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甜味劑：拆解常見迷思

Sweeteners: Debunking Common Misconceptions

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,
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圖1：了解有關甜味劑的謠言和事實，以作出知情選擇
Figure 1: Making informed choices – understand myths and facts about sweeteners

從汽水、糖果到烘焙食品，「甜味劑」一詞常出現於現代飲食的食物標籤上。雖然甜味劑常以減少卡路里攝取作賣點，但其對人體的實際影響亦引起不少討論。本文將探討有關甜味劑的常見迷思並檢視相關科學證據，以釐清事實，協助消費者作出知情選擇。

有關甜味劑的常見迷思

迷思：甜味劑有害且會致癌

事實：早期有研究指環己基氨基磺酸鹽和糖精等個別甜味劑可能增加實驗動物患癌的風險。然而，其後的研究並無證據顯示這些甜味劑會令人類患癌。國際癌症研究機構已將環己基氨基磺酸鹽和糖精分類為「在會否令人類患癌方面未能分類」（第3組）。

近年，國際癌症研究機構基於天冬酰胺對動物和人類致癌性的「有限證據」，將其分類為「或可能令人類患癌」（第2B組）。然而，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（專家委員會）認為，並無發現天冬酰胺會產生不良影響，亦沒有令人信服的證據確認天冬酰胺與人類患癌有關聯。專家委員會得出結論，認為若膳食中的天冬酰胺攝入量在每天每公斤體重0至40毫克的每日可攝入量範圍內，便不會對健康造成影響。

有實驗室研究指，製造三氯半乳糖過程中產生的一種化學物可能會破壞DNA。然而，歐洲食物安全局近期的評估得出結論，認為三氯半乳糖及其雜質並無基因毒性的疑慮。儘管

From fizzy sodas and candies to baked goods, “sweetener” may appear on the food labels of our modern diet. Though often marketed for cutting calories, sweeteners have also sparked debates over what they actually do to our bodies. This article separates fact from fiction by examining common misconceptions about sweeteners and reviewing the evidence to help consumers make informed choices.

Common Misconceptions about Sweeteners

Misconception: Sweeteners are harmful and cancer-causing

Facts: Some early studies suggested that certain sweeteners, e.g. cyclamate and saccharin, might increase cancer risk in laboratory animals. However, subsequent studies showed no evidence demonstrating that these sweeteners cause cancer in humans. The International Agency for Research on Cancer (IARC) classified cyclamates and saccharins as not classifiable as to their carcinogenicity to humans (Group 3).

More recently, the IARC classified aspartame as possibly carcinogenic to humans (Group 2B) based on “limited evidence” regarding its carcinogenicity in animals and humans. Nonetheless, the Joint FAO/WHO Expert Committee on Food Additives (JECFA) considered that aspartame had not been found to have adverse effects, and the evidence of an association between aspartame and cancer in humans was not convincing. JECFA concluded that dietary exposure to aspartame within the Acceptable Daily Intake of 0 to 40 mg/kg body weight does not pose a health concern.

A laboratory study suggested that an intermediate chemical in the manufacture of sucralose may cause DNA damage. However, the recent evaluation by the European Food Safety Authority concluded that there is no genotoxicity concern for sucralose and its impurities. In spite of uncertainties on the potential formation of chlorinated compounds under certain baking processes, the U.S. Food and Drug Administration stated that sucralose is heat stable – it retains sweetness at high temperatures used in baking, making it

在某些烘焙過程中會否形成氯化化合物仍未有定論。美國食物及藥物管理局指出三氯半乳糖具有耐熱性，在烘焙的高溫下仍能保持甜味，因此適合用於烘焙食品中。目前，三氯半乳糖是食品法典委員會及歐盟、美國、內地和新加坡等地准許使用的食物添加劑。

一如其他食物添加劑，甜味劑必須通過嚴格的安全評估，只有確定不會對健康構成風險的甜味劑，才獲准用於食物中。

迷思：天然甜味劑比人工甜味劑更安全、更健康

事實：甜味劑屬「天然」還是「人工」，並不是衡量其安全性或健康益處的可靠指標。所有獲准使用的甜味劑（例如甜菊糖苷、天冬酰胺），不論是天然還是人工，均已通過嚴格的安全評估。

迷思：糖醇即是酒精

事實：雖然糖醇的名稱包含「醇」字，但並不含酒精飲品中的乙醇。糖醇是化學結構與糖和醇均相近的碳水化合物。

糖醇天然少量存在於多種蔬果（例如蘋果、梨和蘑菇）中，另外亦可從糖和澱粉透過工業化大量生產。常見的糖醇包括山梨糖醇、木糖醇、赤藓糖醇和甘露糖醇。

雖然糖醇一般是安全的，但由於人體腸道未能完全吸收糖醇，因此過量攝取可能會令部分人出現腹瀉和腸胃不適，例如胃氣脹和腹脹。出現這些情況的可能性視乎進食的分量。

迷思：甜味劑是控制體重的理想選擇

事實：雖然獲准使用的甜味劑可安全食用，但世界衛生組織（世衛）發布了指引，建議不要使用非糖甜味劑來控制體重。有關建議是基於一項系統性回顧，當中並無證據顯示使用非糖甜味劑對減少人體脂肪帶來任何長期益處。然而，世衛亦指出，研究參與者的基線特徵和使用非糖甜味劑的複雜模式等混雜因素，可能會影響有關證據。這項指引並不適用於糖醇，亦不適用於已患有糖尿病的人士。

世衛建議，控制體重的關鍵在於卡路里攝取和消耗之間達到能量平衡。市民應考慮其他方法來減少攝取游離糖，例如進食含有天然糖分的食物（例如水果）或選擇無添加糖的選擇。市民應從小減少膳食的整體甜度，以改善健康。

迷思：製造商可隨意在產品中添加任何分量的甜味劑

事實：在本港，甜味劑受《食物內甜味劑規例》（第132U章）規管。甜味劑的使用應符合「優良製造規範」的原則，即所添加的甜味劑分量，應以發揮預期作用的最低分量為限。

重點訊息

- 所有獲准使用的甜味劑均已通過嚴格的安全評估。
- 在食物中使用甜味劑必須符合本地的規例。
- 建議市民保持均衡飲食，減少膳食的整體甜度，並選擇含有較少或無添加糖和甜味劑的食物和飲品。

suitable for use in baked goods. Currently, sucralose is a permitted food additive in Codex and places like the European Union, the United States, the Mainland and Singapore.

Like other food additives, sweeteners must undergo rigorous safety assessments and only those determined to pose no health risk are permitted for food use.

Misconception: Natural sweeteners are safer and healthier than artificial sweeteners

Facts: Whether a sweetener is "natural" or "artificial" is not a reliable indicator of its safety or health benefits. All permitted sweeteners (e.g. steviol glycosides, aspartame), whether natural or artificial, have undergone rigorous safety assessments.

Misconception: Sugar alcohols are alcohol

Facts: Although their names include "alcohol", [sugar alcohols](#) do not contain ethanol – the type of alcohol in alcoholic beverages. Sugar alcohols are carbohydrates that have chemical structures resembling both sugars and alcohols.

Sugar alcohols occur naturally in small amounts in various fruits and vegetables (e.g. apples, pears and mushrooms) and are also produced industrially from sugars and starches in larger quantities. Common sugar alcohols include sorbitol, xylitol, erythritol and mannitol.

While generally safe, since sugar alcohols are not fully absorbed in the intestine, excessive intake can lead to laxative effects and gastrointestinal discomfort such as abdominal gas and bloating in some individuals. The likelihood of these effects depends on the amount consumed.

Misconception: Sweeteners are ideal for weight control

Facts: Although permitted sweeteners are safe to consume, the World Health Organization (WHO) issued a guideline advising against using non-sugar sweeteners (NSS) to control body weight. This recommendation was based on a systematic review that found no evidence that the use of NSS provided long-term benefits in reducing body fat. WHO noted, however, that the evidence might have been confounded by baseline characteristics of study participants and complicated patterns of NSS use. This guideline does not apply to sugar alcohols or individuals with existing diabetes.

WHO advised that weight control depends on achieving an energy balance between calories consumed and burnt. To reduce free sugars intake, people need to consider alternatives such as consuming foods with natural sugars (e.g. fruits) or unsweetened options. People should reduce the overall sweetness of their diet, starting early in life, to improve health.

Misconception: Manufacturers can add sweeteners to their products as much as they want to

Facts: In Hong Kong, sweeteners are regulated under the [Sweeteners in Food Regulations \(Cap. 132U\)](#). Sweeteners should be used in accordance with the Good Manufacturing Practice principles, i.e. the quantity of sweetener added is limited to the lowest possible level necessary to accomplish its desired effect.

Key messages

- All permitted sweeteners have undergone rigorous safety assessments.
- The use of sweeteners in food must comply with local regulations.
- The public is advised to maintain a balanced diet, reduce overall sweetness of their diet, and choose foods and beverages with less or no added sugar and sweeteners.

安全配製及處理乾豆類食物 Safe Preparation and Handling of Pulses

食物安全中心風險評估組
科學主任馮慧中女士報告

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

豆類是健康飲食的重要部分，通常按其用途和成分分為三大類，包括乾豆類（如腰豆和扁豆等乾燥種子）、油料作物類（例如大豆和花生）和蔬菜類（例如青豆和四季豆）。除了用途和成分不同外，它們亦會帶來不同的食物安全問題。其中值得關注的是天然毒素的存在，尤其是乾豆類的天然毒素含量較新鮮豆類為高。雖然許多衛生當局提倡進食乾豆類的營養益處並鼓勵市民經常食用，但了解如何安全食用同樣重要。本文將探討如何安全地將乾豆類納入日常飲食中，並在下期介紹另一豆類 -- 大豆。

Legumes, an important component of a healthy diet, are commonly classified into three subgroups based on their usage and composition, including pulses (dried seeds such as kidney beans and lentils), oil-bearing crops (e.g. soybeans and peanuts) and vegetables (e.g. green peas and green beans). In addition to their differences in use and composition, they also present various food safety concerns. One such concern is the presence of natural toxins, particularly in pulses with relatively high levels as compared to fresh legumes. While many health authorities promote the nutritional benefits of pulses and encourage their regular consumption, it is equally important to understand how to consume them safely. Let us explore in this issue how pulses can be incorporated into the diet in a safe manner, before examining another type of legume, soybeans, in the next issue.

豆類 Legumes

油料作物類 Oil-bearing crops



大豆 Soybeans



花生 Peanuts

蔬菜類 Vegetables



鮮豌豆 Fresh peas



鮮豆 Fresh beans

乾豆類 Pulses



乾豆 Dry beans



乾豌豆 Dry peas



鷹嘴豆 Chickpeas



扁豆 Lentils

圖2: 豆類的分類
Figure 2: Classification of legumes

乾豆類是豆類植物可食用的乾燥種子，包括紅豆、腰豆和扁豆。它們在完全乾透和堅硬時收成。乾豆類含豐富蛋白質、膳食纖維、葉酸、鐵和鉀，不少飲食指南都建議食用，並將乾豆類與肉類、魚類、蛋類和奶類並列為重要的蛋白質來源。

營養特徵與健康益處

在膳食計劃中，乾豆類是重要的植物蛋白質來源。它們含有全部九種必需氨基酸，但部分乾豆類的蛋氨酸和半胱氨酸含量較低，因此，它們不像蛋類或肉類那樣屬於「完全」蛋白質。儘管如此，乾豆類仍被建議作為動物蛋白質的替代品，如與賴氨酸含量較低的穀物（如米和小麥）一起食用，便能在整體飲食中形成**互補蛋白質**。

乾豆類具備多種健康益處，經常食用有助預防心臟病和糖尿病等非傳染病。乾豆類中的膳食纖維能在腸道中與膽固醇結合，有助降低血液中的膽固醇。它亦能減慢消化和葡萄糖吸收。此外，膳食纖維能增加糞便體積並促進腸道蠕動，同時透過減慢消化和增加飽腹感來幫助控制體重，從而有助防止過度進食。

雖然乾豆類近年被視為「超級食物」，但並不常被食用，原因是烹煮時間較長，且可能引致腹脹和脹氣。一個實用的小貼士是在烹煮前先浸泡乾豆類，這有助縮短烹煮時間，並可能減低引致脹氣的機會。

安全配製乾豆類

生或未經煮熟的豆類含有天然毒素，例如凝集素、植酸、單寧和酚。這些物質亦被稱為「抗營養素」，因為它們會阻礙腸道吸收鈣、鐵、磷和鋅等礦物質。**植物血球凝集素**是凝集素的一種，在乾豆類中含量較高，但亦存在於新鮮豆類中。它會凝集哺乳類動物的紅血球，引致噁心、嘔吐和腹瀉。食用後一至三小時內可出現症狀。大部分患者在出現症狀後三至四小時內便會康復，但部分人可能需要入院治療。為避免食物中毒，食用乾豆類前必須徹底浸透並煮熟（例如浸泡最少12小時，然後用沸水猛火煮最少10分鐘），以確保破壞包括植物血球凝集素在內的天然毒素。

發酵（例如納豆）和發芽是傳統的加工方法，亦能減少抗營養素並促進營養吸收。然而，不當的發酵過程可能會帶來食物安全風險，包括微生物污染、產生霉菌毒素或未能徹底消除毒素。為確保食物安

Pulses are the edible dried seeds of leguminous plants, including adzuki beans, kidney beans and lentils. They are harvested when fully dry and hard. Pulses are rich in protein, dietary fibre, folate, iron and potassium, and are recommended in many dietary guidelines, which list pulses as important sources of protein, alongside meat, fish, eggs and dairy.

Nutritional Characteristics and Health Benefits

In meal planning, pulses are important plant sources of protein, which contain all nine essential amino acids, but some of them are relatively low in methionine and cysteine, so they are not “complete” proteins in the same way as eggs or meat. Nevertheless, pulses are recommended as substitutes for animal protein, and if consumed together with grains, such as rice and wheat that are low in lysine, they form **complementary proteins** in an overall diet.

Pulses offer numerous health benefits and are commonly consumed to help prevent non-communicable diseases such as heart disease and diabetes. The dietary fibre in pulses binds cholesterol in the gut, helping to lower blood cholesterol. It also slows digestion and glucose absorption. Furthermore, by increasing stool volume and promoting intestinal transit, it supports weight management by slowing digestion and enhancing satiety, thereby helping to prevent overeating.

Although pulses are recognised as a “superfood” in recent years, they are not commonly consumed as they take a relatively long time to cook and can cause bloating and flatulence. A practical tip is to soak pulses before cooking, as this helps reduce cooking time and may lower the likelihood of flatulence.

Safe Preparation of Pulses

Raw or undercooked legumes contain natural toxins, such as lectins, phytates, tannins and phenols, which are also known as “anti-nutrients” because they limit the absorption of minerals, such as calcium, iron, phosphorus and zinc, in the gut. **Phytohaemagglutinin**, a type of lectin found in relatively high levels in pulses and also present in fresh legumes, agglutinates mammalian red blood cells, causing nausea, vomiting and diarrhoea. The onset of symptoms can occur within one to three hours after intake. Most people recover within three to four hours after onset, but some may require hospitalisation. To avoid food poisoning, pulses must be soaked and cooked thoroughly before consumption (e.g. soaked for at least 12 hours and then boiled vigorously for at least 10 minutes in water) to ensure the destruction of natural toxins, including phytohaemagglutinin.

Fermentation (e.g. natto chickpea) and sprouting are traditional processing methods that can also reduce anti-nutrients and enhance nutrient absorption.

全。發酵必須在受控的環境下進行，使用合適的發酵菌種，並徹底煮熟。

總結

乾豆類含豐富蛋白質、膳食纖維、維他命和礦物質，而且脂肪含量低，是健康飲食的極佳選擇，有助支持生長和發育，並預防慢性疾病。為避免因乾豆類中的天然毒素引致腸胃不適（如腹脹和脹氣）及食物中毒，食用前應先浸泡和煮沸，以妥善配製。

However, improper fermentation may pose food safety risks, including microbial contamination, mycotoxin production or incomplete detoxification. To ensure food safety, it is essential to maintain controlled conditions, use proper starter cultures and cook thoroughly.

Summary

Pulses are rich in protein, dietary fibre, vitamins and minerals, and are also low in fat, making them an excellent part of a healthy diet that supports growth and development, and helps to prevent chronic diseases. To avoid gastrointestinal discomfort (e.g. bloating and flatulence) and food poisoning due to natural toxins found in pulses, pulses should be properly prepared by soaking and boiling before consumption.

跨境運送已烹煮食物到港的食物安全風險 Food Safety Concerns of Cross-boundary Delivery of Prepared Food to Hong Kong

跨境訂購和運送已烹煮好的食物涉及食物安全風險。風險主要有兩方面：首先，這些食物在運送過程中可能長時間放置於戶外，缺乏適當的溫度控制和監管。其次，取餐點有時無人看管，增加食物被干擾或受污染的風險。

有害細菌可在危險溫度範圍（4°C至60°C）內迅速繁殖，即使食物的氣味和味道正常，仍可能引致食物中毒。如[外賣及餐飲配送指引](#)所說明，食物如沒有溫度控制，應遵從「2小時/4小時原則」（包括運送時間）：食物可在兩小時內放進雪櫃或食用，但如在沒有溫度控制的情況下存放超過四小時，便應棄掉。

進食曾受不當溫度處理的食物可引致食物中毒，症狀包括嘔吐、腹瀉和發燒，更可引致嚴重併發症。食物業界和消費者都應留意[跨境訂購和運送食物所涉及的風險](#)，並採取適當措施，以確保食物安全。

The cross-boundary order and delivery of freshly prepared meals raise food safety concerns. There are two main issues: first, these meals may be left outdoors for extended periods without temperature control or oversight; second, pick-up points are sometimes unattended, increasing the risk of food tampering or contamination.

Harmful bacteria can rapidly multiply in the temperature danger zone (4°C to 60°C) and cause food poisoning even if the food smells and tastes normal. As stated in the [guidelines on takeaways and meal delivery](#), the 2-hour / 4-hour rule (including transportation time) should be adhered to when there is no temperature control. Meals can be refrigerated or consumed within two hours but must be discarded once they have been kept without temperature control for more than four hours.

Consuming temperature-abused food may cause food poisoning. Symptoms include vomiting, diarrhoea and fever, and in severe cases, serious complications. Both the food business and consumers should take note of the [risks of cross-boundary meal order and delivery](#) to ensure food safety.

妥善貯存飲品：日期標記何時不再適用？

Proper Storage of Drinks: When Does the Date Marking No Longer Apply?

天氣漸熱，一杯解渴的飲品實屬消暑佳品，但前提是必須安全處理，以防食物中毒。

購買預先包裝飲品時，切勿選擇已過了「此日期或之前食用」期限，或封口及包裝破損的產品。消費者應遵從標籤上的貯存指示。雖然耐存飲品可存放於陰涼乾爽處，但需要放進雪櫃的飲品必須時刻保持冰凍。[預先包裝飲品一經開封](#)，其日期標記（包括「此日期或之前食用」和「此日期前最佳」日期）便不再適用。剩餘的飲品應存放於攝氏4度或以下的雪櫃內，並盡快飲用，或在包裝上註明的期限內飲用完畢。舉例來說，部分[超高溫處理牛奶](#)的包裝上標明，開封後最多可在雪櫃貯存兩至七天。

至於非預先包裝或即製飲品，最好立即飲用。如有剩餘，應在兩小時內放進雪櫃，並盡快飲用完畢。時刻留意飲品是否有變壞的跡象（例如變酸、發出異味或質感改變），以確保食物安全。

As the weather is getting hot, a thirst-quenching drink is the perfect way to beat the heat, provided it is handled safely to prevent food poisoning.

When buying prepackaged beverages, always avoid items that are past their use by date or have damaged seals or packaging. Follow storage instructions. While shelf-stable drinks can be stored in a cool, dry place, those requiring refrigeration must be kept chilled at all times. [Once a prepackaged drink is opened](#), the date markings (including the [use by date and best before date](#)) no longer apply and all leftover drinks should be stored refrigerated at 4°C or below and consumed as soon as possible or within the period stated on the packaging. For example, some [UHT milk](#) states on its packaging that the product should be consumed within a maximum of two to seven days of refrigerated storage after opening.

For non-prepackaged or fresh drinks, immediate consumption is best. Any leftovers should be refrigerated within two hours and consumed as soon as possible. Always look out for signs of spoilage, such as sourness, unusual smell or texture changes, to ensure safety.



風險傳達工作一覽（二零二六年四月）

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