

食物安全焦點

Food Safety Focus



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Centre for Food Safety

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從神戶和牛談到香港的肉類進口管制 From Kobe Beef to Import Control of Meat in Hong Kong

食物安全中心
食物安全中心進/出口組
總監黃錫基先生報告

Reported by Mr. WONG Sek Kei, Superintendent,
Food Import & Export Section,
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最近有傳媒報道，首批神戶和牛已於二零一二年七月底由日本輸出到香港。神戶和牛可能是日本最享負盛名的牛肉，根據神戶肉流通推進協議會的資料，神戶和牛肉質鮮美的秘訣在於其肌肉中密集地分布着熔點低的雪花狀脂肪。以往神戶和牛只供日本內銷，但於二零一二年二月首度外銷到澳門，因而備受注目。讓我們藉此機會談談本港的肉類進口管制措施。

由於日本早年曾發現一宗牛海綿狀腦病(俗稱瘋牛症)個案，本港自二零零一年九月十九日起一度暫停從日本進口牛肉。其後經全面的評估後，食物安全中心(中心)對日本採取有關瘋牛症的加強監控措施感到滿意，故在二零零七年四月二十七日局部放寬對日本牛肉的進口限制。目前，從日本進口的牛肉，只限於取自年齡30個月以下牛隻的無骨牛肉，該等牛隻在屠宰時已去除腦部及脊髓等高風險部位。

肉類的進口管制

香港用以監管食物安全的法律條文，載於《公眾衛生及市政條例》(第132章)第V部及其附屬法例。

關於肉類進口管制的條文，載於《進口野味、肉類及家禽規例》(第132AK章)。肉類指衍生牛肉、羊肉、豬肉、小牛肉或羔羊肉的動物的肉或其他可食用的部分。該規例規定，輸港肉類須附有經認可的主管當局所簽發的衛生證明書，其中須證明肉類適宜供人食用。

每當進口肉類有新的來源地，中心都會根據出口國的下列資料作出評估：

- 監管肉類衛生標準的法例；
- 動物的疾病情況(就牛肉而言，例如瘋牛症風險狀況、監察計劃、動物飼料禁令及動物標識系統)；
- 獸醫及檢驗檢疫人員；

Recently there have been media reports that the first batch of Kobe beef was exported from Japan to Hong Kong in late July 2012. The media also has raised questions regarding the import control of meat in Hong Kong. Kobe Beef is probably the best known beef coming from Japan. According to the Kobe Beef Marketing & Distribution Promotion Association, Kobe beef has a high degree of fat marbling that melts at low temperature, which contributes to its distinctive meat quality. Kobe beef, used to be sold exclusively in Japan, was exported for the first time in February 2012, with Macao as its first destination. Let's take this opportunity to talk about import control of meat in Hong Kong.

The import of beef from Japan had been suspended since 19 September 2001 after the detection of a case of Bovine Spongiform Encephalopathy (BSE), commonly known as the mad cow disease. After a thorough assessment and having satisfied with the enhanced control measures implemented by Japan against BSE, the Centre for Food Safety (CFS) partially lifted the suspension on 27 April 2007. At present, only boneless beef from cattle less than 30 months of age with high risk materials, such as brain and spinal cord removed during slaughtering, is allowed to be imported from Japan.

Import Control of Meat

In Hong Kong, the legal framework of food safety control is laid down in Part V of the Public Health and Municipal Services Ordinance (Cap. 132) and its subsidiary legislation.

Import control of meat is governed by the Imported Game, Meat and Poultry Regulations (Cap. 132AK) (IGMPR). Meat means flesh or other edible part of an animal from which beef, mutton, pork, veal or lamb is derived. Under the IGMPR, imported meat must be accompanied with a health certificate issued by a competent authority. It should certify, among others, that the meat is fit for human consumption.

Whenever there is a new source of imported meat, the CFS will assess the following information of the exporting country:

- the legislation governing the hygiene standard of meat;
- the animal disease situation (such as BSE risk status, surveillance programme, animal feed ban and animal identification system in respect of beef);

焦點個案
Incident in Focus

- 出產禽畜的農場；
- 屠場的衛生標準；
- 加工處理廠的衛生標準；以及
- 肉類在屠宰前及屠宰後的檢驗程序。

如中心對肉類新來源地的食物安全準則感到滿意，並與出口國建立相關程序後，該國的肉類便可進口本港。

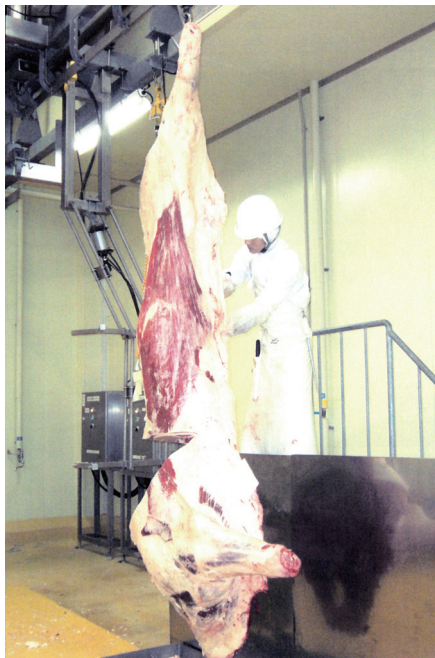
神戶和牛是來自日本兵庫縣的牛隻，而日本是進口牛肉至本港的准許來源地之一，故神戶和牛得以進口本港。

視察出口國的農場和肉類加工廠

中心一向採取“從農場到餐桌”的策略，保障本港的食物安全。為此，中心一直有派員到內地和海外國家的農場和肉類加工廠視察，為食物安全把關。

食物監察計劃

倘若中心對新來源地首六個進口批次的肉類的檢驗結果感到滿意，該來源地其後的批次將納入恆常食物監察計劃。本中心人員會在入口、批發和零售三個層面不時抽取食物樣本，進行各種測試。中心每年檢查的進口肉類逾8 000批次(見表一)。



視察日本的牛隻屠宰場
Inspection of bovine slaughtering plant in Japan

- the veterinarians and quarantine inspection personnel;
- the farm where the livestock are produced;
- the hygiene standard of slaughterhouses;
- the hygiene standard of the processing plants; and
- the ante-mortem and post-mortem inspection procedures.

When the CFS has satisfied with the criteria of food safety in respect of meat from the prospective new source and has established a protocol with the exporting country, meat can be imported into Hong Kong.

As regards Kobe beef, it is derived from cattle in Hyogo Prefecture, Japan. As Japan is an approved source for import of beef into Hong Kong, import of Kobe beef is allowed.

Inspection of Farms and Meat Processing Plants of Exporting Countries

Adopting the concept of “from farm to table” to ensure food safety, the CFS conducts inspections of farms and meat processing plants in the Mainland and overseas countries.

Food Surveillance Programme

After the CFS is satisfied with the test results of the first six imported meat consignments from a new source, subsequent consignments will be put under the regular food surveillance programme. Samples will be taken at import, wholesale and retail levels for testing on random basis. Over 8 000 imported consignments of meat are inspected by the CFS every year (Table 1).

表一：在進口層面監察肉類
Table 1: Surveillance of Meat at the Import Level

年份 Year	2009	2010	2011
檢查肉類批次數目 No. of consignments of meat inspected	8 411	10 700	10 426
檢測樣本數目 No. of samples taken for examination	1 837	1 107	1 877
不合格的樣本數目 No. of unsatisfactory samples	1	4	4

過去三年，共有九個因驗出獸藥殘餘超出法定標準而不合格的樣本。中心已採取適當的跟進措施，包括追查來源、發警告信、抽取跟進樣本，以及視乎情況作出檢控。中心已於二零一二年七月抽取神戶和牛的樣本作化學分析及輻射水平檢測，結果全部合格。

給市民和業界的建議

- 向可靠及可以追溯來源的商鋪採購肉類。
- 冰鮮和冷藏肉類須分別存放在攝氏0度至4度，以及零下18度的冷藏庫內。
- 輸入／攜帶生的肉類入境而沒有衛生證明書屬違法行為。

In the past three years, there were nine unsatisfactory samples due to the presence of veterinary drug residues exceeding the legal limit. Appropriate follow-up actions, including source tracing, issuance of warning letter, follow-up sampling and prosecution, if applicable, have been taken by the CFS. Samples of Kobe beef were taken by the CFS in July 2012 for chemical analysis and testing of radiation level, and the results were satisfactory.

Advice to the Public and Trade

- Purchase meat from reliable and traceable source.
- Store chilled and frozen meat in refrigerator at a temperature between 0°C and 4°C, and at -18°C respectively.
- It is a contravention of the law to import/bring into Hong Kong any raw meat without a health certificate.

食物中的黃曲霉毒素 Aflatoxins in Food

食物安全中心
風險評估組
科學主任游天頌先生報告

Reported by Mr. Arthur YAU, Scientific Officer,
Risk Assessment Section,
Centre for Food Safety

我們一連三期介紹食物中的霉菌所產生的毒素，本文為該系列之二，主要探討食物中最常見的霉菌毒素——黃曲霉毒素。

黃曲霉毒素是甚麼？

黃曲霉毒素是由黃曲霉菌屬 (*Aspergillus*) 的一些霉菌(包括黃曲霉、寄生曲霉及 *A. nomius* 等)產生的二次代謝物。科學家在60年代開始對霉菌毒素進行現代化研究時，發現一種由黃曲霉菌產生的毒素，遂命名為“黃曲霉毒素”。黃曲霉毒素耐熱，在一般的烹調溫度下不易被破壞。

黃曲霉毒素是一組天然存在的毒素，主要包括B₁、B₂、G₁及G₂四類。在各類黃曲霉毒素中，以黃曲霉毒素B₁最常見，毒性最大，引致肝癌的能力最強。黃曲霉毒素G₁、M₁、B₂和G₂導致細胞產生突變的程度依序遞減。黃曲霉毒素M₁和M₂多在奶類和奶類產品中發現。

黃曲霉毒素藏在哪？

黃曲霉毒素多見於熱帶地區。濕度高、溫度高的環境，加上發展中國家的農作物在收成後沒有作適當的處理和貯存，往往令花生、玉米、穀物、棉籽、木本堅果、部分香料等農作物受到污染。另一方面，當乳牛吃了受黃曲霉毒素B₁和B₂污染的飼料後，毒素會分別轉化為毒性較小的黃曲霉毒素M₁和M₂，主要存在於乳汁中，部分積存在肝臟和腎臟中。

黃曲霉毒素對健康的影響

很多人都知道黃曲霉毒素會導致肝癌。國際癌症研究機構把所有天然存在的黃曲霉毒素列為令人類患癌的物質，而黃曲霉毒素M₁則被列為或可能令人類患癌的物質。有些研究人員認為，黃曲霉毒素對帶有乙型或丙型肝炎病毒的人致癌作用比較明顯。乙型肝炎是本港的常見病，約有8-10%的成人是這種病毒的攜帶者。目前，研究人員仍在研究黃曲霉毒素與肝炎病毒的相互影響。

另外，黃曲霉毒素還會誘發肝細胞產生突變，在黃曲霉毒素B₁、G₁、G₂和B₂中，以黃曲霉毒素B₁的誘發作用最強。一些動物實驗結果顯示，黃曲霉毒素很可能影響免疫系統和令發育遲緩。至今仍不時聽聞發展中國家發生黃曲霉毒素急性中毒事件。

減少食物中的黃曲霉毒素

黃曲霉菌屬的各種霉菌在大自然中無處不在，要完全消除食物中的黃曲霉毒素是不可能的。即使如此，還是有辦法減少糧食供應中的黃曲霉毒素分量。只要採用適當的農耕作業，便能減少植物因生長條件欠佳而在收成前受黃曲霉毒素污染的機會。各方應集中精力，使糧食中的黃曲霉毒素含量盡可能減到最低，那些含量超標的不應作為食物。

在收成時，如天氣許可的話，宜待農作物成熟才收割。收割好的農作物應盡快烘乾，剔除受損的農作物對防治黃曲霉毒素污染也有幫助。農作物收成後應貯存在溫度

This is the second article in a series of three on mould toxins in food. This article will focus on the most commonly encountered mould toxins in food – the aflatoxins.

What are Aflatoxins?

Aflatoxins are the secondary metabolites from a number of mould of the *Aspergillus* family, which include *A. flavus*, *A. parasiticus* and *A. nomius* etc. The name “aflatoxin” itself was taken from “*Aspergillus flavus toxin*”, when the toxin was isolated during the early days of modern mycotoxin research in 1960s. Aflatoxins are heat-resistant and can withstand exposure to normal cooking temperatures.

There are a number of naturally-occurring aflatoxins, which include aflatoxin B₁, aflatoxin B₂, aflatoxin G₁ and aflatoxin G₂. Among them, aflatoxin B₁ is the most common, the most toxic and the most potent in terms of causing liver cancer in human. Aflatoxins G₁, M₁, B₂, G₂ are in order of decreasing strength in terms of causing cell mutations. Aflatoxins M₁ and M₂ are mostly found in milk and milk products.

Where are Aflatoxins Found?

Aflatoxins occur mainly in the tropical regions of the world. The high humidity, high temperature of the environment, combined with less than ideal handling and storage of crops after harvest in developing countries, cause them to be more commonly found in a variety of crops like peanuts, maize, cereals, cottonseeds, tree nuts and some spices etc. On the other hand, when aflatoxins B₁ and B₂-contaminated crops are fed to cows, they are converted to the less potent aflatoxins M₁ and M₂ respectively and can be found mainly in milk, but also in the liver and kidneys.

Health Effect of Aflatoxins

Aflatoxins are best known for their potential in causing liver cancer. The International Agency for Research on Cancer has classified all naturally occurring aflatoxins to be carcinogenic and aflatoxin M₁ to be possibly carcinogenic to humans. Some researchers suggest that the effect of aflatoxin B₁ in causing cancer is stronger in people carrying hepatitis B virus or hepatitis C virus. Hepatitis B is a common disease in Hong Kong and some 8-10% of the adult population are carriers. Researches on the interaction between aflatoxins and hepatitis viruses are still ongoing.

Aflatoxins also cause cell mutations in liver. The effect is found to be strongest in aflatoxin B₁ than in aflatoxins G₁, G₂ and B₂. Other researches in animals suggest that they possibly affect the immune system and impair growth. Cases of acute aflatoxin poisoning are still known to happen sporadically in developing countries.

Reduction of Aflatoxins in Food

Since *Aspergillus* species are ubiquitous in nature, it is not possible to totally eliminate aflatoxins from food. However, there are methods that can help reduce the amount of aflatoxins in the food supply. Proper agricultural practices can reduce the chance of stressing the plants, which in turn lower the possibility of pre-harvest aflatoxin contamination. Efforts should be focused on keeping aflatoxin levels in food as low as reasonably possible and those exceed legal limit should not be used as food.

During harvesting, crops should best be harvested at maturity if the weather permits. The harvested crops should then be dried as



玉米和花生等農作物因受霉菌感染而帶有黃曲霉毒素(照片由International Maize and Wheat Improvement Center提供)
Aflatoxins can exist in crops like maize and peanuts as a result of mould infestation (Photo by courtesy of International Maize and Wheat Improvement Center)

和濕度適中的地方，以抑制霉菌生長。食品生產商亦應確保收到的原材料中的黃曲霉毒素含量符合安全標準。

消費者應把食物存放在陰涼乾燥的地方，如發現食物有發霉的跡象，便應棄掉。

下一期我們會繼續談談其他種類的霉菌毒素。

quickly as possible and removal of damaged products also helps. The crops should then be stored at proper temperature and humidity to minimize mould growth. Food manufacturers should also ensure that the aflatoxin level in raw materials they received complies with the safety standards.

Consumers should store food under dry and cool condition and discard food with signs of mould infestation.

We shall talk about other types of mould toxins in food in the next issue.

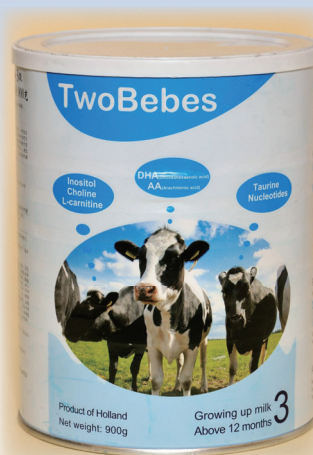
食物事故點滴
Food Incident Highlight

配方奶粉含沙門氏菌

中心上月接獲歐洲聯盟委員會食品和飼料快速預警系統的通報，指韓國出產的一款膳食纖維（半乳寡糖）樣本受沙門氏菌污染。該款膳食纖維已製成各種食品，並已分銷至荷蘭、英國、美國及中國等多個國家。本港出售的一款配方奶粉亦發現曾用這款膳食纖維作原材料。中心一方面立即向業界發出警報，要求停止出售有關產品；另一方面，向市民發出食物警報，警告市民切勿食用問題產品。

感染沙門氏菌可引致發燒，嘔吐、肚痛及腹瀉等。這類致病菌對免疫力較低的人士可能有較嚴重的影響，有時甚至可引致死亡。

嬰幼兒配方奶粉並非無菌產品，一旦受致病菌污染，可引致嚴重疾病。奶粉應以不低於攝氏70度的熱水來沖調，然後冷卻至適當溫度來餵飼嬰幼兒。沖調好的奶應在兩小時內飲用。



受影響產品 - 淘比斯幼兒成長
配方奶粉 3段
The affected product "TwoBebes
Growing up milk 3"

Salmonella in Powdered Formula

Last month, the Centre for Food Safety (CFS) received a notification from the Rapid Alert System for Food and Feed of the European Commission that a kind of dietary fibre (Galacto-oligosaccharide, GOS) produced in Korea was contaminated with *Salmonella*. This ingredient has been used in various food products distributed to many countries including the Netherlands, United Kingdom, United States and China. One powdered formula with this ingredient was available in Hong Kong. The CFS has immediately alerted the trade to stop sale and issued a food alert warning the public not to consume the affected product.

Salmonella infection may cause fever, vomiting, abdominal pain and diarrhoea. The effects on people with lowered immunity could be more severe and sometimes may even lead to death.

Powdered formula for infants and young children is not a sterile product and, if contaminated with pathogens, can cause serious illness. It should be reconstituted with water not less than 70°C and cooled down to a suitable temperature for feeding. Reconstituted milk should be consumed within two hours.

採撈貝類消閒活動

夏日炎炎，採撈貝類海產，例如摸蜆，成為熱門的消閒活動。有些人還會把自己撈獲的蜆貝烹調享用。但是，食用這些貝類海產安全嗎？

多個摸蜆熱點如東涌灣和烏溪沙附近的白石泥灘等都離市區很近。如水質受污染，在該處棲息的貝類或會含致病原，例如諾如病毒及／或重金屬等。此外，貝類的殼邊鋒利，市民要小心被割傷，尤其要慎防傷口受創傷弧菌感染——一種可以致命的嚴重感染。

食物安全中心建議市民切勿食用自行撈獲的貝類。市民應從可靠的零售店鋪購買貝類海產。處理時，要洗擦其外殼，然後徹底煮熟。進食前，應棄掉其汁液。最後，值得一提的是，雖然徹底煮熟可以消滅致病菌，但化學污染物仍然存在，還是有食物安全之虞。因此，市民應保持飲食均衡，進食多種食物，以減少有關風險。

Recreational Shellfish Harvesting

Recreational shellfish harvesting, for example clam digging, is fun to do in summer. Some individuals also enjoy the taste of their harvest. But are these shellfish safe to consume?

Most visited local bays for recreational shellfish harvesting, such as Tung Chung Bay and Whitehead near Wu Kai Sha are close to urban areas. If the water is polluted, shellfish living there may contain pathogens, including norovirus and/ or heavy metals. Furthermore, precaution should be taken as shellfish have sharp edges which can cause serious injury, particularly if wounds are infected by *Vibrio vulnificus* – a life-threatening infection.

The Centre for Food Safety advises the public not to consume recreationally harvested shellfish. The public should purchase shellfish from reliable retailers, wash them thoroughly, have them fully cooked and discard any cooking liquid before consumption. Last but not least, while thorough cooking can kill pathogens, chemical contaminants still remain and pose a food safety risk. Therefore, one should maintain a balanced diet with a variety of food to minimise any associated risks.

風險傳達
工作一覽
Summary of
Risk Communication Work

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