

食物安全焦點

Food Safety Focus



食物安全中心
Centre for Food Safety

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食物安全中心
屠房(獸醫)組
Michael HWANG 獸醫報告
Reported by Dr. Michael HWANG, Veterinary Officer,
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Centre for Food Safety

二零一六年八月四日,有內地進口豬隻的尿液樣本經初步測試後發現含違禁獸藥殘餘。政府化驗所翌日證實尿液樣本含沙丁胺醇殘餘,但部分豬隻已被屠宰並流入市面,恐已被市民食用,幸而後未有接獲相關的食物中毒報告。

什麼是沙丁胺醇?

沙丁胺醇是一種乙類促效劑。乙類促效劑屬人工合成物質,能刺激所有身體組織(包括骨骼肌肉)的腎上腺素能 β 受體。沙丁胺醇有支氣管擴張作用,可舒緩呼吸困難,是治療哮喘病人的常用藥物。但是,本港禁止把沙丁胺醇用於食用動物。

本港的規管情況

根據《公眾衛生(動物及禽鳥)(化學物殘餘)規例》(第139N章),目前有七種禁藥和37種受管制藥物受到監管。七種禁止用於食用動物的禁藥包括兩種乙類促效劑(沙丁胺醇和鹽酸克崙特羅)、兩種抗生素和三種激素。而受管制的37種藥物多為抗生素,法例規定這些藥物在動物

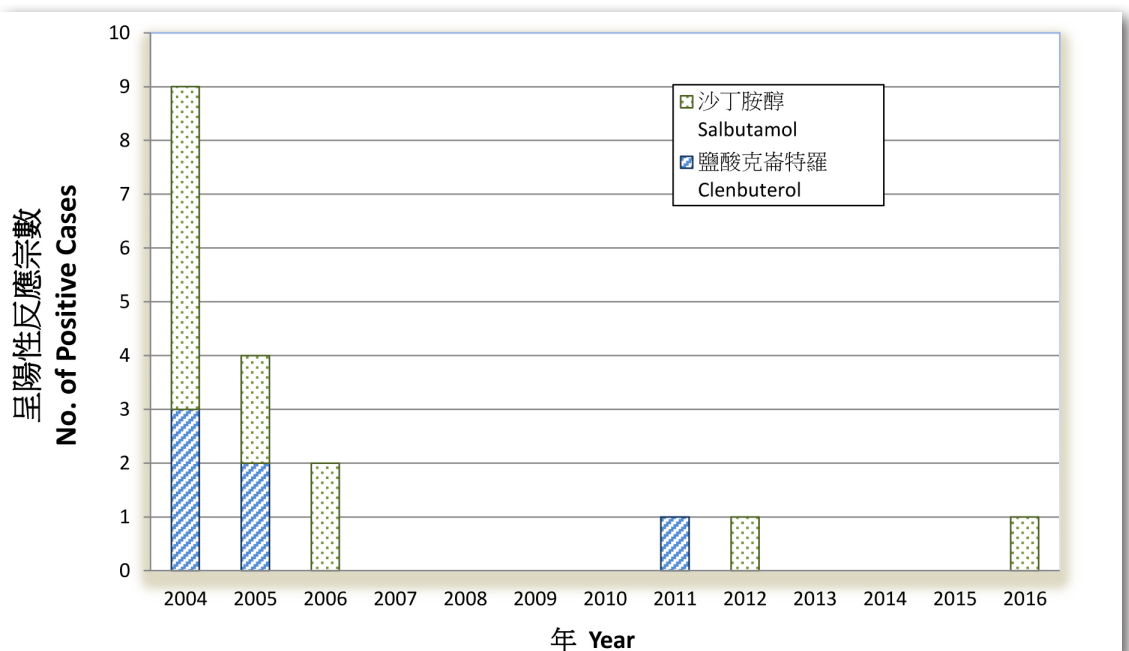
On 4 August 2016, imported pigs from the Mainland upon preliminary screening tests of urine samples were found to contain prohibited veterinary drug residues. On the following day, the Government Laboratory confirmed that the urine samples contained residues of salbutamol. During the course of events, some of the affected pork and pig offal slaughtered and had been discharged to the market. There was the possibility that some of the affected products were consumed by the public, but fortunately there were no subsequent reports of food poisoning.

What is Salbutamol?

Salbutamol is a β -agonist drug, which belongs to a group of synthetic compounds affecting β -adrenergic agonist receptors located in all body tissues, including the skeletal muscle. In humans, it is commonly used to treat patients with asthma. It functions by opening the airways and making breathing easier. Salbutamol, however, is not permitted for use in food animals in Hong Kong.

Regulatory Control in Hong Kong

Presently there are seven prohibited drugs and 37 restricted drugs under monitor control in accordance to the Public Health (Animals and Birds) (Chemical Residues) Regulation (Cap. 139N) in Hong Kong. The seven prohibited drugs which are not allowed to be used in food animals include two β -agonists (salbutamol and clenbuterol), two antibiotics and three hormones. The remaining 37 restricted drugs are mainly antibiotics and the drug's concentration in tissue must not exceed the maximum residue limit. In addition,



豬隻在屠宰前抽取尿液樣本作乙類促效劑檢測的統計數據
Statistics on Sampling and Testing of Urine from Pre-Slaughtering Pigs for β -agonists

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焦點個案
Incident in Focus

組織中的濃度不得超過訂明的最高殘餘限量。此外，沙丁胺醇亦同時受《食物內有害物質規例》(第132AF章)規管。

自一九九八年起，本港屠房便實行檢驗制度，抽取食用動物的尿液作獸藥殘餘測試。進入本港屠房的每批豬隻，均會被隨機抽取尿液樣本。倘發現有樣本未能通過檢測，有關批次便會被人道毀滅，屠體亦會被銷毀。政府每年平均會抽取五萬個樣本作化驗，以往曾有樣本被檢出含鹽酸克崙特羅和沙丁胺醇(見圖)。

乙類促效劑尚有很多種，其中包括萊克多巴胺。萊克多巴胺已於二零零七年在本港註冊，獲准按標籤指示在食用動物身上使用以提高產肉量。

乙類促效劑在農業上的應用

早於一九六三年，已有大量文獻記載在農場動物飼料中添加乙類促效劑的好處，包括提高餵飼效率、促進生長，令動物少長脂肪(增加瘦肉比例)和增加產肉動物的肌肉量等。到了九十年代初，由於各地相繼爆發因食用含乙類促效劑(鹽酸克崙特羅)的牛肝而引起的中毒事故，歐盟禁止畜牧業使用乙類促效劑，乙類促效劑的光環亦開始逐漸褪色。

消費者愈來愈關注食物風險(有害化學物殘餘)和個人健康，對優質瘦肉的需求亦逐漸增加。他們要求肉類不但安全而且健康。肉類的品質通常取決於成分質量(肥瘦比例)和多項適口性因素，如外觀、氣味、結實度、多汁性、嫩度和風味等。肉類的營養品質是客觀的，但食用品質卻全憑個人感覺，是非常主觀的。一種食物給人感覺健康與否受很多因素影響，而瘦肉多卻能令消費者視覺上感到肉質健康優良。由於消費者的這種認知，業界存在誘因繼續使用乙類促效劑。

對市民健康的影響

不當使用乙類促效劑(包括鹽酸克崙特羅和沙丁胺醇)可令其殘留在食用組織中，對消費者的健康造成影響。研究顯示，鹽酸克崙特羅在食用組織中非常耐熱，經攝氏100度沸水煮過後仍呈穩定狀態。一般家居烹調方法(例如以沸水烹煮、烤焗、煎炒和以微波爐烹煮)均不能消除這些殘餘。而且研究人員發現有小量藥物由組織遷移到旁邊的液體或肉汁。鹽酸克崙特羅和沙丁胺醇的中毒症狀包括精神緊張、頭痛、顫抖、口乾、胸痛或胸悶、心率過速或不整、痛楚蔓延至手臂或肩膀、噁心、出汗、眩暈、癲癇(抽搐)、頭暈或昏倒。

香港曾發生鹽酸克崙特羅中毒個案，當中大部分與進食受污染的內臟(尤其是豬肺和豬肝)有關。在一九九八年至二零零三年期間，衛生署衛生防護中心共錄得70宗鹽酸克崙特羅中毒確診個案，涉及163人。二零零三年至今未有接獲新個案。衛生防護中心在同一時期內並無錄得與沙丁胺醇有關的食物中毒個案。

注意要點

1. 根據香港法例，鹽酸克崙特羅和沙丁胺醇均為違禁物質。
2. 本港設有監察制度，檢測食物是否含違禁獸藥殘餘。
3. 所有不適宜供人食用的肉類及肉類製品均獲妥善處置。

給業界的建議

- 鹽酸克崙特羅和沙丁胺醇是違禁物質，嚴禁對食用動物施用。
- 採購肉類及其製品時應光顧可靠的供應商。

給市民的建議

- 購買肉類及其製品時應光顧可靠及持牌的肉店。

salbutamol is also controlled under the Harmful Substances in Food Regulations (Cap. 132AF).

The urine testing system for drug residue has been implemented since 1998 in slaughterhouses. Random urine samples are collected for every batch of pigs admitted to the slaughterhouses in Hong Kong. The affected animals are identified, humanely destroyed and the entire carcass disposed of. On average 50 000 food animal samples are collected yearly and surveillance results have detected the presence of clenbuterol and salbutamol in the past (see Figure).

There are other β -agonists, including ractopamine. Ractopamine has been registered in Hong Kong since 2007 and it can be used in accordance to the label instructions, in food animals to produce meat.

β -agonists Usage in Agriculture

As early as 1963, the positive effects of β -agonist as a feed additive in farm animals, including improved feed efficiency, increased growth rate, altered adipose accretion (improved carcass leanness), increased muscle mass in meat producing animals were well documented. The appeal of its benefits in agricultural use waned in the early nineties, following intoxication outbreaks attributed to consumption of livers from cattle treated with β -agonist (clenbuterol) and a subsequent ban on their use by the European Union.

Consumers have become increasingly concerned about food-borne risk (harmful chemical residues) and personal health and subsequently there is an increasing demand for high quality lean meat. There is an emphasis on meat that is not only safe, but also healthy. Meat quality is normally defined by the compositional quality (lean to fat ratio) and the palatability factors such as visual appearance, smell, firmness, juiciness, tenderness and flavour. The nutritional quality of meat is objective yet "eating" quality, as perceived by the consumer, is highly subjective. The perception of the healthiness of foods is influenced by various factors and improving the carcass leanness is a visual cue providing credence to the consumer of healthy, quality meat. This similarly provides the necessary impetus for the industry to pursue the continued use of β -agonists.

Public Health Significance

Inappropriate use of β -agonists (including clenbuterol and salbutamol) may leave residues in edible tissues that are of health concern for consumers. Clenbuterol studies show that it is heat stable in edible tissue and the drug has been shown to be stable in boiling water at 100°C. Ordinary home cooking methods such as boiling, roasting, frying and microwaving cannot eliminate its residues and there is little observed migration of the drug from the tissue into the surrounding liquid or meat juices. Overdose symptoms of clenbuterol and salbutamol may include nervousness, headache, tremor, dry mouth, chest pain or heavy feeling, rapid or uneven heart rate, pain spreading to the arm or shoulder, nausea, sweating, dizziness, seizure (convulsions), feeling light-headed or fainting.

In the past, clenbuterol poisoning cases have occurred in Hong Kong, mainly related to the consumption of tainted offal, in particular lungs and livers from pigs. From 1998 to 2003, the Centre for Health Protection (CHP) of the Department of Health recorded 70 confirmed food poisoning cases related to clenbuterol affecting 163 persons. No cases have occurred since 2003. In the same period CHP did not record any food poisoning case related to salbutamol.

Key Points to Note

1. Clenbuterol and salbutamol are prohibited substances under Hong Kong legislation.
2. Surveillance is conducted to monitor for the presence of illegal veterinary drug residues.
3. All meat and meat products which are not suitable for human consumption are properly disposed of.

Advice to the Trade

- Clenbuterol and salbutamol are prohibited substances and must not be used in food animals.
- Obtain meat and meat products from reliable sources.

Advice to the Public

- Purchase meat and meat products from reliable and licensed stores.

解讀食物標籤 – “此日期前最佳” 與 “此日期或之前食用” 的分別

Understanding Food Labels – “Best Before” VS “Use By” Dates

食物安全中心
風險評估組
科學主任馬嘉明女士報告

Reported by Ms. Janny MA, Scientific Officer,
Risk Assessment Section,
Centre for Food Safety

大家應該都不乏購買食物的經驗，但不是所有人都清楚“此日期前最佳”和“此日期或之前食用”這兩種日期的區別。

標示日期

在香港，政府制訂並執行一系列有關食物的法例，以保障食物安全。為了讓消費者在安全的情況下充分善用食物，本港和澳洲、新西蘭和歐盟等地一樣，設有規例規定預先包裝食物須加上說明適當保質期的可閱標記或標籤，即“此日期前最佳”或“此日期或之前食用”日期。

Everyone should have experiences in buying food. However, some consumers may be confused about the wordings “best before” or “use by” together with the date listed.

Date Marking

In Hong Kong, a set of food law has been developed and implemented to ensure food safety. In order to help consumers make safe and optimum use of food, local regulation which is in line with standards adopted in other places, e.g. Australia, New Zealand and the European Union, requires prepackaged food to be legibly marked or labelled with an appropriate durability indication, i.e. a “best before” or “use by” date.

常見謬誤 Common Misconceptions

✗ “此日期前最佳” 和 “此日期或之前食用” 是一樣的。

事實：“此日期前最佳” 關乎食物質素。該日期表示食物若加以適當貯存，可合理地預期在該日及該日之前食物能保存其特質。相反，“此日期或之前食用” 關乎食物安全，適用於從微生物學觀點來看，極容易腐壞，因而在一段短時間後可能對人類健康構成即時危險的食物。

✗ 不管是“此日期前最佳” 還是“此日期或之前食用” 日期，反正吃過期食物就是不安全。

事實：進食過了標示“此日期或之前食用” 期限的食物並不安全，因為這些食物即使外觀和味道正常，但有害微生物以及引致食物中毒的微生物所產生的毒素已可能存在及/或大量生長。相反，標示“此日期前最佳” 的食物，過期後雖然食物質素可能不如前，但食用仍可接受。以方包為例，過期方包可能變得又乾又硬，但可能仍然是安全的。

✗ 某些食物必須標示某種日期。

事實：目前，對於哪種食物必須標示哪種食用日期並沒有明確規定。業界特別是生產商最清楚其產品的特性，故有責任適當地選擇標示“此日期前最佳” 或“此日期或之前食用” 日期，讓消費者知所選擇。生產商在決定標示“此日期前最佳” 還是“此日期或之前食用” 日期時應諮詢專業人員的意見。

✗ “Best before” and “use by” dates are the same.

Fact: A “best before” date relates to food quality. If the food is stored properly, it can reasonably be expected to retain its specific properties up to and including the specified date. Yet, a “use by” date relates to food safety. From microbiological point of view, the food is highly perishable and is therefore likely after a short period to constitute an immediate danger to human health.

✗ It is unsafe to eat any food beyond the designated date regardless it is “best before” or “use by”.

Fact: After the “use by” date, the food may be unsafe to eat (due to the presence and/or excessive growth of harmful microorganisms as well as toxins produced by food poisoning microorganisms) even if it looks and smells fine. However, beyond the “best before” date, the food may still be acceptable to eat though it may have lost some of its quality, e.g. a loaf of plain bread after its “best before” date may still be safe to eat but may become dry and leathery.

✗ Certain type of food should carry a particular type of date mark.

Fact: Currently, there is no definitive list of which foods should carry a particular type of date mark. As traders, particularly the manufacturers, are the ones who understand the properties of their products best, they have the responsibility to set the appropriate date mark for consumers to make informed food choices. They should consult with technical experts on the microbiological risks posed by their products before giving a “use by” or “best before” date mark.

“此日期前最佳” 主要指食物質素
“BEST BEFORE” refers mainly to FOOD QUALITY



此日期前最佳：2016年10月1日
Best before: 1 Oct 2016

食物過期後雖然不在最佳狀態，但還能吃

可能還能吃
May still be OK

食物例子：
罐頭、乾製及冷藏食物等
Food examples:
Canned, dried, frozen food, etc.

Food can be eaten AFTER this date but it may no longer be at its best quality

“此日期或之前食用” 主要指食物安全
“USE BY” refers mainly to FOOD SAFETY



此日期或之前食用：2016年10月1日
Use by: 1 Oct 2016

WARNING 警告

食物在到期日當天還可以吃，但過期後即使外觀和味道無異，也不能吃

食物例子：
三文治、壽司、刺身等
Food examples:
Sandwiches, sushi, sashimi, etc.

Food can be eaten UP UNTIL THE END of this date but not after, even if it looks and smells fine

≠

此日期前最佳” ≠ “此日期或之前食用”
“Best before” ≠ “Use by”

貯存指示

如食物在貯存時需要某些特定條件，食物的標籤上除了註明“此日期前最佳”或“此日期或之前食用”日期外，還須加上貯存方式指示，以確保消費者以正確的方式處理食物。如食物貯存不當，可能還未到期，引致食物中毒的細菌(如沙門氏菌及李斯特菌等)數量已增長至令人致病的程度。舉例來說，把一盒即食的冷藏切片凍

Storage Directions

When special conditions are required for the storage of food, on top of a “use by” or “best before” date, storage directions should also be included in food labels to ensure the food is properly handled by consumers. It is because if the food is not stored correctly, food poisoning bacteria such as Salmonella spp. and Listeria monocytogenes can grow to levels that may cause illness, even well before the date on the package. For instance, if a

肉拿出雪櫃放在室溫數小時，即使未過期，可能已不能再供安全食用。

貯存指示亦包括食物開封後的貯存方式(例如“開封後冷藏”、“七天內食用”)。大家必須注意的是，“此日期前最佳”和“此日期或之前食用”日期均只適用於未開封的產品。食物一旦開了封，有關保質期就不能作準！

給市民的建議

- 購買及進食食物時應留意“此日期前最佳”或“此日期或之前食用”日期。
- 切勿進食或捐獻已過了“此日期或之前食用”日期的食物及留意過了“此日期前最佳”日期食物的品質。
- 遵循生產商的指示，妥為貯存食物。

給業界的建議

- 切勿出售或送出已過“此日期或之前食用”日期的食物。
- 如出售已過“此日期前最佳”日期的食物，應確保食物仍然適宜供人食用。
- 在決定標示“此日期前最佳”還是“此日期或之前食用”日期時諮詢專業人員的意見。

pack of ready-to-eat refrigerated deli meat is taken out of the fridge and left at room temperature for several hours, it will no longer be safe for consumption thereafter, even if the date has not expired.

These directions may also indicate how to store the food once the package is opened (e.g. “Refrigerate after opening”, “Consume within seven days”). It should also be noted that both “use by” and “best before” dates apply only to unopened products. Once opened, the durability of a food may change!

Advice to the Public

- Take note of the “use by” or “best before” date of the food items before purchase or consumption.
- Do not eat nor donate food beyond its “use by” date, and be wary of the quality of food beyond the “best before” date.
- Always follow manufacturer’s direction for proper storage.

Advice to the Trade

- Do not sell food nor give away food after its “use by” date.
- Ensure food sold after its “best before” date is still fit for human consumption.
- Consult with technical experts before giving a “use by” or “best before” date mark for a food.



食用雞泡魚 - 死亡之吻

衛生署衛生防護中心上月報告一宗懷疑與進食河豚魚乾有關的中毒個案。患者提供的河豚魚乾樣本經化驗後證實含有河豚毒素，食物安全中心隨即發出食物警報。

進食河豚及其製品猶如死亡之吻，因為河豚毒素毒性強烈，足以致命！河豚毒素主要由海洋細菌產生，通過食物鏈積聚在河豚體內。除了魚卵、魚肝和魚皮外，河豚的其他部分(如花膠和肉)也有可能被河豚毒素交叉污染。河豚毒素非常耐熱，在烹煮和乾燥等食物配製過程後多仍留在魚的組織內。

在二零零五年至二零一六年八月三十一日期間，衛生防護中心共錄得23宗河豚毒素中毒個案，涉及40人。現時並無已知的解毒劑可消解河豚毒素。因此，避免進食河豚的所有部分，才是預防河豚毒素中毒的最佳方法。業界須注意，如所售賣的食物不適宜供人食用，一經定罪，可被判罰款及監禁。

Eating Puffer Fish – A Kiss of Death

Last month, the Centre for Health Protection (CHP) of the Department of Health (DH) reported a poisoning case related to the consumption of dried puffer fish bought locally. Subsequently, the Centre for Food Safety issued a food alert upon confirming the concerned product sample provided by the patient contained tetrodotoxin (TTX).

Eating puffer fish and its product is a kiss of death by TTX, a potentially lethal toxin produced primarily by marine bacteria and accumulated in puffer fish via the food chain. Besides the liver, eggs and skin, TTX may also be present in other parts of puffer fish (e.g. maw and flesh) as a result of cross-contamination. TTX is heat-stable, therefore likely remains in fish tissue even after cooking or drying.

From 2005 to 31 Aug 2016, CHP recorded a total of 23 cases of TTX poisoning affecting 40 persons. Currently, there is no known antidote for TTX poisoning, thus avoid consuming puffer fish (all parts) is the best way to prevent it. The trade is reminded that selling food unfit for human consumption may be subject to a fine and imprisonment upon conviction.

豉油內的4-甲基咪唑致癌風險低

上月，有調查發現本港一些豉油樣本含可能致癌的4-甲基咪唑。4-甲基咪唑是准許染色料醬色III及醬色IV(多用於豉油、可樂類飲料和啤酒等食品)在生產過程中產生的微量雜質。另外，咖啡豆或肉類在烤烘時也會衍生4-甲基咪唑。國際食物安全規管機構認為，人們進食含醬色III和醬色IV的食物而攝入的4-甲基咪唑量，一般不會造成健康問題。風險評估顯示，一名體重60公斤的消費者，每天食用多至300茶匙調查中4-甲基咪唑濃度最高(百萬分之15.9)的豉油，仍未達令啞齒類動物致癌的劑量。

雖然如此，食物安全中心仍然呼籲焦糖色素生產商仍應在技術許可的情況下，把4-甲基咪唑的含量減到最少。另外，食物生產商在使用食物色素時，分量應限於達到預期增色用途所需的最低分量。消費者可查看食物標籤是否標示含有焦糖色素，特別列明醬色III和醬色IV或其編號(150、150c和150d)，便可知所選擇。

Cancer Risk from 4-Methylimidazole in Soy Sauce is Low

Last month, a local survey found some soy sauce samples containing a possible carcinogen, 4-methylimidazole (4-MEI). During the manufacturing of permitted colourings caramel III and IV (used in soy sauce, cola-type beverages, beer, etc.), 4-MEI is formed as a trace impurity. 4-MEI may also be formed naturally when roasting coffee beans or meats. International food safety authorities consider the exposure level to 4-MEI from foods containing caramel III and IV does not give rise to health concern. Risk assessment has shown a 60-kg individual consuming up to 300 teaspoons of the soy sauce with the highest level of 4-MEI detected in the survey (15.9 ppm) every day will not reach the doses that can cause cancer in rodents.

Nevertheless, the Centre for Food Safety advises the manufacturers of caramel colours to maintain 4-MEI levels as low as technically possible and food manufacturers to use food colours with the lowest possible level required for the intended function. Consumers can look for caramel colours, caramel III and IV, or identification numbers (150, 150c, 150d) on the food labels to make informed choices.

風險傳達 工作一覽 Summary of Risk Communication Work

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