

本期內容 IN THIS ISSUE

焦點個案

二零一一年有關食肆及食物業的食物中毒事件回顧

食物安全平台

雪卡毒素、魚類與食物中毒

食物事故點滴

可樂類飲料中的焦糖色素

風險傳達工作一覽

Incident in Focus

Review of Food Poisoning Outbreaks Related to Food Premises and Food Business in 2011

Food Safety Platform

Ciguatoxins, Fish and Food Poisoning

Food Incident Highlight

Caramel Colourings in Cola Drinks

Summary of Risk Communication Work

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焦點個案 Incident in Focus

二零一一年有關食肆及食物業的食物中毒事件回顧

Review of Food Poisoning Outbreaks Related to Food Premises and Food Business in 2011

食物安全中心
食物事故應變及管理小組
劉志強醫生報告
Reported by Dr. Michael LAU, Medical & Health Officer,
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引言

本文就二零一一年有關食肆及食物業的食物中毒事件作一回顧。

與本港食肆及食物業相關的食物中毒事件

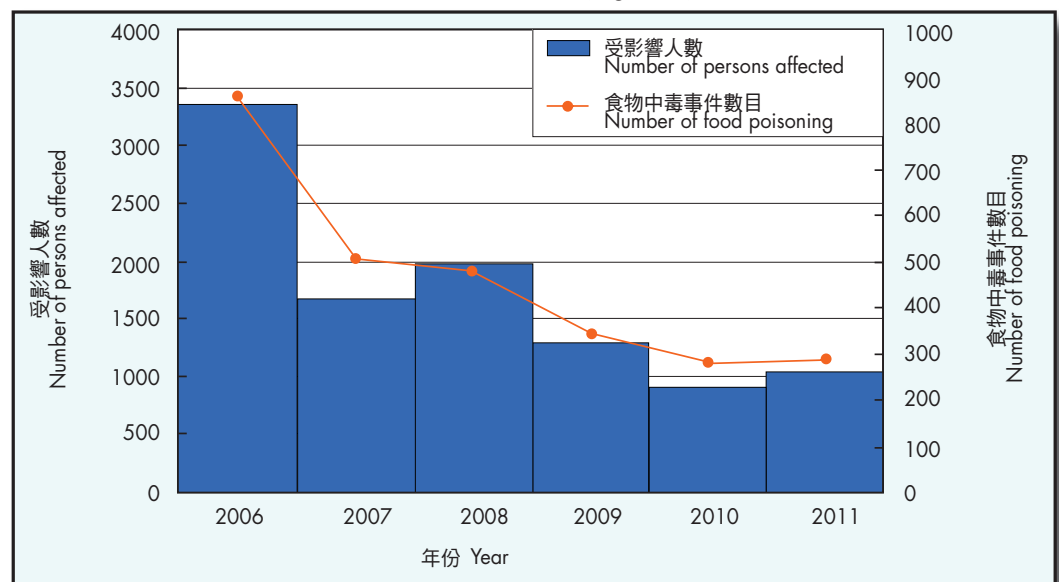
食物安全中心(中心)專責調查有關食肆及食物業的食物中毒事件。二零一一年,中心接獲290宗由衛生署轉介的食物中毒個案,受影響人數共1 036人。自二零零六年起,食物中毒事件總數持續下降。但二零一一年的數字較二零一零年輕微上升(見圖一)。

Introduction

This article reviews the food poisoning cases related to food business in year 2011.

Food Poisoning Outbreaks Related to Local Food Premises and Food Business

The Centre for Food Safety (CFS) plays a major role in the investigation of food poisoning outbreaks related to food premises and food business. In year 2011, the CFS received 290 referrals from the Department of Health on food poisoning outbreaks that affected a total of 1 036 persons. After a continuous decline since 2006, the number of outbreaks in 2011 slightly increased as compared with that of 2010 (Figure 1).



圖一：2006至2011年有關食肆／食物業的食物中毒事件數目及受影響人數

Figure 1. Number of food premises / food business related food poisoning outbreaks and number of persons affected from 2006 to 2011

病原體及成因

在所有個案中,最常見的病原體為細菌,約佔整體事件數目的81%;其他病原體包括生物毒素(9%)、病毒(6%)及化學物(4%)。有關數字與過去五年大致相若。副溶血性弧菌、沙門氏菌及金黃葡萄球菌仍然是細菌性食物中毒事件的首三個原因,佔整體細菌性食物中毒事件的88%。

Causative Agents and Contributory Factors

For all cases, bacteria were by far the most common causative agents which accounted for about 81% of the outbreaks. Other causative agents were biotoxins (9%), viruses (6%) and chemicals (4%). The pattern is generally similar to that of the past five years. *Vibrio parahaemolyticus*, *Salmonella* spp. and *Staphylococcus aureus* remained the top three causes of bacterial food poisoning outbreaks (contributing to 88% of the bacterial outbreaks in total).

焦點個案
Incident in Focus

生熟食物交叉污染、烹煮時間不足、貯存溫度不當和被食物從業員污染是二零一一年食物中毒事件最常見的四個成因，情況與過去五年大致相若(見圖二)。

兩宗大型食物中毒事件

以下是二零一一年發生的兩宗大型食物中毒事件，事件再次說明保持衛生和奉行良好食物安全規範的重要性。

冷盤引致食物中毒

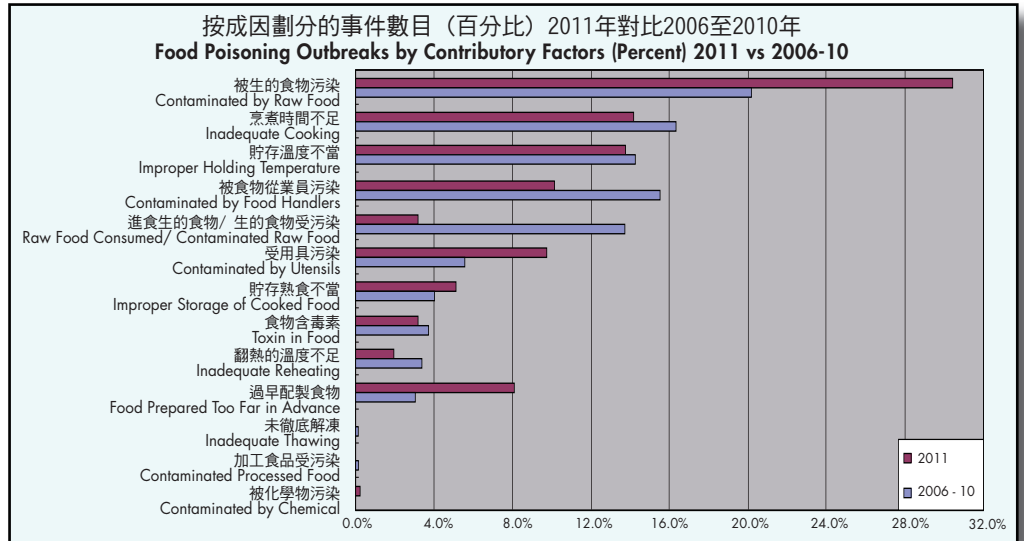
二零一一年六月，中心接獲四宗食物中毒報告，共64人受影響，全部患者均曾於某上海菜館用膳。中心人員到有關食肆調查時發現，本應是冷盤菜式的醉雞，卻不適當地被長時間存放在高溫下。兩名患者及一名食物從業員的糞便樣本經化驗證實含D組沙門氏菌，而在上址抽取的一個醉雞樣本亦驗出同類細菌。這說明受污染的醉雞很可能就是這次中毒事件的肇因。持牌人其後被檢控，並裁定出售不宜供人食用的食物罪名成立。中心已向食肆東主及其僱員講解食物、環境及個人衛生，以及處理食物，特別是適當配製及存放肇事食物的方法。中心其後跟進巡查該食肆，監察其改善情況，並確保該食肆已採取適當的措施保障食物安全。

未煮熟的高力豆沙與沙門氏菌

二零一一年二月，中心接獲四宗食物中毒事件報告，共17人受影響。全部患者皆曾進食某食肆的高力豆沙，病原體懷疑是沙門氏菌。中心在實地調查時發現，肇事食物處理好後曾長期在不適當的溫度下存放，而且沒有徹底煮熟。兩名患者的糞便樣本經化驗證實含D組沙門氏菌。上述發現很可能是這次中毒事件的肇因。中心已向食肆東主及其僱員講解保持食物、環境及個人衛生的方法。中心其後跟進巡查該食肆，監察其改善情況，並確保該食肆已採取適當的措施保障食物安全。

結語

食肆及食物業食物中毒事件數目在過去數年持續顯著下降，二零一一年的數目亦維持在相對低的水平。這有賴於政府在保障食物安全方面的努力；業界的積極參與；以及市民對食物安全意識的提高。為預防食物中毒，業界及市民應時刻謹守食物安全規範。



圖二：2011年及2006至2010年有關食肆及食物業的食物中毒事件成因

註：單一食物中毒事件可有多於一個成因

Figure 2. Contributory factors identified in food poisoning outbreaks related to food premises and food business in 2011 and 2006-10

Notes: More than one contributory factor could be identified in a single outbreak

Cross contamination by raw food, inadequate cooking, improper holding temperature and contamination by food handlers were the top four contributory factors of food poisoning outbreaks identified in 2011 and this pattern is similar to that of the past five years (Figure 2).

Two Major Food Poisoning Outbreaks

Below are two major food poisoning outbreaks occurred in 2011 that illustrate the importance of good hygiene and food safety practices.

Food poisoning outbreaks related to a cold dish

In June 2011, four clusters of food poisoning outbreaks affecting a total of 64 persons related to a Shanghai-styled restaurant were reported to the CFS. During inspection of the food premises, the "drunken chicken", which was supposed to serve as cold dishes, was found to be kept under inappropriate high temperature for prolonged period. Both stool specimens from victims and one of the food handlers were tested positive for *Salmonella* Group D. A sample of "drunken chicken" taken at the inspection was also found to be present of the bacteria belonging to the same species. It suggested that contamination of the food item might be a contributing factor of the outbreak. The licensee was prosecuted and convicted of selling food unfit for human consumption. Health advice on food, environmental and personal hygiene particularly on proper preparation and storage of the incriminated food items as well as food handling procedures were given to the restaurant operators and their staff. Follow up visits were conducted to monitor the progress and ensure proper implementation of food safety measures.

Inadequately cooked "egg white soufflé ball with red bean fillings" and *Salmonella*

In February 2011, four clusters of food poisoning outbreaks affecting a total of 17 persons were reported to the CFS. All those victims involved had consumed "egg white soufflé ball with red bean fillings" (高力豆沙) at a food premises. The suspected causative agent was *Salmonella* spp.. Field investigation revealed that the incriminated food item was not stored in an appropriate temperature for prolonged period after preparation and did not undergo adequate cooking. Also the stool specimens from two victims were tested positive for *Salmonella* Group D. These findings might be the contributing factors accounting for the outbreak. Health advice on food, environmental and personal hygiene was given to the restaurant operators and their staff. Follow up visits were also conducted to monitor the progress and ensure proper implementation of food safety measures.

Conclusion

The number of reported food poisoning outbreaks related to food premises and food business has decreased considerably over the past few years and the figure remained at a relatively low level in 2011. Government's efforts in safeguarding food safety, active participation of the trade and heightened awareness of the public on food safety are some factors contributing to the decline. The trade and public are advised to adopt and adhere to food safety practices to avoid the occurrence of food poisoning outbreaks.

雪卡毒素、魚類與食物中毒

Ciguatoxins, Fish and Food Poisoning

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

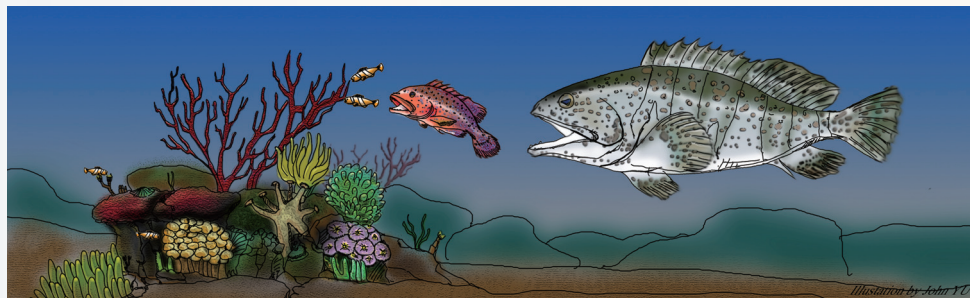
由本期開始，我們將會一連三期介紹由微小生物(如浮游生物)產生，並影響海產安全的海洋毒素。

何謂雪卡毒素及雪卡毒魚類中毒？

雪卡毒素是一組耐熱的脂溶性化合物，由干比亞藻這種海洋浮游生物產生。干比亞藻對棲息地的要求非常嚴格，只生活在北緯32度至南緯32度之間的溫暖水域。因此含有雪卡毒素的僅限於在這一帶水域覓食的魚類。食草魚類首先吃下依附在珊瑚礁上的有毒海洋浮游生物，然後體型較大的食肉魚類吃下這些含有毒素的魚類，毒素由此在食物鏈中逐級累積，最後成了人類的腹中之物(見圖一)。

受影響魚類的內臟、肝臟及生殖器的毒素含量較其他部位高50至100倍，但有關魚類毫無症狀。雪卡毒素非常耐熱，不能透過烹煮或加工過程消除。人如果吃了帶雪卡毒素的魚，神經和肌肉功能都會受到影響。由於

國際海產貿易不斷增加，雪卡毒魚類中毒現已成為一種全球常見的食物中毒現象。雪卡毒魚類中毒是多個區域(包括太平洋熱帶及亞熱帶一帶)的風土疾病，在本港出售的活珊瑚魚有不少是來自這些區域。



圖一：干比亞藻這種海洋浮游生物可產生令人類中毒的雪卡毒素。雪卡毒素在食物鏈中層層累積，最終傳到人體，引起不適。
Figure 1. *Gambierdiscus toxicus*, a marine plankton, can produce ciguatoxins that cause ciguatera fish poisoning in humans. The toxins can accumulate up the food chain and end up causing sickness in consumers.

雪卡毒魚類中毒對人體的影響

進食含雪卡毒素的魚後，可在30分鐘內出現症狀，但一般在24至48小時內才發病。患者最初會出現腸胃或神經系統不適。嘔吐、腹瀉、噁心及腹痛等腸胃不適一般只會持續數天，接着會出現唇部及四肢麻痺、皮膚發癢、冷熱感覺顛倒、疲倦、肌肉及關節疼痛等神經系統不適，這些症狀會維持較長時間，有時甚至長達數年。情況嚴重者可能出現低血壓、心搏徐緩、呼吸困難及麻痺，但死亡個案則少見。

有些因素會加深中毒症狀，例如以往曾中過雪卡毒、或在進食珊瑚魚時喝酒和食用花生或豆類食物等，而這幾樣都是本港酒席上常見的食品。

本港雪卡毒魚類中毒事故涉及的魚類

食物安全中心(中心)以往的調查顯示，在涉及雪卡毒魚類中毒的各種魚類中，某些品種較大機會令人中毒(見表一)。此外，中心與業界的調查發現，最常受雪卡毒素影響的捕魚區有南沙羣島、吉里巴斯及海南島，涉及的魚類通常介乎0.6至3公斤(1至5斤)不等，但據報在此重量範圍以外的也有。由於有關資料無法核實，有關魚類品種和來源資料可能不夠全面。養殖魚吃的飼料很少受雪卡毒素污染，因此不大可能含雪卡毒。

This article is the first of a series of three articles that focus on marine toxins that originate from small organisms (e.g. planktons) which can affect seafood safety.

What are Ciguatoxins and Ciguatera Fish Poisoning?

Ciguatoxins are a group of heat-stable, fat-soluble compounds. They are produced by a marine plankton *Gambierdiscus toxicus*. The plankton is very specific in where they live and they only exist in the warmer oceans between latitude of 32°N and 32°S. Ciguatera fish are confined to patches of oceans in the area. The toxins accumulate up the food chain which starts with the herbivorous fish that graze on toxic marine planktons in the coral reef, accumulate successively in the body of larger carnivorous fish and finally in humans (Figure 1).

The toxins are up to 50 to 100 times more concentrated in the viscera, liver and gonads of affected fish, while the fish has no symptom. As the toxins are heat-stable and cannot be removed by cooking or processing, they can affect the nerve and muscle functions of persons who consume fish contaminated with

the toxins. Ciguatera fish poisoning (CFP) is now becoming more common as a type of food poisoning worldwide, due to increased international commerce in seafood. CFP is endemic in many areas, including tropical and subtropical Pacific, where many of the locally-sold live coral reef fish are sourced.

How CFP Affects Humans

After consumption of fish that contain ciguatoxins, the initial symptoms can appear within 30 minutes, while a delay of 24 to 48 hours after consumption is common. The initial symptoms can be gastrointestinal or neurological. The gastrointestinal symptoms like vomiting, diarrhoea, nausea and abdominal pain usually last only a few days, the neurological symptoms like tingling of lips, hands and feet, skin itching, change in temperature perception (cold objects perceived as hot and vice versa), fatigue, muscle and joint pain appear later and last longer, sometimes up to a few years. In severe cases, low blood pressure, slow heart rate, respiratory difficulties and paralysis are possible, but death is uncommon.

Factors like previous CFP intoxication, the consumption of alcoholic beverages, nuts and seed products can also increase the sensitivity of an individual against CFP intoxication. Such combination of food items are more likely to be found during banquets locally.

Fish Implicated in Local CFP Cases

Past investigations by the Centre for Food Safety (CFS) show that among the fish species implicated in CFP, certain species of fish are more likely to cause CFP (Table 1). CFS investigations with the trade also suggest that the most frequently contaminated fishing grounds are Nansha Island, Kiribati and Hainan Island. Size of fish involved usually ranges from 0.6 to 3 kg (1 to 5 catties), but fish outside this weight range has also been reported. The information on species and source of fish above may be biased as the information could

表一：涉及雪卡毒魚類中毒的魚類例子
Table 1: Examples of fish that are found to be involved in CFP

• 西星斑 Squaretail coral grouper	• 燕尾星斑 Lyretail
• 老虎斑 Brown-marbled (Tiger) grouper	• 東星斑 Leopard coral grouper
• 紅魮 Two-spot red snapper	• 蘇眉 Humphead wrasse
• 油鯧 Moray eel	

加強預防雪卡毒魚類中毒

《食物安全條例》於二零一二年二月一日全面生效，食物商須備存有關交易紀錄(獲取紀錄、供應紀錄或捕撈紀錄(視乎情況而定))。這些紀錄能夠提供更準確的魚類品種和來源資料。為確保食物安全，中心擬定了《為預防和控制雪卡毒事故的進口和售賣供人食用的活海魚作業守則》，列明在進口和售賣供人食用的活海魚時須符合的最低要求。每次發生雪卡毒魚類中毒事故後，中心都會向業界發出勸諭信及簡訊，可以的話，更會提供肇禍魚類的來源資料。

下一期，我們會介紹另一種同樣會導致食物中毒，也同樣為港人熟悉的海洋生物毒素——麻痺性貝類毒素。

not be verified. Cultured fish is unlikely to contain ciguatoxins as they are fed with feeds rarely contaminated with ciguatoxins.

Enhancements in Tackling CFP

After the full operation of the Food Safety Ordinance on 1 February 2012, food traders are required to keep relevant transaction records (acquisition records, supply records or capture records as appropriate). Therefore, data collected would be able to provide more accurate information on fish species and their sources. The CFS has issued a [Code of Practice on Import and Sale of Live Marine Fish for Human Consumption for Prevention and Control of Ciguatera Fish Poisoning](#) which contains the minimum requirements in importing and selling live marine fish for human consumption to ensure food safety. The CFS also issues advisory letters and newsletter to the traders after each recent CFP incident, providing information on fish source if available.

In the next issue, we shall talk about another locally well-known marine biotoxin that cause food poisoning – paralytic shellfish poisoning toxins.

食物事故點滴 Food Incident Highlight

可樂類飲料中的焦糖色素

美國一民間監察組織在上月發表報告指出，美國市面上出售的可樂類飲料含有高量4-甲基咪唑(4-methylimidazole)——一種在某些焦糖色素(又稱醬色)製作過程中產生的化學污染物。由於4-甲基咪唑可能會導致癌症，事件引起公眾廣泛關注。

4-甲基咪唑是焦糖色素(醬色III及醬色IV)製作過程中產生的副產品。焦糖色素可使食品呈棕褐色，廣泛應用於啤酒、褐色麵包、醬料和可樂類飲料等食品中。

焦糖色素在歐盟、美國、澳洲、新西蘭、韓國和中國內地是允許使用的食物添加劑。歐盟食品安全局最近曾作評估，認為因進食含醬色III及醬色IV的食物而攝入的4-甲基咪唑，充其量也是微不足道。此外，糧農組織/世衛聯合食物添加劑專家委員會亦認為，只有高劑量的4-甲基咪唑才會造成急性神經系統不適，而食物中的焦糖色素只含有極微量的4-甲基咪唑，相信問題不大。因此，一般飲用可樂類飲料，不會因攝入4-甲基咪唑而影響健康。

在本港，焦糖色素是《食物內染色料規例》准許添加在食物內的染色料。關注這問題的消費者可以查看預先包裝食品上的標籤是否標示含有醬色III和醬色IV(編號150c和150d)，便可知所選擇。如欲了解更多關於焦糖色素的安全資訊，請參閱食物安全中心出版的風險簡訊“可樂類飲料中的4-甲基咪唑”。

Caramel Colourings in Cola Drinks

Last month, a policy advocacy organisation in the United States (US) reported that high levels of 4-methylimidazole (4-MI), a chemical contaminant arisen from the formation of some caramel colourings, was found in cola drinks available in the US market. The issue has attracted public attention due to concerns on the cancer causing potential of 4-MI.

4-MI is formed as a by-product during the production of caramel colourings (Caramel III and Caramel IV) which can be used to give brown colour to a variety of foods such as beer, brown bread, sauces and cola drinks.

Caramel colourings are permitted food additives in the European Union, the US, Australia, New Zealand, Korea and Mainland China. Recent evaluations conducted by the European Food Safety Authority suggest that the highest exposure level to 4-MI that can result from the consumption of foods containing Caramel III and IV does not give rise to concern. In addition, the Joint FAO/WHO Expert Committee on Food Additives opines that the acute neurological effects produced by high doses of 4-MI would not appear to be of major concern when caramel colourings containing small amounts of this contaminant are used in food. Exposure to 4-MI from usual consumption of cola drinks is not likely to lead to adverse health effects.

In Hong Kong, caramel is a permitted colouring matter under the Colouring Matters in Food Regulations. Concerned individuals may read food label on prepackaged food and look for Caramel III and Caramel IV or their identification numbers (150c; 150d) so as to make informed choices. For more information on safety of caramel colourings, please refer to the Centre for Food Safety's Risk in Brief "[4-Methylimidazole in Cola Drinks](#)".

產品一 Product 1

成份：馬鈴薯、植物油、香辛料、糖、增味劑[E621、E627、E631]、食鹽、醬油粉(含色素[E150c])、酵母提取物、水解植物蛋白、抗結劑[E551、E535、E500]、香料提取物(含乳化劑[E471])、調味料、麥芽糊精、甜味劑[E951]
此產品含有麩質及大豆製品。

Ingredients: Potato, Vegetable Oil, Spices, Sugar, Flavour Enhancer [E621, E627, E631], Salt, Soy Sauce Powder (contains Colour [E150c]), Yeast Extract, Hydrolysed Vegetable Protein, Anticaking Agent [E551, E535, E500], Spice Extractive (contains Emulsifier [E471]), Flavour, Maltodextrin, Sweetener [E951]
This product contains gluten and soyabean products.

產品二 Product 2

INGREDIENTS: Milk Chocolate Compound (Cocoa mass, Cocoa powder, Skimmed milk powder, Vegetable oil and fat), Wheat flour, Corn starch, Shortening, Sugar, Eggs, Invert sugar, Raising agents (E503 (ii), E500 (ii)), Salt, Colour (E150d), Flavour & Flavouring, Emulsifier (E322 (Soybeans product))
配料：牛奶朱古力混合物(可可塊，可可粉，脫脂奶粉，植物油及油脂)，小麥粉，玉米澱粉，起酥油，糖，雞蛋，轉化糖，膨脹劑(E503(ii)，E500(ii))，鹽，色素(E150d)，調味料及調味劑，乳化劑(E322(大豆製品))

市民選購食品時可查看標籤上是否標示含有醬色III和醬色IV(編號150c和150d)
Concerned individuals may look for Caramel III and Caramel IV or their identification numbers (150c; 150d) to make informed choices.

風險傳達

工作一覽

Summary of Risk Communication Work

風險傳達工作一覽 (二零一二年三月) Summary of Risk Communication Work (March 2012)	數目 Number
事故/食物安全個案 Incidents / Food Safety Cases	68
公眾查詢 Public Enquiries	131
業界查詢 Trade Enquiries	161
食物投訴 Food Complaints	392
給業界的快速警報 Rapid Alerts to Trade	31
給消費者的食物警報 Food Alerts to Consumers	0
教育研討會/演講/講座/輔導 Educational Seminars / Lectures / Talks / Counselling	77
上載到食物安全中心網頁的新訊息 New Messages Put on the CFS Website	42