



由食物環境衛生署食物安全中心於每月第三個星期三出版
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本期內容 IN THIS ISSUE

焦點個案

安全生蝦刺身此中尋

食物安全平台

對公眾風險較低的除害劑

食物事故點滴

紅潮與食物安全

血燕中的亞硝酸鹽

風險傳達工作一覽

Incident in Focus

In Search of Safe Shrimp Sashimi

Food Safety Platform

Pesticides of Relatively Low Risk to the Public

Food Incident Highlight

Red Tide and Food Safety

Nitrites in Blood-red Bird's Nest

Summary of Risk Communication Work

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焦點個案 Incident in Focus

安全生蝦刺身此中尋

In Search of Safe Shrimp Sashimi

食物安全中心

風險評估組

科學主任莊梓傑博士報告

Reported by Dr. Ken CHONG, Scientific Officer,

Risk Assessment Section,

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今年二月至七月，食物安全中心(中心)調查了三宗涉及泰國菜館的食物中毒事件，患者報稱曾於肇事菜館進食生蝦刺身和其他食物。三宗食物中毒事件涉及11人，而病原體懷疑是副溶血性弧菌或亦包括沙門氏菌。

海產可能含有致病微生物。生的食物(包括各類刺身)較熟食有較高風險。雖然徹底煮熟海產是減低感染食源性疾病的最佳方法，但許多人甘於承擔附加風險，挑選“生”鮮味的刺身來吃。



泰式生蝦刺身 Thai-style shrimp sashimi

From February to July this year, the Centre for Food Safety (CFS) investigated three food poisoning outbreaks in Thai restaurants in which the affected people reported that shrimp sashimi and other food had been consumed. Eleven people were affected in these outbreaks and the suspected causative agents included *Vibrio parahaemolyticus* only or with *Salmonella* species.

Seafood may harbour pathogenic microorganisms. In comparison with cooked food, raw foods including different types of sashimi are of higher risk. While cooking seafood thoroughly is the best way to minimise the risk of foodborne illness, many people prefer the raw taste of sashimi and take the additional risk.

刺身的污染來源

由於生蝦刺身不再烹煮便食用，可能被水中致病微生物污染的刺身有機會引致食源性疾病。副溶血性弧菌天然存在於熱帶至溫帶的沿岸和河口，可附在當地生長的水產(例如蝦、青口和生蠔)，繼而在合適的條件下迅速繁殖。生或只略經處理的水產固然高風險，而徹底烹煮雖可殺死副溶血性弧菌，但水產仍可透過受污染的用具和雙手等再受污染。

沙門氏菌並非天然存在於水中的微生物，但會隨家居及/或工業廢物(包括動物排泄物)污染環境後進入水中。此外，當生蝦與受污染的動物食品(例如禽肉)在同一地方處理或不當地同時存放在雪櫃內，便可能會造成交叉污染。

處理生蝦刺身需滿足高衛生要求

由於刺身是一種高風險食物，不論泰國或日本菜館的從業員均應遵從有關配製和售賣生蝦刺身和其他類別刺身的衛生守則。食肆須設有獨立指定位置和提供貼有標籤的專用器具配製刺身，並確保其不受其他食物及環境污染。食物從業員應穿上包括頭罩

Sources of Contamination of Sashimi

Since shrimp sashimi is consumed without further cooking, pathogenic microorganisms present in the water environment of the shrimps that might have contaminated the sashimi may cause foodborne illness. *Vibrio parahaemolyticus* occurs naturally in coastal and estuarine environments in tropical to temperate zones. It may be carried in seafood products in these areas, such as shrimp, mussel, raw oysters, and can grow rapidly under favourable conditions. Both raw/partially treated seafood products no doubt are of high risk. Although thorough cooking can eliminate the bacterium, the products may be recontaminated through contaminated utensils, hands, etc.

Salmonella species are not naturally occurring microorganisms in water environment, but it may be introduced through environmental contamination by domestic and/or industrial wastes, including animal wastes. In addition, cross-contamination may occur when the raw shrimps and contaminated animal products, such as poultry meat, are handled in the same area or improperly stored together in a refrigerator.

High Hygiene Requirement for Preparing Shrimp Sashimi

As sashimi is a type of high risk food, food handlers should observe the hygiene practice for preparing and selling shrimp sashimi, as well as other types of sashimi, no matter in Thai or Japanese restaurants. Separate portions of the restaurants should be designated for preparing sashimi and separate

焦點個案
Incident in Focus

等清潔的保護衣物，妥善處理食物及徹底清洗和消毒器具。生吃的食物必須分開存放，用以配製刺身的已解凍原材料應保存溫度在攝氏四度以下，如表面變得黏滑、濕淋或色澤暗淡，須立刻棄掉。

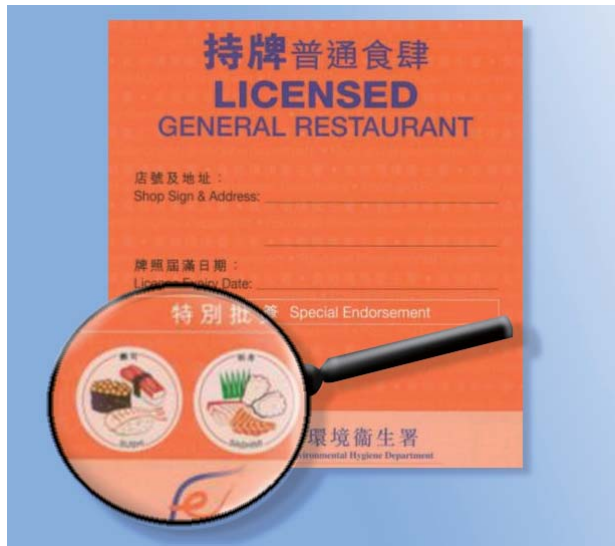
蝦的來源會影響最終產品的質量。用以配製刺身的未經煮熟材料，必須是完好、衛生和品質優良的，並須由可靠和商譽良好的供應商提供。用於火鍋的生蝦，生吃會有極高的食物中毒風險，不應當作刺身出售，消費者不應冒險嘗試，而業界亦不應供應這類生蝦作生吃用途。所有進口的食物材料應附有出口國家有關當局簽發並獲本港食物環境衛生署（食環署）認可的衛生證明書。根據《食物安全條例》，菜館須保存來貨紀錄以便查閱。

上述各項措施可減低食用刺身引起的食物中毒風險，部分已包括在有關配製和售賣刺身及壽司批簽的食物業處所發牌條件內。持牌食物業處所應在入口附近的當眼處展示食環署的牌照和附有有關批簽貼紙的橙色標籤，供顧客參考。與上述食物中毒事件有關的菜館均未獲售賣刺身的批簽。

equipments with label should be used for such purpose to ensure there is no cross-contamination with other foods or environmental contamination. Food handlers are required to wear clean protective clothing including head coverings. They should handle the food properly and cleanse or sterilise the tools properly. Food to be eaten in its raw state must be kept separately. Defrosted raw materials for the preparation of sashimi should be kept under 4°C and those with slimy surface, in dripping state or of dull colour must be immediately discarded.

The source of the shrimps affects the quality of the final products. Raw materials for the preparation of sashimi should be sound, wholesome and of good quality and should be obtained from a reliable and reputable source. Raw shrimps intended for hotpot are of high risk of food poisoning if consumed raw. Consumers should not take the risk and trade members are advised not to provide these shrimps for consumption in their raw state. All imported food materials should be accompanied by health certificates issued by relevant authority of the exporting countries which are acceptable to the Food and Environmental Hygiene Department (FEHD). Under the Food Safety Ordinance, all restaurants are required to keep records of acquisition of food for examination.

These measures can reduce the risk of food poisoning due to consumption of sashimi and some of these are included in licensing requirements for food premises with endorsement for preparing and selling sashimi and sushi. Licensed food premises should have a FEHD licence and an orange label indicating the relevant endorsement stickers exhibited at a conspicuous position near the entrance for easy reference by customers. The restaurants involved in the above food poisoning cases did not have endorsement for selling sashimi.



附有有關配製和售賣壽司及刺身的特定批簽的食環署牌照
FEHD licence with specific endorsement for manufacturing and sale of sushi and sashimi

注意重點：

1. 生蝦刺身可能因環境污染或不合衛生的處理方法受食源性致病菌污染。
2. 食物從業員應遵從有關配製和售賣刺身的衛生守則。
3. 只在獲准售賣刺身的食肆進食生蝦刺身。

Key Points to Note:

1. Shrimp sashimi may be contaminated with foodborne pathogens as a result of environmental contamination or unhygienic handling practice.
2. Food handlers should observe the hygiene practice for preparing and selling sashimi.
3. Consume only shrimp sashimi prepared in restaurants permitted to sell sashimi.

給業界的建議

- 用以配製刺身的未經煮熟材料，必須是完好、衛生和品質優良的，並須由可靠的供應商提供。
- 只可在食物配製室的指定及有明確標示的地方內配製刺身。
- 用獨立的砧板及刀具處理刺身，在處理不同類別的刺身前應將有關用具徹底清洗和消毒。

Advice to Trade

- Raw materials for the preparation of sashimi should be sound, wholesome and of good quality, and should be obtained from a reliable source.
- Prepare sashimi only at the designated and labelled areas in food preparation room.
- Use exclusive cutting boards and knives for sashimi; clean and disinfect the utensils thoroughly before handling different types of sashimi food.

給消費者的建議

- 留意食肆是否持有食環署的牌照和獲得有關售賣刺身及壽司的批簽。
- 品嚐刺身及壽司時，應注意食物是否新鮮，溫度是否適當。
- 免疫力較低的人、長者、孕婦及幼童患食源性疾病的風險較高，故不應吃生或半生的食物。

Advice to Consumers

- Before ordering sashimi and sushi in restaurants, check whether the premises have a FEHD licence and have the endorsement for sale of sashimi and sushi.
- Check if sashimi and sushi are fresh and kept under suitable temperature when enjoy them.
- People with weakened immunity, elderly, pregnant women and young children are at higher risk for foodborne illness; they should not eat raw or partially cooked food.

對公眾風險較低的除害劑

Pesticides of Relatively Low Risk to the Public

食物安全中心
風險評估組
科學主任邱頌韻女士報告
Reported by Ms. Joan YAU, Scientific Officer,
Risk Assessment Section,
Centre for Food Safety

有些除害劑會較其他除害劑安全。除害劑如符合下列其中一項條件，一般會對公眾健康風險較低：

- 使用有關的除害劑不會導致殘餘物留在食物中；
- 殘餘物與天然食物成分一樣，或難以與天然食物成分區分；或
- 殘餘物沒有明顯毒性，或不會危害公眾健康。

下文將會闡述這些除害劑的例子：

使用有關的除害劑不會導致殘餘物留在食物中

枯草芽孢桿菌菌株GB03這種細菌是部分真菌的天敵，可用於花生、小麥、豌豆及豆類等農作物種子中，以抑制植物出現由真菌引起的疾病。由於這種細菌會集中在植物根部，故播種後殘餘物不會留在農作物中。

酵母常用於烘焙和發酵過程中，亦可用作除害劑，其水解產物（即水解釀酒酵母提取物）可用來預防食用農作物的某些疾病，例如番茄的細菌性葉斑病和柑橘的脂斑病，只需少量就能達到預期效果。水解釀酒酵母提取物的成分會在環境中迅速分解，在食物中只會留下少量殘餘物。

殘餘物與天然食物成分一樣或難以與天然食物成分區分

大蒜是公認的健康食物。有趣的是，大蒜提取物可用於各種農作物，包括椰菜、馬鈴薯、胡蘿蔔及醬果來驅趕雀鳥、昆蟲或線蟲（蛔蟲）。人們食用大蒜提取物由來已久，不會損害身體。

你曾否在劇烈運動後感到疲倦呢？你可能曾埋怨乳酸在肌肉內積聚。不過，乳酸其實有妙用，可作為生化除害劑，把會叮咬的昆蟲吸引到陷阱中。按照優良製造規範直接用作供人食用的食品配料的乳酸已被美國食物及藥物管理局列作“普遍認為安全”。此外，乳酸亦天然存在於奶類、肉類和水果等食物，以及乳酪和醃菜等發酵食品中。



大蒜提取物有除害劑功能
Garlic extract can be used as pesticide

殘餘物沒有明顯毒性或不會危害公眾健康

蔗糖辛酸酯是一組人工合成的物質，可用來控制農作物的昆蟲。根據現有的資料顯示，蔗糖辛酸酯的毒性偏低，在施用後會化解為無毒的天然物質。

蝗蟲微孢子蟲是單細胞微生物，用來控制椰菜等農作物的昆蟲。根據現有資料顯示，蝗蟲微孢子蟲看來對人體無害，遇到光線和暖和的環境會迅速喪失活性。

美國國家環境保護局認為，由上述兩種物質引起的食用安全風險相信微乎其微。

Some pesticides are safer than others. Pesticides that meet one of the following criteria are generally of relatively low public health risk –

- the use of the pesticides does not result in residues occurring in food;
- the residues are identical to or indistinguishable from natural food components; or
- the residues are of no toxicological significance or will not pose any public health risk.

Examples of these pesticides are discussed below:

The Use of the Pesticides Does Not Result in Residues Occurring in Food

Bacillus subtilis strain GB03, a bacterium, is a natural enemy of some fungi. It can be used on crop seeds (e.g. peanuts, wheat, peas and beans) to suppress plant diseases caused by fungi. Since the bacterium colonises plant roots, its residue is not expected in the produce once the seeds are planted.

Yeast that is commonly used for baking and brewing can also serve as a pesticide. Its hydrolytic products (i.e. “yeast extract hydrolysate from *Saccharomyces cerevisiae*”) can be used for the prevention of certain plant diseases in food crops, such as bacterial leaf spot disease of tomatoes and greasy spot diseases of citrus. Only a small amount is needed to achieve the desired effects and components of the yeast extract hydrolysate degrade rapidly in the environment, leaving little residue in food.

The Residues Are Identical to or Indistinguishable from Natural Food Components

Garlic is well regarded as a health food. Interestingly, its extract can be applied to various crops including cabbages, potatoes, carrot and berries to repel birds, insects or nematodes (round worms). Garlic extract has a long history of human consumption and harmful effect to humans is not expected.

Have you ever felt fatigue after rigorous exercise? You may like to blame the build-up of lactic acid in your muscle. However, lactic acid has a desirable effect of serving as a biochemical pesticide for attracting biting insects in traps. Lactic acid has been classified by the US Food and Drug Administration as Generally Recognized as Safe when used as a direct human food ingredient in accordance with [good manufacturing practice](#). Lactic acid is also naturally occurring in foods (e.g. milk, meat and fruits) as well as fermented food products (e.g. yoghurt and pickles).

The Residues Are of No Toxicological Significance or Will Not Pose Any Public Health Risk

Sucrose octanoate esters, a group of synthetic substances, can be used to control insects on crops. Available data indicated the sucrose octanoate esters are of low toxicity and they will decompose to natural harmless substances after application.

Nosema locustae, a single-celled micro-organism used to control insect in crops (e.g. cabbage). Available toxicological data shows that *N. locustae* does not appear to be hazardous to humans. In addition, it is rapidly inactivated by light and warm temperature.

The US Environmental Protection Agency (EPA) considered that food safety risks due to the above two substances are expected to be minimal.

各國公認的原則是，所有除害劑必須向主管當局註冊，然後才可用於務農中。除害劑的安全性和效用在註冊過程中會經過充分評估。即使有關當局認為無須就上述除害劑殘餘物訂出食物中的最高准許含量，但農民必須按照優良務農規範正確使用除害劑，把食物中的除害劑殘餘量及相應的食用安全風險減至最低。

As a well accepted principle, all pesticides have to be registered with the competent authority before application in agriculture. Their safety and efficacy will be thoroughly assessed during the registration process. Even though the establishment of a maximum permitted level in food has been considered not necessary for residues of the above pesticides, proper use in accordance with **Good Agricultural Practice** is a must so as to minimise the amount of residues in food and food safety risk.

紅潮與食物安全

Red Tide and Food Safety

食物事故點滴 Food Incident Highlight

八月中，本港西面及南面水域錄得多宗藻華（通常稱為紅潮）報告。漁農自然護理署（漁護署）指發現的紅潮是由 *Protopolykrikos distortus*（前稱旋溝藻）組成，屬無毒的紅潮品種。

In mid-August, a number of algal blooms, commonly known as red tides, were reported in western and southern waters of Hong Kong. According to the **Agriculture, Fisheries and Conservation Department (AFCD)**, the red tides spotted were formed by *Protopolykrikos distortus*, which is a non-toxic red tide causative species.

一般而言，大量微藻積聚或會阻塞魚鰓，令魚類窒息死亡。如涉及有毒藻類，可能會令受影響水域的貝類積聚毒素。這些毒素對貝類影響不大，但對人則有毒。

In general, dense concentrations of phytoplankton can clog fish gills and cause suffocation. When toxic algae are involved, the concentration of toxin in shellfish in the affected waters may increase. These toxins cause little effect on the shellfish, but are toxic to human.

政府於一九九八年成立紅潮／有害藻華管理框架，由漁護署負責統籌，以提供協調和監察及應付紅潮事件。為確保食物安全，食物安全中心（中心）除了透過日常監察計劃抽取樣本外，將會按照行動計劃加強抽樣工作。如出現可能有有害的藻類品種，中心會在受影響地區內分銷鏈涉及的零售店抽取樣本。

The government has established the **Red Tide/Harmful Algal Bloom (HAB) Management Framework** in 1998, with the AFCD as the coordinator, to provide coordination, monitoring and responses to red tide incidents. To ensure food safety, further to samples taken under the routine surveillance, the Centre for Food Safety (CFS) will step up sampling in accordance to the action plan. The CFS will take samples at retail outlets along the possible distribution chains of the affected areas if there is presence of potentially harmful species of algae.

血燕中的亞硝酸鹽

Nitrites in Blood-red Bird's Nest

近日，內地市面的血燕樣本驗出亞硝酸鹽含量偏高，令人關注燕窩可能添加了亞硝酸鹽，以產生討人喜愛的血紅色。

Recently, high levels of nitrites were detected in blood-red bird's nest samples in the Mainland market. There were concerns that nitrites might have been added to bird's nest to produce the desirable red colour.

燕窩是由金絲燕涎腺的分泌物製成，通常屬於中菜中的珍饈佳餚。人們對血燕為何會帶血紅色所知不多。

Bird's nest is made from secretions of Swiftlets' salivary glands and usually consumed as a delicacy in Chinese cuisine. The reason for the red colour of blood-red bird's nest is not entirely clear.

在本港，亞硝酸鹽不得添加在燕窩中，但亞硝酸鹽已知在某些情況下卻可能會天然存在於燕窩中。食物商應從可靠的供應商採購燕窩，確保他們出售或進口的所有食物適宜供人食用。人們通常會把燕窩浸泡數小時甚至過夜，再以乾淨清水徹底洗淨，這種做法可大幅降低亞硝酸鹽含量。由於亞硝酸鹽溶於水中，市民應棄掉浸泡燕窩的水才燉煮。



血燕 Blood-red bird's nest

Nitrites are not allowed to be added to bird's nest in Hong Kong, although it is known that they may exist naturally in bird's nest under certain conditions. Traders should source bird's nests from reliable suppliers and ensure all foods they sell or import are fit for human consumption. The common practice of soaking bird's nests for several hours, or even overnight, and washing them thoroughly with clean water can substantially reduce nitrite levels. Since nitrites are water soluble, The public should discard the water used for soaking bird's nest before cooking.

風險傳達 工作一覽 Summary of Risk Communication Work

風險傳達工作一覽（二零一一年八月） Summary of Risk Communication Work (August 2011)	數目 Number
事故/食物安全個案 Incidents / Food Safety Cases	76
公眾查詢 Public Enquiries	140
業界查詢 Trade Enquiries	231
食物投訴 Food Complaints	428
給業界的快速警報 Rapid Alerts to Trade	32
給消費者的食物警報 Food Alerts to Consumers	2
教育研討會/演講/講座/輔導 Educational Seminars / Lectures / Talks / Counselling	57
上載到食物安全中心網頁的新訊息 New Messages Put on the CFS Website	42