example, nitrofen is a herbicide with low acute oral toxicity. However, when tested through oral exposure in animals, it has been shown to affect developing foetus (i.e., teratogenic) and cause cancer in adult ones. As such, the use of nitrofen has been prohibited or phased out in many countries, including the Mainland, the USA and Canada, and replaced by newer and safer herbicides such as glyphosate.

### Pesticides with Unacceptable Risks to the Environment

Some pesticides may deposit in the environment, such as water and soil, and subsequently affect animal and plant growth, and may eventually enter the food chain at various levels of the ecosystems. Therefore, hazardous pesticides or other toxic chemicals that may persist in the environment for a prolonged period will be unacceptable for intentional use. Many organochlorine (OC) insecticides, once popular throughout the world, have been removed from agricultural use for the above reasons. DDT is one of the best known examples. It is highly

物可令鳥蛋外殼變薄，胚胎死亡，因而降低雀鳥的繁殖力。許多國家已禁止滴滴涕用於農務上。事實上，滴滴涕及部分有機氯除害劑(例如艾氏劑、狄氏劑、氯丹及林丹)已列於《關於持久性有機污染物的斯德哥爾摩公約》(只備英文版)的名單上。該公約是由聯合國環境規劃署執行，規定締約各方採取措施停止或減少把這些化學物排放到環境中。

### 正確使用這把雙刃劍

總括而言，在農務中使用除害劑是一把雙刃劍，正確使用除害劑可提高農作物產量而又盡量減低對人體和環境造成的不良影響。耕種者在施用除害劑保護農作物時，必須安全謹慎處理，針對有關農作物及害蟲選用適合的除害劑，並應購買經妥善標示和包裝的註冊除害劑。此外，亦應遵從規管機關在施用和處理除害劑方面的相關安全指引。

toxic to aquatic animals and its metabolite decreases the reproductive rate of birds by causing eggshell thinning and embryo deaths. The agricultural use of DDT has been banned in many countries. In fact, DDT and some OC pesticides (such as aldrin, dieldrin, chlordane and lindane) have been listed in [The Stockholm Convention on Persistent Organic Pollutants](#). The Convention is administered by the United Nations Environment Programme which requires the parties to take measures to eliminate or reduce the release of these chemicals into the environment.

### Proper Use of the Double-edged Sword

In summary, the agricultural use of pesticides is a double-edged sword – their proper use could enhance crops production while minimising the harmful effects to human and the environment. When pesticides are used for crop protection, they must be handled safely and responsibly. Suitable pesticides should be selected for crops and pests concerned and only registered pesticides which are properly labelled and packaged should be purchased. Safety guidelines on the use and handling of pesticides of regulatory authorities should be observed.

### 食物事故點滴 Food Incident Highlight

#### 鮮菇中毒

今年七月底，本港有三宗個案共涉及六人進食在某百貨公司推廣攤位購買的鮮菇後兩三小時內出現腹痛、嘔吐及腹瀉。食物安全中心(中心)經調查後，發現所涉及的鮮菇來自內地，在合共六個零售點出售，並由銷售員工根據顧客選購的種類及數量在零售點即場包裝。雖然在病人家中和零售點抽取的鮮菇樣本均沒有驗出毒素，但根據流行病學資料顯示，這次中毒事件極可能因有關鮮菇摻雜有毒菇類所致。其他可能原因包括有關鮮菇變壞，又或是某些菇類品種的烹調時間不足，因而引致噁心和嘔吐。中心已立即採取行動銷毀餘下存貨。

菇類中毒一般是急性的，中毒者可能會同時出現腸道及其他症狀。視乎進食菇類的品種及數量，患者的症狀包括極度口渴、大量出汗、幻覺、昏迷及其他神經系統症狀。

中心呼籲消費者切勿購買混入品種不明的菇類。個別可供食用的品種，例如紅網牛肝菌／褐黃牛肝菌，須徹底煮熟才可進食。所有菇類必須徹底洗淨。如懷疑進食菇類引致中毒，須立即求醫。

#### Mushroom Poisoning

In late July, six persons in three clusters developed abdominal pain, vomiting and diarrhoea two to three hours after eating fresh mushrooms bought from a promotion booth inside a department store. Upon investigation, we found the mushrooms were imported from the Mainland and supplied to six retail outlets. Packaging was done at points of purchase by staff following customer orders on the amount of selected mushroom types. While laboratory testing did not detect any toxins in the samples collected from the patients' homes and retail outlet, epidemiological findings suggested that adulteration of these mushrooms with toxigenic species was the most likely cause of the outbreak. Other possible causes include spoilage of the mushrooms and insufficient cooking of certain species, which might cause nausea and vomiting. Steps were immediately taken to dispose of the remaining stocks.

Mushroom poisoning is usually acute and may present with gastrointestinal and a variety of other symptoms. Patients may suffer from extreme thirst, profuse sweating, hallucination, coma and other neurological symptoms, depending on the species and amount consumed.

The Centre for Food Safety advises consumers not to buy mushrooms which may have been mixed with unknown species, and some edible species like *Boletus luridus* have to be well-cooked before consumption. All mushrooms need to be cleaned thoroughly. If mushroom poisoning is suspected, seek medical treatment immediately.



紅網牛肝菌／褐黃牛肝菌  
*Boletus luridus*

### 風險傳達 工作一覽 Summary of Risk Communication Work

風險傳達工作一覽 (二零一一年七月) Summary of Risk Communication Work (July 2011)	數目 Number
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