食物安全焦點
Food Safety Focus

食物安全中心
Centre for Food Safety

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甲型H7N9禽流感病毒與食物安全
Avian Influenza A(H7N9) Virus and Food Safety

食物安全中心
獸醫公共衞生組
余欣庭獸醫報告

Reported by Dr. Veronica YU, Veterinary Officer, Veterinary Public Health Section, Centre for Food Safety

中國內地和台灣自三月起發生多宗人類感染甲型H7N9禽流感病毒個案，加上其後在鴿子和雞鴨等食用家禽以及一隻野鴿中檢出病毒，令市民擔心禽流感隨時會通過家禽及其製品傳入本港。截至二零一三年五月十四日，內地和台灣共有131宗人類確診個案。本文將探討與H7N9禽流感病毒有關的食物安全問題。

甚麼是甲型H7N9禽流感病毒？

甲型流感的H7病毒是一組於鳥類中傳播的流感病毒。雖然過去十年間偶有人類感染某些H7流感病毒的個案，但直到最近內地出現確診病例前，一直沒有人類感染H7N9病毒的個案。

一般來說，H7亞型病毒是低致病性的，家禽感染這種病毒後只會引起輕微疾病，甚至不會發病，因此很難分辨出染上病毒的家禽。相反，之前的H5N1屬於高致病性的禽流感病毒，受感染的雞隻病情嚴重，死亡率甚高。

人類感染甲型H7N9禽流感病毒的情況

目前來說，大部分受感染人士曾出現嚴重肺炎，症狀包括發燒、咳嗽和呼吸急促。雖然據報有感染H7N9的內地病人曾接觸家禽或到過放置家禽的地方，但病毒的感染源頭和傳播途徑至今未明。國家衞生和計劃生育委員會指出，甲型H7N9禽流感病毒源自禽鳥，人們染病主要是由於暴露於受感染的家禽或其污染的環境。因此，接觸受感染的家禽或涉足有售賣活家禽的街市都是人類感染禽流感的高危因素。

食用家禽和家禽製品安全嗎？

把家禽及蛋徹底煮熟，令其中心溫度最少達攝氏70度，可使流感病毒失去活性。故世界衞生組織指出，肉類(包括家禽和野禽)經適當處理和烹煮後可安全食用。處理活家禽、家禽製品和禽蛋後，切記用肥皂或清潔液徹底洗淨

In light of human cases infected with avian influenza A(H7N9) virus in Mainland China and Taiwan since March, coupled with subsequent detection of the virus in commercial poultry including pigeons, chickens and ducks, and a wild pigeon, there are concerns over the imminent risk of local transmission of avian influenza from poultry and their products to humans. As of 14 May 2013, there are 131 human cases reported in the Mainland and Taiwan. This article aims to look at food safety issues associated with avian influenza A(H7N9) virus.

What is Avian Influenza A(H7N9) Virus?

Avian influenza A H7 viruses are a group of influenza viruses that circulate among birds. Although some H7 influenza viruses have occasionally been found to infect humans in the past decade, no human infections with H7N9 viruses have been reported until recent outbreaks in Mainland China.

Generally, H7 subtypes are found to be low pathogenic which cause mild or no disease in domestic poultry and are therefore difficult to detect in poultry. In contrast, the previous "bird flu" of H5N1 strains are highly pathogenic avian influenza virus that cause severe disease and high mortality in chickens.

Human Infection with Avian Influenza A(H7N9) Virus

Thus far, most patients identified with this infection have had severe pneumonia. Symptoms include fever, cough and shortness of breath. It is still unclear concerning both the source of infection and the mode of transmission of the virus, though a number of the human H7N9 cases in Mainland China have been reported to have contact with domestic poultry or the environments where they are housed. According to the National Health and Family Planning Commission (NHFPC), the avian influenza A(H7N9) virus is of avian origin and people are mainly infected through exposure to infected poultry or its contaminated environment. Contact with infected poultry and visiting wet markets with live poultry are important risk factors of human infection caused by the avian influenza A(H7N9) virus.

Is It Safe to Eat Poultry and Poultry Products?

Thorough cooking of poultry meat and eggs with centre temperature reaching at least 70°C can inactivate the virus. The World Health Organization therefore advises that it is safe to eat properly prepared and cooked meat, including poultry and game birds. It is important to wash hands thoroughly with soap or liquid cleanser after handling live

焦點個案
Incident in Focus

雙手，並且清洗乾淨所有用過的工作枱面、器皿和用具。

食物安全中心採取的行動

本港從內地輸入的鮮活、冰鮮和冷藏家禽全部來自內地當局監管的家禽農場。進口家禽必須附有內地主管當局簽發的衞生證明書，證明這些家禽沒有患上禽流感。

從二零一三年四月十一日起，除現有的H5禽流感測試外，中心亦開始在文錦渡邊境對進口家禽進行H7病毒測試。只有測試結果令人滿意的家禽，才會放行在批發市場售賣。雖然甲型H7N9禽流感病毒在家禽中的發病率低，但這些監察措施已足以檢測出患病家禽。

雖然本港沒有出現人類感染個案，市民仍不可掉以輕心，應時刻保持良好個人衞生。如欲了解更多資料，請瀏覽衞生防護中心網頁。

食物安全中心人員在文錦渡牲畜檢疫站抽取活雞血液樣本作禽流感測試

Officer of the Centre for Food Safety taking a blood sample from a live chicken imported from the Mainland at Man Kam To Animal Inspection Station to test for avian influenza

poultry, poultry products and eggs. All the working surfaces, utensils and equipment that have been used for handling the above should also be cleaned thoroughly.

Actions Taken by the Centre for Food Safety (CFS)

Live, chilled and frozen poultry imported from the Mainland for consumption are sourced from poultry farms that are under the supervision of the Mainland authority. The imported poultry have to be accompanied with health certificates issued by competent authority in the Mainland, declaring that the animals are free of avian influenza.

From 11 April 2013 onwards, the CFS has started testing imported poultry at Man Kam To border against H7 virus, in addition to the existing measure to test against H5. Only the poultry with satisfactory test results would be released for sale at the wholesale markets. These surveillance programmes are considered sufficient in detecting avian influenza A(H7N9) virus despite its low prevalence in poultry.

There are no human cases detected in Hong Kong to date but members of the public are advised to remain vigilant by maintaining good personal hygiene practice. Further information can be found at the Centre for Health Protection website.

注意要點：

- 甲型H7N9禽流感病毒源自禽鳥，但人類的感染途徑仍在調查中。
- 進食已徹底煮熟的家禽和家禽製品是安全的。
- 處理活家禽、家禽製品和禽蛋後，要用肥皂或清潔液徹底洗淨雙手。

Key Points to Note:

- Avian influenza A(H7N9) virus is of avian origin, yet the exact route of transmission to human is still under investigation.
- Consumption of thoroughly cooked poultry and poultry products is safe.
- Wash hands thoroughly with soap or liquid cleanser after handling live poultry, poultry products or eggs.

給消費者的建議

1. 選購活雞時，避免接觸雞隻或雞糞。
2. 處理活家禽、家禽製品或禽蛋後，要用肥皂或清潔液徹底洗淨雙手，並且清洗乾淨所有用過的工作枱面、器皿及設備。
3. 家禽和禽蛋必須徹底煮熟才可食用，禽肉各部分溫度須達至攝氏70度。

給業界的建議

1. 處所售賣的活家禽必須來自食物環境衞生署認可的批發市場或來源。
2. 售賣活家禽的處所內所有牆壁、地面及禽籠須保持清潔，並須在每日收市後連同器皿和設備(包括去毛機)一併徹底清洗及消毒。
3. 工作人員須穿上淺色保護衣物(包括圍裙及膠靴)，並保持個人衞生，例如在屠宰及清洗家禽後，馬上用肥皂洗手。

Advice to Consumers

1. Avoid touching chickens or their faeces when buying live chickens.
2. Wash hands thoroughly with soap after handling live poultry, poultry products or eggs. All working surfaces, utensils and equipment should be cleaned after handling the above products.
3. Cook poultry and poultry eggs thoroughly, all parts of the poultry meat should reach 70°C.

Advice to the Trade

1. Live poultry kept on the premises for sale should only come from wholesale markets or other sources approved by the Food and Environmental Hygiene Department.
2. The entire wall, floor surfaces and the cages at the premises selling live poultry should be kept clean. They should be thoroughly cleaned and disinfected together with other utensils and equipment including the defeathering machine at the end of a business day.
3. Workers should observe personal hygiene such as washing their hands with soap immediately after slaughtering and dressing of poultry. Light coloured protective clothing including aprons and rubber boots should also be worn.

食物安全平台
Food Safety Platform

基因改造食物 — 來自潘朵拉之盒？
Genetically Modified Food – Out of Pandora's Box?

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,
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你覺得甚麼是基因改造食物？是不同顏色籽粒並集一穗的粟米？超甜粟米？還是方型西瓜？有人覺得所有奇形怪狀的食物都是基因改造食物。有些人甚至把基因改造食物稱為“科學怪食物”。從今期開始，我們會一連數期探討基因改造食物及其安全問題。首先，讓我們弄清楚基因改造食物到底是甚麼？

為理想特徵而改造基因

簡單來說，基因改造食物是指任何食物本身是或衍生自在實驗室中被改造了基因的生物(包括植物、動物及微生物)。改造的方式是通過改變現有的基因或植入新基因，令生物擁有原來沒有但有用的特徵。例如把製造Bt蛋白的基因植入植物，令植物能抵抗害蟲。Bt蛋白是蘇雲金桿菌產生的天然殺蟲劑。研究人員由蘇雲金桿菌分離出製造Bt蛋白的基因，然後把該基因與其他遺傳物質組合成為重組基因，再把這些重組基因轉移到植物細胞。轉移的方法有兩種：一是利用基因槍發射帶有這些重組基因的金粒子穿過細胞壁送入植物細胞；二是借助根瘤農桿菌的感染，將這些重組基因帶入植物細胞。之後，含有目標基因的植物細胞會長成擁有預期特徵的植物。在這個例子中，預期的特徵是藉由表達Bt蛋白而擁有能抵抗害蟲的能力。這種技術便稱之為“基因工程”或“現代生物科技”。

What is your perception of genetically modified (GM) food? Is it corn cob with kernels of different colours? Is it super sweet corn? Is it cube-shaped watermelon? Some people may think that any food with unusual or special appearance is GM food and some even call it "Frankenfood". In the coming issues, we will talk about GM food and safety issues surrounding GM food. To begin with, what is GM food?

Gene Modification for Desirable Characteristics

Simply speaking, GM food is any food that is or is derived from a GM organism, including plants, animals or microorganisms, in which the genes of the organism are modified in the laboratory. The modification which aims to introduce desirable characteristics to the organism can either be done by alteration of existing genes or insertion of new genes. One example is the introduction of the gene encoding the Bt protein into plants to make them resistant to insects. Bt protein is a natural pesticide produced by the bacterium *Bacillus thuringiensis*. In the modification process, the gene encoding the Bt protein is isolated from the bacterium and combined with other genetic elements. The combined products are then transferred into plants cells. This can be achieved by using a gene gun that fires gold particle through the plant cell wall, or with the aid of the bacterium *Agrobacterium tumefaciens* which help taking in the combined products when it infects the plant cells. The plant cells carrying the target gene will subsequently be grown into plants with the desirable characteristic. In this example, the characteristic is insect resistance due to the expression of Bt protein. The technology of the modification process is called "genetic engineering" or "modern biotechnology".

部分被誤以為經基因改造的食物 Examples of foods that may be misunderstood as GM food

印度粟米 Indian corns

天然形成；每個粟米粒都有各自一套基因，粟米五彩紛呈是雜交培植後的結果

Naturally occurring; each kernel has its own set of genes and the generation of different colours is a result of cross-breeding

超甜粟米 Super sweet corns

(照片由漁農自然護理署提供)
(Photo by courtesy of the Agriculture, Fisheries and Conservation Department)

傳統雜交；糖分較其他品種的粟米高

Traditional breeding; they have higher sugar content than other types of corns

方型西瓜 Cubic watermelons

外力壓製；西瓜被放在玻璃箱裡培育，長成後便像箱子般呈方型，跟中國的纏足同樣道理

Physical constraint; the melons are grown in glass boxes and assume the shape of the boxes very much like Chinese foot binding

羅馬西蘭花 Romanesque broccoli

(照片由鍾可欣女士提供)
(Photo by courtesy of Ms. Ho-yan CHUNG)

椰菜花嫁接西蘭花而成的品種，源自意大利，又稱羅馬青花菜或寶塔菜

A cross between cauliflower and broccoli; it is from Italy and also called roman cauliflower

無籽水果 Seedless fruits

未經受精而結果或受精後的胚囊停止發育

- 天然無籽，例如香蕉、菠蘿和葡萄
- 人工培植，例如柑橘類水果、西瓜和葡萄

無籽水果早在基因工程出現前已經存在

Fruits developed without fertilisation or with the abortion of embryo after fertilisation

- Naturally occurring; for example, bananas, pineapples and grapes
- Induction by cultural practices; for example, citrus fruits, watermelons and grapes

Seedless fruits have existed long before the application of genetic engineering

現代生物科技與傳統雜交的不同之處，在於傳統雜交是數以萬計的基因同時混合，而現代生物科技只是轉移一個或數個特定基因。現代生物科技還能夠把選定的基因從一種生物轉移到另一種生物，甚至可在不相關的物種之間轉移。

被誤以為經基因改造的食物

有些食物由於其外形或味道或會被人誤以為是基因改造食物(見表)。事實上，大部分基因改造食物的外形和味道均與原來品種分別不大，很難由此分辨出來。如上文所述，所謂基因改造食物，是指該食物本身或用以製造食物的生物被人為地改變了基因。表中食物的特徵並非基因工程的產物。

改造食物的基因原意並不是為了製造“科學怪食物”，而是為了特定的目的，通常是為了經濟上的利益，例如收成較佳。這也是部分基因改造農作物在市場上取得顯著佔有率的原因。下一期我們會談談國際上常見的基因改造食物及其潛在的利與弊。

Modern biotechnology is different from traditional breeding. Traditional breeding involves thousands of genes at the same time while modern biotechnology transfers one or several specific genes. Modern biotechnology also allows selected genes to be transferred from one organism into another, and even between non-related species.

Foods Misunderstood As GM Food

Some foods may be misunderstood as GM food (see Table) due to their appearance or taste. In fact, most GM food cannot be differentiated from its conventional counterpart through physical appearance or taste. GM food, or its source organism, must have its genes altered in a way that does not occur naturally as previously discussed. The characteristics of the foods in the table are not a result of genetic modification.

Instead of creating “Frankenfood”, GM food is created for a specific aim and mostly for economic benefit such as higher crop yield. That is why some GM crops are able to gain significant market shares nowadays. In the next issue, we will talk about GM foods available internationally and their potential benefits and harm.

食物事故點滴
Food Incident Highlight

切勿採摘及進食野生菇類

三名市民上月進食在郊野公園採摘的野菇後食物中毒，出現嘔吐、腹瀉和腹痛等症狀，後期更出現肝功能受損，其中一人須接受肝臟移植。真菌學專家鑑定引致中毒的野菇為小托柄鵝膏菌，這種菌類含劇毒，本港夏秋二季皆可見其蹤影。食物安全中心呼籲市民切勿進食採自公園和郊野公園的野生菇類。

菇類中毒的原因是進食了若干有毒高等真菌未熟或已煮熟的子實體。引致中毒的菇類毒素由真菌自然生產，不能以烹煮、冷藏或其他食物加工方法清除。菇類中毒一般是急性的，中毒症狀在進食不久後便會出現，最常見的是腸胃不適，例如噁心、嘔吐和腹痛等。視乎進食的有毒菇類品種，中毒者可能會出現其他症狀，例如大量出汗、出現錯覺和幻覺、昏迷、其他神經系統症狀及肝衰竭。這些症狀可能與腸胃症狀同時出現，嚴重者可能會致命。

本港不時發生因進食菇類而中毒的事件。由於一般人難以分辨食用菇和非食用菇，故不應自行採摘野菇進食。如誤食懷疑有毒的菇類，應帶同吃剩的部分(如有的話)立即求醫。

含有劇毒的小托柄鵝膏菌（照片由香港中文大學生物學榮休講座教授張樹庭教授提供）

The poisonous mushroom – *Amanita farinosa* (Photo by courtesy of Professor Chang Shu-ting, Emeritus Professor of Biology at The Chinese University of Hong Kong)

Do Not Pick and Eat Wild Mushrooms

Last month, three persons suffered from food poisoning after eating wild mushrooms picked from country parks. They developed symptoms of vomiting, diarrhoea, abdominal pain and later liver damage. One of them required liver transplant. The incriminated species identified by expert in mycology was *Amanita farinosa*, a poisonous mushroom that can be found in Hong Kong during summer and autumn. The Centre for Food Safety urges the public not to pick and eat wild mushrooms from parks and country parks.

Mushroom poisoning is caused by consumption of raw or cooked fruiting bodies of a number of poisonous species of higher fungi. The toxins involved in mushroom poisoning are produced naturally by the fungi themselves and cannot be rendered non-toxic through cooking, freezing or other means of food processing. Mushroom poisoning is usually acute and the symptoms commonly affecting the gastrointestinal system such as nausea, vomiting and abdominal pain appear shortly after ingestion. Depending on the species, patient may have other symptoms like profuse sweating, illusion, hallucination, coma and other neurological symptoms, as well as liver failure. These symptoms may occur with or without gastrointestinal symptom. Death may result in severe cases.

From time to time, sporadic cases of mushroom poisoning are reported locally. Since it is difficult for untrained individuals to distinguish between edible and inedible mushrooms, members of the public are advised not to pick and eat wild mushrooms. If suspected poisonous mushrooms are accidentally consumed, the patient should seek immediate medical attention and bring along the remnant, if available.

風險傳達 工作一覽
Summary of Risk Communication Work

風險傳達工作一覽（二零一三年四月） Summary of Risk Communication Work (April 2013)	數目 Number
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給消費者的食物警報 Food Alerts to Consumers	0
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