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焦點個案 Incident in Focus

進食醃泡的生蟹及生蜆蚶引致食物中毒

Food Poisoning Caused by Consumption of Marinated Raw Crabs and Cockles

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

二零二一年三月初，食物安全中心(食安中心)調查兩宗由衛生防護中心轉介的流行病學相關食物中毒個案。兩宗個案共有五人受影響，患者在旺角一間食肆晚膳後出現腹痛、腹瀉及嘔吐等胃腸道症狀，其中四人已就醫，但無需入院。

衛生防護中心的流行病學評估顯示，上述個案懷疑是由醃泡的生蟹及生蜆蚶中的諾如病毒及副溶血性弧菌所引致。食肆所提供的蟹及蜆蚶購自街市，但並非擬供生吃。在醃泡前，蜆蚶只是略為焯煮了不足一分鐘，而蟹

在割洗後也沒有進行任何加熱處理，然後便以豉油、蒜頭及辣椒醃泡，冷藏一晚才奉客。在實地調查後，食安中心已指示食肆即時停售未經烹煮的海產菜式。其後，再無接獲該食肆發生涉及生海產的食物中毒報告。

生吃水產的危害

生的海產是**高風險的食物**。生吃海產會有各種危害，包括微生物危害及寄生蟲。醃泡是把食物浸泡在調味液中以增添風味，但不能從食物中吸去足夠的水分來防止細菌滋生，也不能殺死任何寄生蟲。基本上，醃泡無法取代徹底烹煮。

細菌及病毒

生的水產可能含有有害微生物，包括細菌(例如副溶血性弧菌)及病毒(例如諾如病毒)。這些微生物可能是天然存在的，也可能源自環境污染。**副溶血性弧菌**普遍存在於河口及近岸水域。

In early March 2021, the Centre for Food Safety (CFS) investigated two epidemically linked food poisoning cases referred by the Centre for Health Protection (CHP). Two clusters, with five persons affected, suffered from gastrointestinal symptoms such as abdominal pain, diarrhoea and vomiting after their dinner at a restaurant in Mong Kok. Four victims sought medical attention but did not require hospitalisation.



圖1: 生醃膏蟹(左)及生醃蜆蚶(右)
Figure 1: Marinated raw mud crabs (left) and marinated raw cockles (right)

The epidemiological assessment of the CHP suggested that the suspected causes were norovirus and *Vibrio parahaemolyticus* in suspected food items marinated **raw crabs** and marinated raw cockles. The crabs and cockles served were purchased from a wet market and were not intended for raw consumption. The cockles were only briefly blanched for less than a minute, and the crabs underwent no heat treatment after dressing. The items were then marinated with soya sauce, garlic and chilli, and refrigerated overnight before serving. After on-site investigation, the CFS had immediately instructed the premises to stop selling the uncooked seafood dishes. No further outbreaks concerning raw seafood were later on reported at this premises.

Hazards from Consumption of Raw Aquatic Products

Raw seafood is a kind of **high-risk foods**. There are various types of hazards, including microbiological hazards and parasites, from eating seafood raw. Marinating, which adds flavours to foods by soaking them in a seasoning liquid, can neither draw enough

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焦點個案

Incident in Focus

因此，一些海產(例如蟹及雙貝類)難免會受到副溶血性弧菌的污染。諾如病毒則是常見的食源性病毒，通常存在於受污染的海水中，在這些水域所採集的介貝類可能會感染到這種病毒。

寄生蟲

野生捕撈的水產較可能帶有寄生蟲；養殖的水產若非在無寄生蟲的環境中飼養，亦較可能帶有寄生蟲。這些水產可能會感染不同的寄生蟲，當中令人關注的是吸蟲(肝吸蟲及肺吸蟲)、蛔蟲(例如廣州管圓線蟲)及絛蟲(例如裂頭絛蟲屬)。有些寄生蟲未必會引起任何症狀或只引致輕微症狀，有些寄生蟲則可能會在稍後才導致嚴重的後果，例如有些可造成膽管或腸道阻塞，有些可引致類似結核病或支氣管炎的症狀，而另一些則可影響神經系統。

預防措施

避免進食生或未煮熟醃泡海產

生的魚類及蟹可能含有有害細菌及寄生蟲，而介貝類則較常受到有害細菌及病毒的污染。有人為了保持蠔蚶等介貝類的鮮嫩質感，只會將之略煮，但此舉無法殺死當中的食源性病原體，包括**抗菌素耐藥性病原體**。

進食生或未煮熟的食物所存有的風險遠高於熟食。**高危人士**，例如孕婦、嬰幼兒、長者及免疫力弱人士，若進食生或未煮熟的食物，受感染或出現併發症的風險較高，故應避免這些食物，而應食用煮熟的食物。

moisture from foods to prevent bacterial growth nor kill any parasites present. Basically, marinating cannot replace thorough cooking.

Bacteria and Viruses

Raw aquatic products may harbour harmful microorganisms, including both bacteria (e.g. *Vibrio parahaemolyticus* (VP)) and viruses (e.g. norovirus). These microorganisms may be naturally present or introduced through environmental contamination. **VP prevails in estuaries and coastal areas**. Therefore, some seafood, such as crabs and bivalves, is inevitably contaminated with VP. Norovirus is a prevalent foodborne virus commonly found in contaminated seawater, where shellfishes collected may uptake the virus.

Parasites

Parasites are more likely to be present in wild-caught aquatic animals and certain farm-raised ones that are not exclusively raised in a parasite-free environment. These aquatic products may acquire different parasites. The parasites of concern include flukes (liver flukes and lung flukes), roundworms (e.g. *Angiostrongylus cantonensis*) and tapeworms (e.g. *Diphyllobothrium* spp.). Some parasites may cause no or mild symptoms, while some may result in severe consequences later. For instance, some can cause bile duct or intestinal blockage, some can cause symptoms similar to tuberculosis or bronchitis, while others can affect the nervous system.

Preventive Measures

Avoid Consuming Raw or Undercooked Marinated Seafood

Raw fish and crabs may contain harmful bacteria and parasites, while shellfishes are more commonly contaminated with harmful bacteria and viruses. While some practise light cooking of shellfishes, such as cockles, to retain their delicate texture, it cannot kill foodborne pathogens, including **antimicrobial-resistant pathogens**.

Consumption of raw or undercooked foods is inherently more risky than cooked ones. **Susceptible populations**, such as pregnant women, infants, young children, the elderly and people with weakened immunity, are at higher risk of being infected or having complications if they consume raw or undercooked foods. They should avoid them and consume cooked foods instead.

Key Points to Note

1. Marinated raw seafood products are high-risk foods.
2. Cooking seafood thoroughly is the only way to prevent foodborne diseases caused by harmful microorganisms and parasites.
3. Seasonings, wine, herbs and spices cannot effectively kill bacteria and parasites.

Advice to the Trade

- Obtain a relevant licence/permit from the Food and Environmental Hygiene Department (FEHD) for manufacturing and/or sale of sushi and sashimi.
- Raw seafood dishes should only be prepared from seafood ingredients that are intended for raw consumption.
- Inform consumers of dishes containing raw or undercooked ingredients with a **consumer advisory**.

Advice to the Public

- Use only ingredients that are intended for raw consumption when preparing raw or lightly cooked seafood dishes.
- Check whether the premises have a valid FEHD licence or permit to sell sashimi and sushi before patronising.
- Susceptible populations should avoid eating raw and undercooked foods.

注意事項

1. 生醃海產屬於高風險的食物。
2. 把海產徹底煮熟，是預防有害微生物及寄生蟲引致食源性疾病的唯一方法。
3. 調味料、酒、香草及香料無法有效殺死細菌及寄生蟲。

給業界的建議

- 必須向食物環境衛生署(食環署)申領相關的牌照/許可證，方可配製和/或售賣壽司及刺身。
- 生的海產菜式只應以擬供生吃的海產材料來製作。
- 向消費者作出**食用忠告**，告知消費者哪些菜式含有生或未煮熟的材料。

給市民的建議

- 在製作生或略熟的海產菜式時，只應使用擬供生吃的材料。
- 在光顧食肆前，應查看食肆是否領有食環署發出准予售賣刺身及壽司的牌照或許可證。
- 高危人士應避免進食生或未煮熟的食物。

氮氣 — 豈只是包裝氣體

Nitrogen - A Packaging Gas and Beyond

食物安全中心風險評估組
科學主任黃詩雯女士報告

Reported by Ms. Sosanna WONG, Scientific Officer,
Risk Assessment Section, Centre for Food Safety

你有沒有想過，為什麼薯片或蝦條的包裝袋總是脹鼓鼓的？另外，為什麼包裝打開後，袋內的薯片會變軟，有時甚至還沒過最佳食用日期，很快便有油膩味？包裝氣體可以說是一種食物添加劑，在食品加工中有獨特的作用，能有效減慢食物變質和延長食品的壽命。本文會探討包裝氣體在食品中的應用、背後的科學原理及其安全性。



圖2：注入氣體的袋裝食品
Figure 2: Gas-filled bags of foods

Have you ever wondered why bags of potato chips or shrimp crackers are always inflated? Besides, why do the potato chips inside get softened and, occasionally, rancid quickly once the package is opened, even before the best-before date? Packaging gas can be considered a food additive with its unique functions in food processing to slow down food deterioration and improve longevity effectively. This article will look into the application of packaging gas in foods, the science behind and its safety.

What is a Packaging Gas?

Air contains approximately 78% nitrogen, 21% oxygen and a variable amount of moisture. When exposed to air, foods such as potato chips absorb moisture and go stale and soggy quickly. Atmospheric oxygen also reacts with the unsaturated fatty acids present in foods, resulting in rancid off-flavours. Consequently, it is always a challenge faced by food manufacturers in preserving the desirable quality and prolonging the shelf life of food products.

The use of packaging gas is an effective solution. A packaging gas is a gas that is introduced into a package before, during or after filling with food to protect the food from oxidation or spoilage. Examples include nitrogen, carbon dioxide and nitrous oxide. Nitrogen has a long history of use as a packaging gas in various foods including snacks, breakfast cereals, candies, bakery products, dried fruits and vegetables, and processed meat products.

包裝氣體是什麼？

空氣含有大約78%的氮氣、21%的氧氣及分量不一的水分。當薯片等食物暴露於空氣中會吸收水分，很快變得不新鮮和受潮。大氣中的氧氣還會與食物中的不飽和脂肪酸發生反應，因而產生油膩味。因此，如何保持理想的品質和延長食品的保質期，一直是食品製造商面對的難題。

有效的解決方法之一，就是使用包裝氣體。包裝氣體是為了防止食物氧化或變質，在食物入袋之前、期間或之後注入包裝內的氣體，例子包括氮氣、二氧化碳及一氧化二氮。氮氣用作包裝氣體由來已久，廣泛應用於各種食品中，包括零食、早餐麥片、糖果、烘焙食品、乾果、蔬菜乾及加工肉類製品。

氮氣的用途不只是包裝氣體

氮氣的應用已擴展至啤酒釀造業及咖啡業，業界在啤酒或冷泡咖啡中注入氮氣，製成「氮氣啤酒」或「氮氣咖啡」，使製成品的口感更豐富、更滑膩。

Nitrogen Does More than a Packaging Gas

Nitrogen has found its way to the brewery and coffee industries where nitrogen is infused in beer or cold brew coffee to make 'nitro beer' or 'nitro brew', giving the final product a richer and creamier mouthfeel.

氮氣用作包裝氣體的原理是什麼？

與你每分每秒都在呼吸的空氣不同，用於食品包裝中的氮氣只含非常低量的氧氣及水分。氮氣是惰性(即不會與食物的任何成分發生反應)、無臭無味的氣體。當氮氣注入包裝後，氧氣及任何存在的水分会被排走。透過改變包裝內的空氣成分，使用了氮氣的食品包裝可以保持品質，減慢食物變質和延長產品的保質期。

氮氣還會使包裝膨脹，可以保護包裝內的易碎食物不會在處理過程中被壓碎。不過，使用的氮氣分量足以提供保護即可，不應過多，以便在運送及貯存期間壓力出現變化時有額外膨脹的空間。

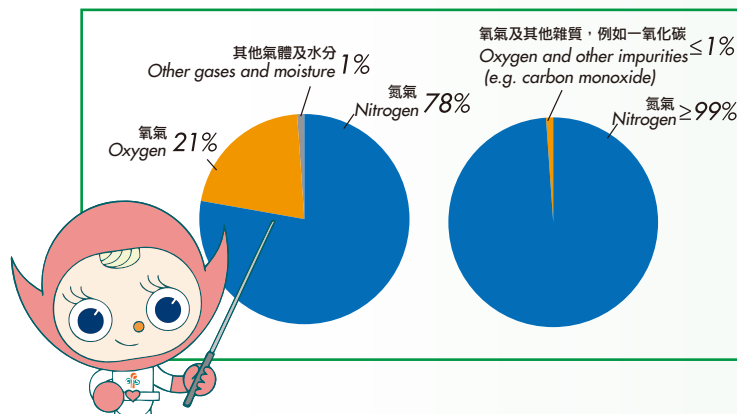


圖3：大氣空氣(左)與食品級氮氣(右)的成分比較
Figure 3: Comparative composition of atmospheric air (left) and food-grade nitrogen (right)

為了防止氮氣外泄，食品包裝必須透氣度低，並加以密封。當包裝打開後，裡面的食物便會暴露於含有氧氣及水分的大氣空氣中，不在直接受控環境的保護下，食物於是容易受潮、變質和氧化。因此，當食品包裝打開後，最好盡快食用。

氮氣可安全使用於食物中嗎？

與其他食物添加劑一樣，氮氣已通過嚴格的安全評估，才獲評定為可

How does Nitrogen Work as a Packaging Gas?

Unlike the air you breathe every second, nitrogen used in food packaging contains very little oxygen and moisture. Nitrogen is inert (i.e. not reacting with any food components), odourless and tasteless. When nitrogen is introduced into a package, it drives out oxygen and any moisture present. By modifying the atmosphere inside the package, food packaging with nitrogen preserves quality, slows down spoilage and extends the products' shelf life.

Nitrogen also cushions and protects delicate foods inside the package from being crushed during handling. Nonetheless, the amount of nitrogen used should provide enough protection but not too much to allow space for additional expansion due to pressure changes in transit and during storage.

The package, with low gas permeability, must be sealed tightly to prevent the nitrogen from escaping. Once you open the package, the food inside is exposed to atmospheric air containing oxygen and moisture. Without protection from an immediate, controlled environment, the contents are then prone to moisture pickup, spoilage and oxidation. Therefore, it is best to consume the food products as soon as possible once the package is opened.

Is Nitrogen Safe for Food Use?

Like other food additives, nitrogen has gone through rigorous safety assessment before it is ascertained as safe for food use. The Joint Food and

安全使用於食物中。聯合國糧食及農業組織/世界衛生組織食品添加劑聯合專家委員會已評估食品級氮氣的安全性，認為在食物中使用時，只要奉行優良製造規範，在正常食用情況下是安全的。

食品級氮氣是什麼？

食品級氮氣含有高濃度的氮氣(即不少於99%)。與之相反，非食品級氮氣則未必能達到預期的作用，還可能含有雜質，因此不適合用於食物中。根據《公眾衛生及市政條例》(第132章)的規定，所有在本港出售的食物必須適宜供人食用。只有高純度的食品級氮氣才可應用於食物中，以確保食物安全和保持食品的品質。

Agriculture Organization / World Health Organization Expert Committee on Food Additives (JECFA) has evaluated the safety of food-grade nitrogen and considered that it is safe upon normal consumption when used in foods following Good Manufacturing Practice.

What is Food-grade Nitrogen?

Food-grade nitrogen has a high concentration of nitrogen (i.e. not less than 99%). In contrast, non-food-grade nitrogen may not achieve the intended functions and may contain impurities, and is therefore not suitable for food use. As stipulated in the Public Health and Municipal Services Ordinance (Cap. 132), all foods for sale in Hong Kong must be fit for human consumption. Only food-grade nitrogen with high purity should be used for food applications to ensure food safety and preserve food quality.

食物事故點滴 Food Incident Highlight

查閱預先包裝方便餐的營養標籤及購物卡以達致飲食健康 Reading Nutrition Labels on Prepackaged Convenience Meals and Shopping Cards to Achieve Healthy Diets

在2019冠狀病毒病大流行下，市民必須保持社交距離，預先包裝的方便餐正好為消費者提供另一種用餐選擇。這些加工食品只要翻熱即可享用，但消費者未必注意到所購買和食用的食品含有什麼營養成分，可能會因此攝入超過建議分量的總脂肪、鹽或糖。

查閱包裝上的營養標籤，有助消費者了解食品的營養成分。食物安全中心設計了購物卡，以便消費者得知食品中總脂肪、鹽或糖含量的高低。舉例來說，食品每100克含超過20克總脂肪，即屬高脂。消費者可比較不同產品的營養標籤，並與購物卡作出對照才購買，以達致均衡飲食。

During the COVID-19 pandemic, where social distancing is deemed necessary, prepackaged convenience meals provide an alternative dining option for consumers. While these processed foods are ready to be served through reheating, people may consume more than the recommended amounts of total fat, salt or sugars without being aware of the nutrition contents of the foods they are buying and eating.

Reading nutrition labels can help consumers to check the nutrient contents, which can be found on the packaging. The Centre for Food Safety has designed Shopping Cards that inform consumers if a food is high or low in total fat, salt or sugars. For example, a food containing more than 20g of total fat per 100g is considered high in total fat. Consumers may compare nutrition labels between products and crosscheck with the Shopping Cards before purchase to have a balanced diet.

如何選擇較健康的食物 查看營養標籤上脂肪、糖及鈉(或鹽)的含量， 從而選擇較健康的“三低”食物。				
	什麼是高? (少選)		什麼是低? (多選)	
	按每100克計 (超過)	按每100毫升計 (超過)	按每100克計 (不超過)	按每100毫升計 (不超過)
總脂肪	20 克	3 克	5 克	1.5 克
糖	15 克	7.5 克	5 克	
鈉	600 毫克	300 毫克	120 毫克	

營養素	每天攝入上限	攝入過量會 增加以下的風險
總脂肪	60 克*	超重和肥胖症
糖	50 克*	
飽和脂肪	20 克*	心臟病
反式脂肪	2.2 克*	
膽固醇	300 毫克	高血壓及腎虛
鈉	2000 毫克	

	What is High? (Choose less)		What is Low? (Choose more)	
	Per 100 g (more than)	Per 100 mL (more than)	Per 100 g (not more than)	Per 100 mL (not more than)
Total fat	20 g	3 g	1.5 g	
Sugars	15 g	7.5 g	5 g	
Sodium	600 mg	300 mg	120 mg	

Nutrients	Daily intake upper limits	Excessive intake will increase risk of developing
Total fat	60 g*	Overweight and obesity
Sugars	50 g*	
Saturated fat	20 g*	Heart diseases
Trans fat	2.2 g*	
Cholesterol	300 mg	High blood pressure and stomach cancer
Sodium	2000 mg	

食物會影響尿液的氣味嗎？

Can Foods Affect the Smell of Urine?

有人提出疑問，為什麼喝完咖啡或吃過某些食物後，尿液會有異味。

Some people have queried why urine smells after consumption of coffee or some other foods.

咖啡、蒜頭、洋蔥、蘆筍、孢子甘藍(又稱椰菜仔)及咖喱等一些食物可能含有若干物質，當攝入的分量足夠時，會使尿液暫時發出強烈的氣味。喝水不足可加劇氣味，因為這些化合物會以較高的濃度隨尿液排出，導致氣味更為濃烈。

Certain foods like coffee, garlic, onion, asparagus, Brussel sprouts and curry may contain certain substances known to temporarily impart a strong smell to urine when consumed in sufficient amounts. The smell can be intensified by drinking insufficient water; those compounds will be excreted in higher concentrations in urine and lead to a more pungent smell.

這種現象通常不會構成食物安全風險，只要喝下足夠的水，從而稀釋尿液中的化合物，便可輕易消除異味。不過，尿液有異味也可能是由於病症所致(例如糖尿病控制不宜、尿道感染)。如果尿液持續有異味，或伴有其他症狀，便應立即求醫。

While the phenomenon generally poses no food safety risks, this can be easily alleviated by drinking enough water, diluting the compounds as a result. However, smelly urine can be caused by medical conditions (e.g. uncontrolled diabetes, urinary tract infections). If smelly urine persists, possibly combined with other symptoms, medical attention should be sought immediately.



風險傳達工作一覽 (二零二一年三月)

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