食物安全焦點
Food Safety Focus

食物安全中心 Centre for Food Safety

食物環境衞生署 Food and Environmental Hygiene Department

二零零九年二月 · 第三十一期 February 2009 · 31st Issue

食物環境衞生署食物安全中心出版 Published by the Centre for Food Safety, Food and Environmental Hygiene Department

本期內容 IN THIS ISSUE

編輯委員會 EDITORIAL BOARD

焦點個案 Incident in Focus

有關美國爆發由花生醬引致的鼠傷寒沙門氏菌

Outbreak of *Salmonella* Typhimurium in the United States Associated with Peanut Butter

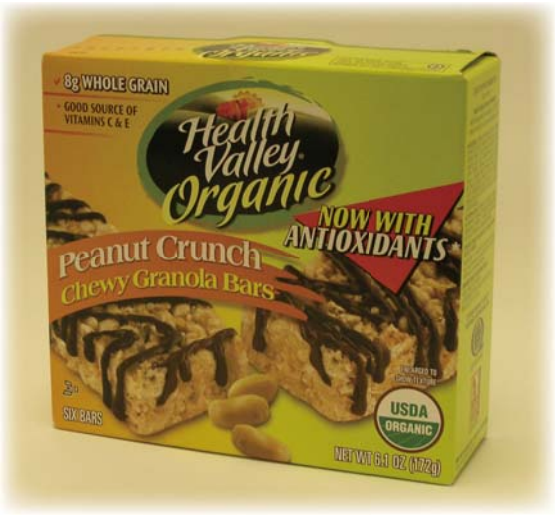
食物安全中心
風險評估組
科學主任莊梓傑博士報告

Reported by Dr. Ken CHONG, Scientific Officer,
Risk Assessment Section,
Centre for Food Safety

今年一月八日，美國疾病控制及預防中心報告，美國多個州份持續爆發由鼠傷寒沙門氏菌這種沙門氏菌血清型引致的人類感染個案。直到目前為止，已有超過600人感染了鼠傷寒沙門氏菌，並可能引致九名病人死亡（八名59歲或以上的人士及一名沒有呈報年齡的老婦）。此外，有半數感染個案涉及16歲以下的人士。根據報稱的發病日期來看，是次疫情始於去年九月一日。

在美國追查源頭

美國疾病控制及預防中心人員最初留意到，不同州份的多宗個案均由屬於相同基因指紋的鼠傷寒沙門氏菌所引起，於是展開流行病學分析（包括訪問病人），追查感染個案的爆發源頭。根據與病人組別和對照組別的訪問顯示，病人組別中較多人曾進食花生醬，其後又在花生醬的容器中找到有關細菌。美國疾病控制及預防中心和食物及藥物管理局基於有關結果確定，爆發源頭是Peanut Corporation of America公司位於喬治亞州布萊克利市加工廠所生產的花生醬和花生醬產品。該公司把可能受鼠傷寒沙門氏菌污染的產品分銷往300多間承銷公司，以供用作多種產品的配料。一月九日，該公司自願下令有關加工廠停產。巡查工作顯示，有關加工廠未能遵從美國食物及藥物管理局規定的優良製造規範，又在加工廠內找到其他沙門氏菌的菌株，但這些菌株並未發現與任何疾病有關。此外，更發現在二零零七至零八年期間，該公司把內部檢測中證實含有沙門氏菌的產品推出市場。



本港有數批上圖所示的花生燕麥條需要回收
Several batches of the above peanut granola bars were recalled in Hong Kong

與此同時，美國食物及藥物管理局網頁（只有英文版）亦公布有關使用了該加工廠生產的花生醬或其他花生材料的產品的回收行動，至今已回收超

On 8 January 2009, the Centres for Disease Control and Prevention (CDC) of the United States (US) reported an ongoing multistate outbreak of human infections due to *Salmonella* serotype Typhimurium. To date, more than 600 persons infected with the outbreak strain and infection may have contributed to nine deaths in patients (eight aged 59 years old or more; one elderly female whose age was not reported). Half of the cases have occurred in people who are less than 16 years old. Among reported onset dates, illnesses first started from 1 September 2008.

Tracing the Source in the US

At the beginning, CDC staff noted a group of cases in different states in the US caused by *Salmonella* Typhimurium with same genetic fingerprint. Epidemiological analyses including interviewing the patients were then initiated to trace the source of outbreak. The interviews for patients and control groups showed that patients were more likely to have eaten peanut butter. The bacterium was subsequently identified from containers of peanut butter. These results have led CDC and US Food and Drug Administration (FDA) to confirm the sources of the outbreak were peanut butter and peanut paste produced by Peanut Corporation of America (PCA) at its Blakely, Georgia processing plant. The PCA distributed potentially contaminated products to more than 300 consignee firms for use as ingredients in hundreds of different products. On 9 January, PCA voluntarily stopped production at the concerned plant. Inspection at the plant indicated that the plant failed to comply with good manufacturing practices (GMP) required by FDA; in addition, other *Salmonella* strains were found in the plant but the strains have not been connected with any illnesses. It was also revealed that products with *Salmonella* identified in the PCA internal testing during 2007 to 2008 had been released into the marketplace.

Meanwhile, recalls on products containing peanut butter and other peanut materials from the plant have been announced on the FDA website. More than 2 200 products including pet food have been recalled until now. Subsequent to finding irregularities in the inspection, PCA

焦點個案 Incident in Focus

過 2 200 種產品（包括寵物食物）。巡查工作發現違規情況後，該公司亦把回收行動擴及該加工廠在二零零七年一月一日或之後生產的所有花生產品。

沙門氏菌的特點

沙門氏菌是一組可在人類及動物的腸道內存在的細菌。目前，已發現超過 2 500 種沙門氏菌血清型，而鼠傷寒沙門氏菌是美國常見的血清型。在本港方面，鼠傷寒沙門氏菌是繼腸炎沙門氏菌之後的第二種最常見的血清型。沙門氏菌感染的病徵包括噁心、發燒、腹痛、腹瀉及嘔吐，除非患者是長者、嬰兒、身體欠佳者或免疫力較弱者，否則極少會引致死亡。

食物可能受動物糞便中的沙門氏菌污染，又或在進一步的加工或配製過程中受到交叉污染。沙門氏菌可以在自然環境和食物加工廠內的設備中生存。

一般而言，花生醬由於含有極少水分，故不利細菌繁殖。不過，沙門氏菌一旦污染了花生醬，卻能在花生醬中繼續生存。此外，部分沙門氏菌血清型如與脂肪含量較高的食物（如雪糕和朱古力）一同進食，只需極低劑量便可令人患病，因為這些食物可保護它們免遭胃酸殺死。

因應事件採取的行動

為了密切監察事件，食物安全中心（中心）自事件開始就一直與美國有關當局保持緊密聯絡。美國食物及藥物管理局在一月二十九日通知中心，疑受沙門氏菌污染的Healthy Valley牌子若干批次的Organic Peanut Crunch Chewy Granola Bars，曾出口至香港。中心即時跟進，聯絡本地入口商，要求他們從市場上回收問題產品。中心亦於同日向市民發出公告，建議市民棄掉受問題產品，然後徹底洗淨雙手。

由一月十一日起，中心已就美國的回收行動向業界發出超過36次快速警報，提醒他們如有問題產品，就需停止售賣。

中心已核查有關問題產品在本港是否有售，並抽取花生醬和相關產品的樣本進行沙門氏菌檢測。截至二月十七日止，中心已抽取30個花生醬及相關產品的樣本進行沙門氏菌檢測，全部樣本均合格。

注意重點：

1. 食物可能受動物糞便中的沙門氏菌污染，又或在進一步的加工或配製過程中受到交叉污染。
2. 所有年齡組別的人都可能受沙門氏菌感染，但長者、嬰兒和免疫力較弱的人較易出現嚴重症狀。
3. 雖然沙門氏菌不會在花生醬內繁殖，但卻可在已受污染的花生醬內繼續生存。

給消費者的建議

- 切勿進食需回收的產品，應棄丟有關產品，然後徹底洗淨雙手。
- 如對某產品有懷疑，切勿進食。
- 如懷疑因進食花生產品致病，應主動求診。

給業界的建議

- 確保沒有使用問題產品，並向供應商查明其花生產品配料的來源。

更多資料

- 美國疾病控制及預防中心有關鼠傷寒沙門氏菌感染疫情的網頁（只有英文版）
- 美國食物及藥物管理局有關回收含有花生醬的產品的網頁（只有英文版）

has expanded the recall to include all peanut products produced on or after 1 January, 2007 in the concerned plant.

Characteristics of Salmonellae

Salmonellae are bacteria found in the intestinal tract of man and animals. More than 2 500 serotypes of salmonellae have been identified and *Salmonella* serotype Typhimurium is common in the US. Locally, *Salmonella* Typhimurium, following *Salmonella* Enteritidis, is the second most commonly isolated serotype. Symptoms of *Salmonella* infection include nausea, fever, abdominal pain, diarrhoea and vomiting; deaths are uncommon, except in the elderly, the infants, the debilitated and those with impaired immune systems.

Food may be contaminated by salmonellae in animal faeces and cross-contamination may occur during further processing and preparation. Salmonellae may survive in the environment and equipment of food-processing facilities.

In general, peanut butter does not support the growth of bacteria because it has very little water. Nevertheless, salmonellae can survive well in peanut butter after it is contaminated. In addition, some of the *Salmonella* serotypes need a very low dose to cause disease when ingested with fatty food such as ice-cream and chocolate, which protect the bacteria from the lethal effect of the acid in stomach.

Actions in Response to the Incident

To closely monitor the incident, the Centre for Food Safety (CFS) has been in close contact with the US authorities since the start of the incident. On 29 January, FDA informed CFS that certain batches of the Health Valley brand "Organic Peanut Crunch Chewy Granola Bars" suspected to be contaminated with *Salmonella* had been exported to Hong Kong. The CFS has taken immediate follow-up action to contact the local importer and requested them to withdraw the affected product from the market. The CFS made a public announcement on the same day. The public was advised to dispose of them and thoroughly wash their hands afterwards.

Starting from 11 January, more than 36 rapid alerts have been issued to traders regarding the recalled products in the US to remind them to stop selling of the affected products, if available.

The CFS also checked local availability of the affected products and took samples of peanut butter and related products for testing of *Salmonella*. As of 17 February, the CFS has collected 30 samples of peanut butter and their related products for testing of *Salmonella* and all results are satisfactory.

Key Points to Note:

1. Food may be contaminated by salmonellae in animal faeces and cross-contamination may occur during further processing and preparation.
2. All age groups are susceptible to *Salmonella* infection, but the elderly, infants and those with impaired immune systems are more likely to have a severe illness.
3. Although salmonellae do not grow in peanut butter, it can survive well after peanut butter is contaminated.

Advice to Consumers

- Do not eat products that have been recalled. Discard them and wash hands thoroughly afterwards.
- Do not consume a product if there is doubt.
- Seek help from doctors if you suspect that you may have become ill from eating peanut products.

Advice to Trade

- Ensure that affected products are not served and confirm with your suppliers the source of their peanut product ingredients.

Further Information

- US CDC webpage on the outbreak of *Salmonella* Typhimurium infections
- US FDA webpage on the recall of products containing peanut butter

食物安全平台
Food Safety Platform

營養素與健康：碳水化合物 – 糖
Nutrient and Health - Carbohydrates: Sugars

食物安全中心
風險傳達組
科學主任馮慧中女士報告

Reported by Ms. Jacqueline FUNG, Scientific Officer,
Risk Communication Section,
Centre for Food Safety

我們在上一期探討了複合碳水化合物（即澱粉和膳食纖維），今期將會談談簡單碳水化合物（即糖）。

簡單碳水化合物(糖)

從化學結構而言，簡單碳水化合物可分為兩大類，即單糖（單糖分子）和雙糖（由兩個單糖分子聚合而成）。從營養角度而言，葡萄糖、果糖和半乳糖是三種主要單糖。這三種單糖分子均包含6個碳原子、12個氫原子和6個氧原子，其化學公式為$C_6H_{12}O_6$。

在這三種常見的單糖中，以葡萄糖最為重要，因為葡萄糖總是雙糖中兩個單糖分子的其中一個，同時是澱粉和糖原的基本組成單位。此外，值得一提的是，我們的腦部幾乎全賴葡萄糖作為能量來源。

果糖的化學公式與葡萄糖相同，但卻有不同的化學結構。它的獨特化學結構能刺激味蕾，從而產生甜味。果糖是所有糖中“最甜”的（即甜度最高），大量存在於水果和蜜糖中。

相反來說，另一種單糖“半乳糖”的甜度偏低，並很少在食物中獨立存在，常與葡萄糖分子結合成名為“乳糖”的雙糖。由於這種雙糖存在於奶類中（牛奶含4.7%，而母乳則含7%），故常稱為乳糖。

麥芽糖這種雙糖同樣並非廣泛存在於食物中。它由兩個葡萄糖分子組成。當種子（如大麥）發芽時又或澱粉經消化後，均會產生麥芽糖。

蔗糖是人們最熟悉的雙糖，即我們在日常生活中所指的砂糖，由果糖和葡萄糖結合而成。砂糖是以甘蔗和甜菜的汁液中抽取出來的蔗糖製成。為使食物帶甜味，蔗糖在食物生產過程中廣泛使用。此外，蔗糖又會經常用於食物中，以便改善食物的質感、結構和濃度，並在果醬和啫哩中用作防腐劑。

表1 簡單碳水化合物(糖)

單糖	雙糖
葡萄糖	蔗糖(葡萄糖 + 果糖)
果糖	乳糖(葡萄糖 + 半乳糖)
半乳糖	麥芽糖(葡萄糖 + 葡萄糖)

糖攝入量

大部分人都愛吃糖果，但過量攝入糖可能會增加患肥胖症的風險。患肥胖症的人會較易有糖尿病、高血壓和心臟病等慢性疾病。根據世界衛生組織的建議，在食物生產和食用過程中額外添加的糖以及蜜糖、果汁和糖漿中的天然糖合共應佔少於10%的能量攝入量。換言之， 2 000 千卡的膳食應攝取少於50克糖。

根據健康飲食金字塔，糖位於金字塔頂層，即應該“吃最少”。要做到這一點，市民可在飲品中少放糖／糖漿（一平茶匙糖和一滿茶匙糖分別約重4克和6克），並少吃糖果糕點及甜品和少喝汽水（一罐汽水約有30克至43克糖，即接近每天上限）。要了解不同食物的糖含量，請瀏覽中心網頁內的營養資料查詢。

In the last issue, we focused on complex carbohydrates (i.e. starch and dietary fibres). In this issue, we will talk about simple carbohydrates (i.e. sugars).

Simple Carbohydrates (Sugars)

Based on the chemical structures, simple carbohydrates can be divided into two categories, namely monosaccharides (single sugar molecule) and disaccharides (two single sugar molecules joined together). Glucose, fructose and galactose are the three monosaccharides important in nutrition. These single sugar molecules contain 6 carbon atoms, 12 hydrogen atoms and 6 oxygen atoms (i.e. chemical formula as $C_6H_{12}O_6$).

Among these three common monosaccharides, glucose is of most significance as it always exists as one of the two sugar molecules found in a disaccharide, plus it is the basic unit that makes up starch and glycogen. Furthermore, it is worth mentioning that our brain is almost exclusively dependent on glucose as energy source.

Fructose, having the same chemical formula as glucose, has different chemical structure. Because of its unique structure, it stimulates the taste buds which result in a sweet sensation. Fructose is the “sweetest” of all sugars (i.e. with the highest intensity of sweetness) and it is most abundant in fruits and honey.

On the contrary, galactose, the other monosaccharide, has low sweet intensity and can rarely be found free in foods. It combines with a glucose molecule to form the disaccharide lactose, commonly known as milk sugar, since it is found in milk (4.7% in cow’s milk and 7% in human breast milk).

Another disaccharide that is not widely available in foods is maltose. Maltose is composed of two glucose molecules and it is produced when seeds (e.g. barley) germinate and starch breaks down during digestion.

The most familiar disaccharide of all is sucrose, which we usually call table sugar in our daily life. Sucrose is the combination of fructose and glucose. To produce table sugar, sucrose is extracted from the juices of sugar cane and sugar beets. Sucrose is widely used as an ingredient for sweetening purpose in food production. Besides, it is often used to improve the texture, structure and consistency of foods. In addition, it also functions as a preservative in jams and jellies.

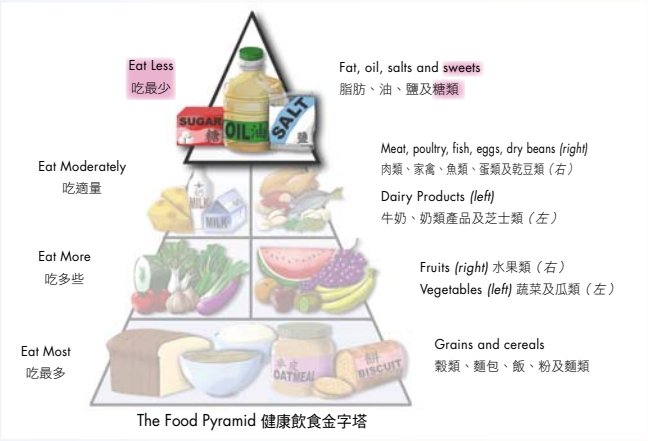
Table 1 Simple Carbohydrates (Sugars)

Monosaccharides	Disaccharides
Glucose	Sucrose (glucose + fructose)
Fructose	Lactose (glucose + galactose)
Galactose	Maltose (glucose + glucose)

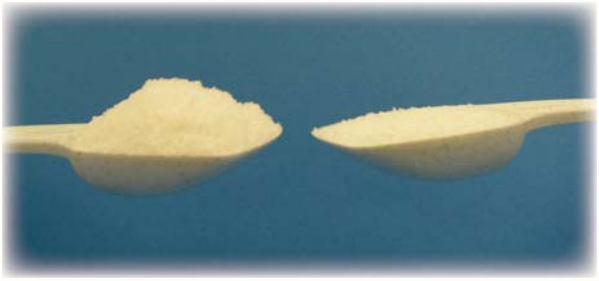
Sugars Intake

Most people love sweets, but excessive intake may increase the risk of obesity. Obese individuals are more prone to chronic diseases, such as diabetes, hypertension and heart diseases. According to the World Health Organization’s recommendation, less than 10% of energy contribution should come from sugars added to foods during the production and consumption plus natural sugars found in honey, fruit juices and syrups. In other words, a 2 000-kcal diet should have less than 50g of sugars.

With reference to the food pyramid, it is the top of the pyramid which represents the “Eat Less” level, thereby intake of sugars should be kept at a low level. To do so, individuals can reduce the use of sugars/syrups in beverages (one level and one heaped teaspoon of sugars weigh about 4g and 6g respectively) and cut down the consumption of confectionaries, desserts and soft drinks (one can of soft drinks contains approximately 30g to 43g of sugars, i.e. close to a day’s limit). To learn about the sugar contents of foods, please visit the Nutrient Information Inquiry System at the CFS’s website.



The Food Pyramid 健康飲食金字塔


一滿茶匙糖 ≈ 6克，一平茶匙糖 ≈ 4克
One heaped teaspoon of sugars ≈ 6g, one level teaspoon of sugars ≈ 4g

介紹過蛋白質和碳水化合物之後，我們在下一期會繼續以營養為主題，探討最後一種常量營養素一脂肪。

After protein and carbohydrates, we will continue the series on nutrition and introduce the last macronutrient - fats in the next issue.

食物事故點滴
Food Incident Highlight

紅2G與瓜子和臘腸

食物安全中心（中心）近日進行有關賀年食品的時令食品調查，在紅瓜子和臘腸的樣本中驗出紅2G。由於這種染色料不得用於食物中，故有關產品已經停售。

紅2G 是一種穩定性高的人造染色料，可令食物呈現不同深淺的紅色。歐洲食物安全局等機關的近期科學證據顯示，長期進食紅2G可能會破壞基因，因為由紅2G分解出來的其中一種物質可令人患癌。

基於上述科學進展，由二零零八年十二月一日起，紅2G不得用於食物中。業界應確保其產品沒有使用紅2G。

Red 2G in Melon Seeds and Chinese Sausage

Under the recent seasonal surveillance programme on Chinese New Year foods by the Centre for Food Safety (CFS), samples of red melon seeds and Chinese pork sausage were found to contain Red 2G, a colourant which is no longer permitted to be used in food. The sale of the products was stopped as a result.

Red 2G is a stable synthetic dye which can impart a range of red colours in food. Recent scientific evidence from organisations like European Food Safety Authority suggests that Red 2G may damage genes as one of its breakdown products may cause cancer in human when the colourant is consumed in the long term.

In view of this scientific development, Red 2G has not been permitted to be used in food since 1 December 2008. The trade should ensure that Red 2G is not used in their products.

快速警報系統：向食物業發出警報的快捷途徑

食物安全中心（中心）不斷留意海外各地的食物安全事故，並評估這些事故對本港公眾衞生的影響。如事故對本港可能有影響，中心會盡快向業界發放有關資訊，以便他們能夠及時採取行動。

中心在二零零七年九月試行“快速警報系統”，資訊傳達工作因而有所改善。有關系統於二零零八年二月一日正式推行。透過這個系統，快速警報信息會經電郵或傳真系統大量發送。此外，接收者如提供手提電話號碼，亦可透過短訊服務接收提示信息。食物業界可在中心網頁內登記享用這項免費服務。“快速警報系統”現有數以千計的傳真號碼和電郵地址。

The Rapid Alert System – A Rapid Means to Alert the Food Trade

The Centre for Food Safety (CFS) has been constantly monitoring food safety incidents from various overseas countries and areas and assessing their local public health implications. When local impact is possible, the CFS distributes the information to the trade promptly so that they can take actions in a timely manner.

The dissemination work was enhanced when the CFS started to pilot a Rapid Alert System (RAS) in September 2007. The RAS was officially launched on 1 February 2008. Through this system, Rapid Alert messages are sent by a mass e-mail and fax system. The recipients may also receive a reminder through short message service (SMS) if their mobile telephone numbers are provided. Members of the food trade can sign up for the free service at the CFS website. The RAS now contains thousands of fax numbers and e-mail addresses.

風險傳達
工作一覽
Summary of
Risk Communication Work

風險傳達工作一覽（二零零九年一月） Summary of Risk Communication Work (January 2009)	數目 Number
事故/食物安全個案 Incidents / Food Safety Cases	60
公眾查詢 Public Enquiries	147
業界查詢 Trade Enquiries	339
食物投訴 Food Complaints	289
給業界的快速警報 Rapid Alerts to Trade	32
教育研討會/演講/講座/輔導 Educational Seminars / Lectures / Talks / Counselling	93
上載到食物安全中心網頁的新訊息 New Messages Put on the CFS Website	20