



由食物環境衛生署食物安全中心於每月第三個星期三出版
Published by the Centre for Food Safety, Food and Environmental Hygiene Department on every third Wednesday of the month

本期內容 IN THIS ISSUE

焦點個案

❖ 金黃葡萄球菌與燒味

食物安全平台

❖ 冷壓蔬果汁的美味真相

食物事故點滴

❖ 《食物內有害物質規例》修訂條文行將生效

❖ 標示預先包裝食品中的二氧化硫

風險傳達工作一覽

Incident in Focus

❖ *Staphylococcus aureus* and Siu-mei

Food Safety Platform

❖ The Juicy Truth about Cold-pressed Juice

Food Incident Highlight

❖ Commencement of the Amendments to the Harmful Substances in Food Regulations

❖ Labelling of Sulphur Dioxide in Prepackaged Food

Summary of Risk Communication Work

焦點個案 Incident in Focus

金黃葡萄球菌與燒味

Staphylococcus aureus and Siu-mei

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

上月，發生數宗涉及一間燒味店的食物中毒個案，患者在進食該店的外賣食物數小時後出現病徵。調查人員在跟進時從該店抽取的白切雞及燒味樣本中，檢出含量不合格的凝固酶陽性葡萄球菌。在凝固酶陽性葡萄球菌中，最主要引致食物中毒的是金黃葡萄球菌。在本文中，我們會討論金黃葡萄球菌如何傳播至燒味，以及相關的預防措施。

處理及貯存不當導致金黃葡萄球菌風險

在本港，燒味及白切雞是葡萄球菌食物中毒個案中常見的食物傳播媒介，通常是由於人手處理時造成污染，以及長時間在室溫下陳列所致。金黃葡萄球菌是一種常見於人類頭髮與皮膚，以及鼻腔、喉嚨和傷口的細菌。金黃葡萄球菌一般透過食物處理人員雙手接觸而污染食物，尤其是在烹煮後以人手處理食物的情況。雖然烹煮消滅

Last month, takeaways from a siu-mei shop were involved in several food poisoning clusters, in which the victims developed symptoms a few hours after consuming the food. Unsatisfactory levels of coagulase-positive staphylococci were detected from the plain chicken and siu-mei samples collected from the shop upon follow-up investigation. Among coagulase-positive staphylococci, *Staphylococcus aureus* is the predominant one causing food poisoning. In this article, we will discuss how *S. aureus* is spread to siu-mei and the relevant preventive measures.

Risk of *S. aureus* due to Improper Handling and Storage

In Hong Kong, siu-mei and plain chicken are among the common food vehicles related to staphylococcal food poisoning, often due to contamination during manual handling and prolonged display at room temperature. *S. aureus* is a bacterium commonly found on the hair and skin and in the nasal cavity, throat, and wounds of humans. Typically, *S. aureus* contaminates food through contacts with food handlers' hands, especially in scenarios where the

編輯委員會 EDITORIAL BOARD

總編輯

楊子橋醫生

顧問醫生(社會醫學)(風險評估及傳達)

行政編輯

吳志翔醫生

首席醫生(風險評估及傳達)

委員

陳國雄醫生 署理首席醫生(風險管理)

傅玉清醫生 署理首席醫生(風險管理)

戴慶豐獸醫 高級獸醫師(獸醫公共衛生)

張偉文先生 高級總監(食物安全中心)

朱瑞燕女士 高級總監(食物安全中心)

譚秀琼醫生 主管(風險評估組)

陳以信博士 高級化驗師(食物研究化驗所)

Editor-in-chief

Dr. Samuel YEUNG

Consultant (Community Medicine)
(Risk Assessment and Communication)

Executive Editor

Dr. Henry NG

Principal Medical Officer
(Risk Assessment and Communication)

Members

Dr. Addi CHAN

Acting Principal Medical Officer (Risk Management)

Dr. Alex FU

Acting Principal Medical Officer (Risk Management)

Dr. Eric TAI

Senior Veterinary Officer (Veterinary Public Health)

Mr. W M CHEUNG

Senior Superintendent (Centre for Food Safety)

Ms. S Y CHU

Senior Superintendent (Centre for Food Safety)

Dr. Carole TAM

Head (Risk Assessment Section)

Dr. Gabriel CHAN

Senior Chemist (Food Research Laboratory)



圖1:安全製作及陳列燒味

Figure 1: Safe preparation and display of siu-mei

焦點個案
Incident in Focus

了其他競爭生長的微生物，但卻為污染食物的金黃葡萄球菌提供有利迅速繁殖的環境，加上長時間在室溫下貯存，金黃葡萄球菌便可倍增，產生耐熱的毒素。因此，即使經過翻熱，進食這些受污染的食物仍可使人生病。我們不時會看到一些食物業商戶把燒味掛在店面前的展示櫃內，在室溫下陳列數小時。從食物安全的角度來看，不禁令人對這種陳列方式是否妥當存有疑問。

處理及陳列燒味要衛生

食物安全中心進行的一項研究指出，燒味在斬件前陳列數小時的傳統做法不大可能導致微生物問題。該項研究評估了在室溫下存放最長為時8小時後，[燒味的微生物質素](#)（特別是燒肉）有何變化。研究顯示，斬件前的整塊燒味並不利於細菌生長，原因可能是表面經過烘乾並添加了調味料，產生保護作用。雖然如此，食物處理人員仍應遵守[良好衛生規範](#)，以盡可能減少細菌污染，包括致病細菌。在參與研究的八間店鋪中，在參與研究的八間店鋪中，有三間店鋪的燒味樣本均驗出低含量的金黃葡萄球菌。這表示金黃葡萄球菌可能在店鋪層面造成廣泛污染。在製作燒味的過程中，保持良好個人衛生及清潔是十分重要的。

值得注意的是，斬件後陳列的燒味有利細菌生長。研究顯示，斬件燒味（尤其是以保鮮紙包裝的）在室溫下放置數小時後，細菌總含量上升至不合格水平。這可能是由於(1)燒味在斬件過程中受到污染；(2)可供細菌生長的表面積增加；(3)蛋白質豐富的表面外露；以及(4)保留於食物中的水分有助細菌生長。因此，經包裝的斬件燒味如在室溫下陳列，最好在2小時內出售，至於消費者則應盡快食用這些燒味。

注意事項

1. 金黃葡萄球菌常見於皮膚、口、鼻及傷口等身體部位，可在包括斬件的人手處理過程中污染燒味。
2. 未斬件的燒味並不利於細菌生長，因此可在室溫下陳列數小時。雖然如此，食物處理人員仍須保持個人及環境衛生，以盡可能減少交叉污染。
3. 斬件燒味（尤其是經包裝的）提供有利細菌大量生長的環境。這些燒味最好在2小時內出售，並盡快食用。

給業界的建議

- 食物處理人員應保持良好個人衛生，例如經常徹底清潔雙手，並正確佩戴手套及口罩。
- 分開多次小批量製備當天售賣的燒味次小批量製備當天售賣的燒味，以縮短在室溫下陳列的時間。
- 在室溫下出售經包裝的斬件燒味，可加上食用忠告，提醒消費者盡快食用或放入雪櫃貯存。

給市民的建議

- 如果購買即時斬件的燒味，應在4小時內食用。
- 如果購買陳列在食品展示櫃檯的經包裝斬件燒味，應盡快食用或放入雪櫃貯存。

food is handled manually after cooking. While cooking eliminates other microorganisms competing for growth, it creates a favourable environment for *S. aureus* from contamination to proliferate. Compounded with prolonged storage at room temperature, the bacterium can grow exponentially and form heat-stable toxins. Therefore, consuming the incriminated food can still make people sick even after re-heating. It is not unusual to see some food businesses hang and exhibit siu-mei in a display case before the storefront at room temperature for a few hours. This practice calls into question whether the displaying is proper from the perspective of food safety.

Hygienic Handling and Display of Siu-mei

The traditional practice of displaying siu-mei before chopping for a few hours is unlikely to have microbiological concern, as noted from a study conducted by the Centre for Food Safety. The study assessed the changes in the [microbiological quality of siu-mei](#), particularly roasted meats, kept at room temperature for up to eight hours. The study revealed that whole intact piece of siu-mei before chopping did not favour bacterial growth, possibly due to the protective effects of surface drying and seasoning. That said, food handlers should follow [good hygiene practices](#) to minimise contamination with bacteria, including those disease-causing ones. In three out of the eight shops participating in the study, *S. aureus* was detected at low levels from all the siu-mei samples collected from those shops. This implies that *S. aureus* could cause widespread contamination at shop level. It is important to maintain a high standard of personal hygiene and cleanliness throughout the preparation of siu-mei.

It is worth noting that chopping siu-mei for display can facilitate bacterial growth. The study showed the total bacterial counts of chopped siu-mei, especially those wrapped in cling film, increased to unsatisfactory levels after being left at room temperature for hours. It is possibly the result of (1) the contamination of meats from the chopping process; (2) the increase in surface area for bacteria to grow; (3) exposure of protein-rich surface; and (4) retention of moisture in food that favours bacterial growth. Therefore, for siu-mei that are cut and packaged for display at room temperature, it is advisable to sell them within two hours, whereas consumers should consume these siu-mei as soon as possible.

Key Points to Note

1. *S. aureus* are commonly found on body parts including the skin, nose and wounds, and can contaminate siu-mei during manual handling, including the process of chopping siu-mei.
2. Uncut siu-mei do not support bacterial growth well and hence can be displayed for hours at room temperature. That said, food handlers have to maintain personal and environmental hygiene to minimise cross-contamination.
3. Cut siu-mei, especially in packaged forms, provide a favourable environment for bacteria to grow to high levels. These siu-mei are recommended to be sold within two hours and be consumed as soon as possible.

Advice to the Trade

- Food handlers should maintain proper personal hygiene, such as frequent and thorough washing of hands and proper wearing of gloves and masks.
- Smaller batches of siu-mei can be prepared more frequently throughout the day to reduce the displaying time at room temperature.
- For selling packaged cut siu-mei at room temperature, an advisory can be included to remind consumers to consume the chopped siu-mei or keep them refrigerated as soon as possible.

Advice to the Public

- For siu-mei chopped upon purchase, consume them within four hours.
- For packaged and chopped siu-mei that have already been displayed at a food display counter, consume them as soon as possible or keep them refrigerated.

冷壓蔬果汁的美味真相

The Juicy Truth about Cold-pressed Juice

食物安全中心風險傳達組
科學主任游天頌先生報告

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

蔬菜水果在健康飲食中不可或缺，但我們往往無暇購買和預備以供食用，這是現代生活中可能經常遇到的難題。近年來，預先包裝蔬果汁被推銷為方便又美味之選，一瓶即可吸收豐富的營養素。然而，從食物安全的角度來看，確保預先包裝蔬果汁不含任何致病微生物，更為重要。

何謂冷壓蔬果汁？

以一般的商業生產方式生產蔬果汁，通常是用切割機旋轉的金屬刀片把農產品切成小塊，然後用離心機從果肉中分離出果汁。最近，一些本地生產商引入了冷壓這種榨汁方式。其原理是用液壓機擠壓切碎的蔬果，把果肉中大部分果汁擠壓出來。冷壓並不能減少產品中的微生物含量，因此冷凍貯存的冷壓蔬果汁的保質期通常只有短短數天。至今未有研究顯示冷壓蔬果汁與一般方式生產的蔬果汁在營養成分上有任何顯著分別，儘管前者聲稱涉及較少熱處理。

冷壓蔬果汁的食物安全風險

水果蔬菜可能含有存在於農場環境中的土壤或水中的細菌，因而污染農產品及其製品。收成後，新鮮農產品也可能會在包裝、運輸、貯存或配製等過程中受到污染。食用受污染的農產品或其製品可導致食源性疾病。如屬**高危人士**，例如長者、嬰幼兒、孕婦及免疫力弱人士（例如使用抗生素、抗胃酸藥的人士）情況會特別嚴重。未經處理的蔬果汁受食源性微生物污染的風險較大，以沙門氏菌及O157:H7型大腸桿菌為例，兩者都能夠在大部分蔬果汁的酸性環境中生存。

巴士德消毒與高壓處理

在本地，冷凍的預先包裝蔬果汁在生產過程中通常已經過熱處理，例如巴士德消毒。熱處理旨在殺死有害微生物，減少令產品變壞的微生物數量，並使導致品質下降的酶（又稱酵素）失去活性。另一方面，冷壓本身只是榨取蔬果汁的程序。為了在不加熱的情況下延長冷壓蔬果汁的保質期，一些生產商便選擇使用高壓處理來減少蔬果汁中的微生物。

高壓處理技術是把食物置於數以千倍大氣壓力的高壓下，透過破壞細菌的細胞膜使其無法修復來殺死細菌。高壓處理是一種較新的食品保存方法，但研究發現，在環境溫度下單獨使用高壓處理並不能消滅食源性病原體（例如肉毒桿菌）的孢子。一些海外食物主管當局要求生產商結合使用高壓處理與其他程序，通常是提升溫度，以有效殺滅孢子。無論使用哪種食品保存方法，不論加熱與否，生產商都應驗證蔬果汁生產中的所有控制重點，以確保能夠充分減少產品中的微生物。

給業界的建議

1. 從採購原材料到整個生產過程都遵循**優良製造規範**。
2. 在蔬果汁生產程序中採用的任何食品保存方法，不論加熱與否，都應加以驗證，以確保能夠充分減少微生物。
3. 所有蔬果切開後均應存放在攝氏4度或以下。所有用具及設備應定期徹底清潔和消毒。
4. 經常保持**良好個人衛生**。
5. 避免長時間貯存，影響蔬果汁的品質及安全。按照生產的先後順序分發和售賣製成品。

給市民的建議

1. 冷壓蔬果汁的保質期通常較

Vegetables and fruits are part and parcel of a healthy diet, yet we are often too busy to purchase and prepare them for consumption — a modern-life dilemma one may frequently encounter. In recent years, prepackaged juice has been marketed as a convenient way to get a boost of nutrients from a bottle of what hopefully is something delicious. However, making the prepackaged juice free from any disease-causing microorganisms is more important from the perspective of food safety

What is Cold-pressed Juice?

Conventional commercial juice production operations often produce juice by cutting produce into small pieces by machines with spinning metal blades, followed by separating the juice from fruit flesh with centrifuges. Lately, some local manufacturers have introduced “cold-pressing” as an alternative way of juicing. It involves pressing shredded fruits and vegetables with a hydraulic press to squeeze out most of the juice from the pulp. Cold-pressing does not reduce the microbial load in the products. Therefore, cold-pressed juice usually has a short shelf life of a few days under refrigeration. Studies so far do not reveal any significant differences in the nutrition contents between cold-pressed and comparable conventionally processed juices, despite the former claiming to involve less heat treatment.

Food Safety Risks of Cold-pressed Juice

Fruits and vegetables may harbour bacteria that exist in soil or water in the farm environment, thereby contaminating the produce and its products. Fresh produce can also become contaminated after being harvested, such as during packing, transportation, storage or preparation. Consumption of contaminated produce or its products can lead to foodborne illness. This is especially serious in **susceptible individuals** such as the elderly, babies and young children, pregnant women and people with weakened immunity (e.g. persons taking antibiotics, antacids). Untreated juices have a greater risk of contamination by foodborne microorganisms such as *Salmonella* and *E. coli* O157:H7, both of which can survive in the acidic environment of most fruit and vegetable juices.

Pasteurisation and High Pressure Processing

Locally, chilled prepackaged juices often have undergone heat treatment, such as pasteurisation, during production. The heat treatment aims to kill harmful microorganisms, reduce the amount of spoilage organisms, and inactivate enzymes that lead to quality loss. On the other hand, cold-pressing itself is only a juice extraction process. To extend the shelf life of cold-pressed juices without applying heat, some producers choose to use high pressure processing (HPP) to reduce the microorganisms in juices.

HPP subjects foods to high pressures of thousands of times of atmospheric pressure. The technique kills bacteria by disrupting their cell membranes beyond repair. HPP is a relatively new food preservation method, and studies find that HPP alone at ambient temperature does not destroy spores from foodborne pathogens like *Clostridium botulinum*. Some overseas food authorities require the manufacturers to combine HPP with other processes, usually elevated temperature, to effectively inactivate spores. Whichever food preservation method, thermal or non-thermal, is used, the manufacturers should validate all control points of the juice production to ensure sufficient reduction of the pertinent microorganisms is achievable.

Advice to the Trade

1. Follow [Good Manufacturing Practices](#) from purchasing raw materials to the whole production process.
2. Any food preservation methods, thermal or non-thermal,

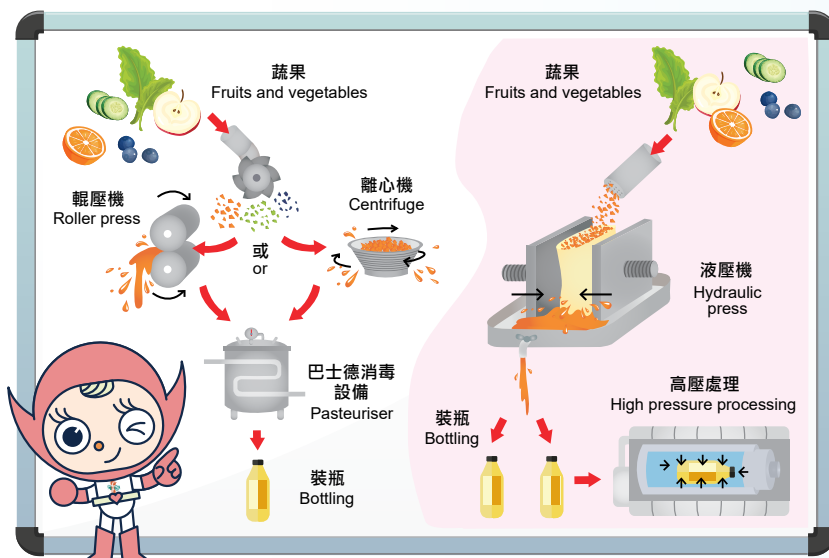


圖2: 傳統(左)與冷壓榨汁程序的比較

Figure 2: Comparison of conventional (left) and cold-pressed juice processing

- 短。如非在購買後即時飲用，必須放入雪櫃並在過期前飲用。
2. 高危人士應避免飲用未經巴士德消毒或同等程序處理以殺死有害細菌的蔬果汁。
 3. 食用原個水果而非果汁，以同時獲得膳食纖維的益處，並減少攝取**游离糖**。

- applied in the juice production process should be validated to secure sufficient microbial reduction.
3. Store all fruits and vegetables at 4°C or below once cut. Regularly clean and sanitise all utensils and equipment thoroughly.
 4. Maintain [good personal hygiene](#) at all times.
 5. Avoid prolonged storage, which affects the quality and safety of juices. Distribute and sell finished products on a first-in-first-out basis.

Advice to the Public

1. Cold-pressed juice usually has a short shelf life. If not consumed immediately after purchase, cold-pressed juice must be refrigerated and consumed before expiry.
2. Susceptible populations should avoid drinking juices without pasteurisation or equivalent processes to kill harmful bacteria.
3. Consume the whole fruit instead of juice in order to also get the benefits of dietary fibres and reduce intake of [free sugars](#).

食物事故點滴 Food Incident Highlight

《食物內有害物質規例》修訂條文行將生效 Commencement of the Amendments to the Harmful Substances in Food Regulations

為了加強保障市民健康，《2021年食物內有害物質(修訂)規例》(《修訂規例》)已獲立法會通過。《修訂規例》把「部分氫化油」列為食物中的違禁物質。修訂條文響應世界衛生組織提出在二零二三年或之前在全球食品供應中停用工業生產的反式脂肪的目標，並配合《邁向2025：香港非傳染病防控策略及行動計劃》內其中一項主要措施。相關條文將於二零二三年十二月一日生效。

此外，《修訂規例》亦加強規管食物中的霉菌毒素，以及訂定或更新五種其他有害物質在食用油脂、調味品或擬供嬰兒食用的配方產品中的最高含量，這些物質包括苯並(a)芘、縮水甘油脂肪酸酯、三聚氰胺、氯丙二醇及芥酸。訂明在食物中這些有害物質的最高含量的相關條文，一律於二零二三年六月一日生效。

除了**網上宣傳**及業界諮詢會外，我們還舉行了技術會議，以助業界了解和遵守《修訂規例》。欲知最新的資訊，請瀏覽我們的**網頁**。

The Legislative Council has passed the Harmful Substances in Food (Amendment) Regulation 2021 (the Amendment Regulation) to better protect public health. The Amendment Regulation prohibits partially hydrogenated oils in food. Such amendment meets the World Health Organization's goal of eliminating industrially produced trans fatty acids from the global food supply by 2023. It is also in line with one of the key measures under the "Towards 2025: Strategy and Action Plan to Prevent and Control Non-communicable Disease in Hong Kong". The relevant provisions will come into operation on 1 December 2023.

Besides, the Amendment Regulation strengthens the regulatory control of mycotoxins in food. It sets or updates the maximum levels of five other harmful substances in edible fats and oils, condiments or formula products intended for infants. These include benzo[a]pyrene, glycidyl fatty acid esters, melamine, 3-monochloropropane-1,2-diol and erucic acid. The provisions stipulating the maximum levels of these harmful substances in food will all come into operation on 1 June 2023.

In addition to [online publicity](#) and trade forum, technical meetings have been conducted to facilitate the trade's understanding and compliance with the Amendment Regulation. Please visit our [webpage](#) for the latest updates.

標示預先包裝食品中的二氧化硫 Labelling of Sulphur Dioxide in Prepackaged Food

最近，[兩個預先包裝食品的樣本](#)被檢出含有致敏防腐劑**二氧化硫**，雖然其含量符合法例標準，但未有標明在食物標籤上。根據《食物及藥物(成分組合及標籤)規例》(第132W章)，如食物含有濃度達到或超過百萬分之十的二氧化硫，必須在配料表中**列明其作用類別及名稱**。

二氧化硫這種防腐劑廣泛應用於各種食物中，包括蔬菜乾、乾果、醃菜、濃縮果汁等。二氧化硫可溶於水，只要清洗和烹煮，便可除去食物中大部分的二氧化硫。不過，對二氧化硫敏感的人士在攝入後可能會出現呼吸困難、頭痛及噁心等徵狀。業界必須遵守有關規定，列明在本港出售的預先包裝食品中含有的所有添加劑及其作用類別。

Recently, [two prepackaged food samples](#) were detected with [sulphur dioxide](#), an allergy-causing preservative. Although the levels detected were within the legal limit, its presence was not declared on the food labels. According to the Food and Drugs (Composition and Labelling) Regulations (Cap. 132W), if a food contains sulphur dioxide in a concentration of 10 parts per million or more, the [functional class and the name shall be specified](#) in the list of ingredients.

Sulphur dioxide is a commonly used preservative in various foods, including dried vegetables, dried fruits, pickled vegetables, juice concentrates, etc. Sulphur dioxide is water-soluble, and most of it can be removed through washing and cooking. However, individuals who are allergic to this preservative may experience breathing difficulties, headaches and nausea after consumption. The trade has to comply with the requirements and list all additives present by functional class for prepackaged food for sale in Hong Kong.



風險傳達工作一覽 (二零二一年七月)

Summary of Risk Communication Work (July 2021)

事故/食物安全個案 Incidents/ Food Safety Cases: 163	公眾查詢 Public Enquiries: 128	業界查詢 Trade Enquiries: 277	食物投訴 Food Complaints: 366	給業界的快速警報 Rapid Alerts to Trade: 8
給消費者的食物警報 Food Alerts to Consumers: 3	懷疑食物中毒個案通報 Suspected Food Poisoning Alerts: 2	教育研討會/演講/講座/輔導 Educational Seminars/ Lectures/ Talks/ Counselling: 54	上傳到食物安全中心網頁的新訊息 New Messages Put on the CFS Website: 46	