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焦點個案

Incident in Focus

齊齊減鹽—麵包篇

Reduce Salt Together - Bread

食物安全中心風險傳達組
科學主任何國偉先生報告

Reported by Mr. Nicky HO, Scientific Officer,
Risk Communication Section, Centre for Food Safety

在烘焙麵包時，鹽可控制酵母的生長，並對麵團中的麵筋具有強化作用。然而，過量的鹽可引致健康問題，例如高血壓、心臟病及中風。進食兩片鈉含量每100克含500毫克鈉的白方包(每片50克)，鈉攝取量已達500毫克，佔世界衛生組織(世衛)建議每日攝取限量的25%。

In bread baking, salt controls yeast growth and has a strengthening effect on the gluten in the dough. However, too much salt can lead to health problems such as hypertension, heart diseases and stroke. Consuming two slices (50g each) of white bread containing sodium content of 500mg /100g would lead to an intake 500mg of sodium, which contributes to 25% of the daily upper intake recommended by the World Health Organization (WHO).

預先包裝白方包及麥方包自願減鈉目標

Voluntary sodium reduction target for prepackaged white bread and wholemeal bread

以每100克計 As per 100g



上限490毫克鈉 平均380毫克鈉
Maximum 490mg sodium
Average 380mg sodium



上限470毫克鈉 平均380毫克鈉
Maximum 470mg sodium
Average 380mg sodium

圖1:預先包裝(附有營養標籤)白方包及麥方包自願減鈉目標

Figure 1. Voluntary sodium reduction targets for prepackaged white bread and wholemeal bread (with nutrition labels).

改良食品配方與訂立目標

在本港，根據衛生署進行的二零一四至二零一五年度人口健康調查，15-84歲人士每日平均攝取8.8克鹽(約3,520毫克鈉)，超出世衛建議成年人每日鹽攝取量少於5克(2,000毫克鈉)的上限。事實上，世衛訂立了一項目標，就是在二零二五年或之前，全球人均鹽攝取量相對減少30%。香港亦採納了相同的目標，務求在二零二五年或之前把人均鹽攝取量減少30%。

要減少市民的鹽攝取量，改良食品配方是重要的一環。除了要鼓勵食品生產商透過改良食品配方來減低食品的鈉含量，改良食品配方亦可推動食品環

Product Reformulation and Target Setting

In Hong Kong, according to the Population Health Survey 2014/2015 conducted by the Department of Health, persons aged 15-84 consumed 8.8g of salt (~3,520mg sodium) per day, exceeding the WHO's recommendation of salt intake of less than 5g (2,000mg sodium) per day for adult. In fact, the WHO has set up a target to reduce the global mean intake of salt by a relative 30% by 2025. Hong Kong has also adopted the same target in reducing the mean population intake of salt by 2025.

Product reformulation is considered an important pillar for salt reduction at population level. While food manufacturers are encouraged, through reformulating food products, to reduce the sodium content in food, product reformulation provides

焦點個案
Incident in Focus

境及消費者行為逐步作出改變。

英國最近一項研究指出，訂有減鈉目標的食品所減少的鈉含量，在一段時間後明顯高於未有訂立任何目標的食品。這有助於證明，目標為本的減鹽方式既可成功減鹽，又不會影響食品的味道、品質或安全性。

麵包的鈉含量

食物安全中心(中心)的一項研究顯示，白方包及麥方包分別是香港首兩種常食用的麵包。

中心的另一項研究發現，白方包及麥方包的鈉含量均相對較高。如果白方包配以香腸或火腿等其他高鈉餡料食用，鈉攝取量則更高。研究也顯示，個別種類麵包的鈉含量差異頗大，包括白方包及麥方包。烘焙麵包在技術上需要鹽，但研究結果反映，業界仍有空間降低麵包的鈉含量。儘管減鹽可能會改變麵包的味道及質感，但一些業界成員表示願意在生產麵包時減少用鹽量。

白方包及麥方包自願減鈉目標

中心參考了世衛的建議及海外經驗，並與業界成員商討後，以中心的研究結果為基數，訂立了預先包裝(附有營養標籤)白方包及麥方包自願減鈉目標。首先就預先包裝麵包訂立目標，是因為消費者只需參閱營養標籤，便可輕易得知鈉含量。

經商議所定的平均自願減鈉目標，是把中心研究所涵麵包的平均鈉含量降低10%。鈉含量上限的自願目標，定為該種麵包鈉含量分布範圍內第90個百分位數。中心會進行市場調查，以監察業界成員減鈉工作的進展。

中心計劃在未來逐步降低自願減鈉的目標。此外，根據預先包裝白方包及麥方包的經驗，中心可考慮進一步就非預先包裝白方包及麥方包和其他食品訂立目標。

減鹽計劃

在訂立自願減鈉目標後，中心推行了減鹽計劃。多間大型連鎖麵包店及生產商都已參與這個計畫，致力按照目標減低食品的鈉含量。

注意事項

1. 訂立減鈉目標是降低食品鈉含量的有效方法。
2. 中心訂立了預先包裝(附有營養標籤)白方包及麥方包自願減鈉目標。
3. 要減少市民的鹽攝取量，有賴政府、食物業界及消費者互相合作。

給消費者的建議

- 保持均衡及多元化的飲食，減少食用高鈉食物。
- 參閱營養標籤來選購預先包裝食品，包括鈉含量較低的白方包及麥方包。

給業界的建議

- 透過改良食品配方來降低食品的鈉含量。
- 麵包店及生產商可按所訂立的自願減鈉目標，減少白方包及麥方包的鈉含量。

impetus for making stepwise changes to the food environment and consumer behaviours.

A recent study from the United Kingdom revealed that the sodium content of food products with sodium reduction targets set decreased more significantly over time comparing to those without any targets set. It contributes to the evidence base that a target-based approach to salt reduction can lead to reductions being made without compromising taste, quality or safety.

Sodium Content in Bread

According to a study from the Centre for Food Safety (CFS), white bread and wholemeal bread are the top two commonly consumed bread types respectively in Hong Kong.

Another study from the CFS found relatively high sodium contents in both white bread and wholemeal bread. The sodium intake can be exacerbated should the white bread be served with other high sodium fillings such as sausage and ham. This study also showed wide variations in the sodium content among certain bread types, including white bread and wholemeal bread. While salt is technically necessary in baking, such finding reflects room for the trade to cut down the sodium content in their bread products. Although salt reduction in bread may lead to changes in taste and texture, some trade members expressed willingness to reduce the amount of salt used in their bread products.

Voluntary Sodium Reduction Targets for White Bread and Wholemeal Bread

By making reference to the WHO's recommendations and overseas experiences, along with discussion with trade members, the CFS has set out voluntary sodium reduction targets for prepackaged white bread and wholemeal bread (with nutrition labels), using the results of the CFS' study as the baseline. The prepackaged bread was first chosen for target setting as consumers can easily check the sodium content from the nutrition label.

The average voluntary sodium reduction targets were agreed by reducing the average sodium content of the corresponding bread type in the CFS' study by 10%. While the maximum voluntary sodium targets were set at the 90 percentile of the sodium content distribution of the bread type. The CFS will conduct market surveys to monitor the progress of sodium reduction by trade members.

The voluntary sodium reduction targets are planned to be lowered progressively in the future. In addition, based on the experience from the prepackaged white bread and wholemeal bread, the CFS may consider extending the targets to non-prepackaged white bread and wholemeal bread and other food products.

Salt Reduction Scheme

Following the establishment of voluntary sodium reduction targets, the CFS has launched the Salt Reduction Scheme. A number of major chained bakery shops and manufacturers have already participated in the Scheme, striving to reduce the sodium content in food products in accordance with the targets.

Key Points to Note

1. Setting sodium reduction targets is an effective approach to lower the sodium content in food products.
2. The CFS has set out voluntary sodium reduction targets for prepackaged white bread and wholemeal bread (with nutrition labels).
3. Reduction of salt intake in our population requires the collaboration between the Government, the food trade and consumers.

Advice to Consumers

- Maintain a balanced and varied diet. Reduce the consumption of food high in sodium.
- Use nutrition labels to choose prepackaged food including white bread and wholemeal bread with a lower sodium content.

Advice to the Trade

- Reduce the sodium content in food through product reformulation.
- Bakery shops and manufacturers can reduce the sodium content in white bread and wholemeal bread, meeting the voluntary sodium reduction targets set.

煎炸油使用貼士

Tips for Using Deep-frying Oil

食物安全中心風險評估組
科學主任馬嘉明女士報告

Reported by Ms. Janny MA, Scientific Officer,
Risk Assessment Section, Centre for Food Safety

油炸是一種常用的烹調方法，用以製作香脆可口的油炸食品，例如薯條、西多士、冬甩、春卷及天婦羅等這些令不少人食指大動的美食。

在油炸過程中，油在高溫下會與空氣中的氧氣及食物所含的水分接觸，發生一連串化學反應。大部分在這些反應中產生的化合物相對帶極性(即電荷分布不均)。這些物質會使油加快變質，有機會影響油的品質，以至食物安全。

使用煎炸油的建議

為了協助本地業界在油炸過程中確保食物安全和提升食品品質，食物安全中心(中心)委託本地一間大學進行研究，並編制《使用煎炸油業界指引》(《指引》)。《指引》經諮詢業界後制定，已於二零一九年十月發布，現可於[中心網站](#)閱覽。

《指引》就如何使用煎炸油提供多項建議，市民在油炸食物時亦可按情況參考這些實用的貼士，其中包括：

油炸前

在芸芸煮食油中挑選適合作油炸用途的油十分重要。[單元不飽和脂肪酸](#)含量較高的煮食油，例如菜籽油(包括芥花籽油)及高油酸葵花籽油，在高溫下較為穩定，亦對心臟健康有益，因此較適合用於油炸。

食物中的水分及炸粉和炸漿的殘渣都會使油變質，因此油炸前應盡量減少食物表面的水分及多餘的炸粉和炸漿。

油炸時

油溫過高會使煎炸油加快變質，而油溫過低也會令油炸食物的吸油量增加。因此，油炸時把油溫控制在攝氏150-180度之間至為重要。

油炸後

油中細小的殘渣，例如食物碎屑，容易炭化並使油加快變質，故應經常從炸爐中將之撈起。此外，鹽會促進水分由食物內部轉移至表面，導致油發生水解作用。因此，食物應盡量在油炸後才調味。

當炸爐閒置時，例如在落場時間，應把油溫調低至攝氏120-130度之間，以免長時間加熱或頻密升溫及降溫。當關掉電源時，例如在

Deep-frying is a commonly practised cooking method for making crispy and delicious fried foods, ranging from chips, French toast and doughnuts to spring rolls and tempura, which are appealing to some.

During the deep-frying process, oil is exposed to high temperatures in the presence of oxygen in air and moisture contained in food; a number of chemical reactions occur in the oil. Most chemical compounds resulted from these reactions are relatively polar (i.e. unequal distribution of electrons) in nature, which accelerate the deterioration of oils and may affect quality of oils as well as food safety.

Recommendations on the Use of Deep-frying Oil

With a view to assist local food traders in ensuring food safety and enhancing food quality throughout the deep-frying process, the Centre for Food Safety (CFS) has commissioned a local university to conduct a study and devise a set of "Trade Guidelines on the Use of Deep-frying Oil" (the Guidelines). The Guidelines, developed in consultation with the trade, were published in October 2019 and are now available at the [CFS website](#).

Among other things, the Guidelines recommend the following on the use of deep-frying oil. The public can also make reference to these useful tips when deep-frying food as appropriate:-

Before Deep-frying

Among various types of cooking oil, it is important to select suitable ones for deep-frying. Cooking oil with higher levels of [monounsaturated fatty acids](#) like rapeseed oil (including canola oil) and high-oleic sunflower oil are relatively stable at high temperatures. Further, they are also beneficial to heart health, making them a more suitable option for deep-frying.

Moisture in food and residues of breadcrumb and batter are known to render oil deteriorated in quality. Therefore, moisture and excessive breadcrumbs and batter on the food surface should be minimised before deep-frying.

During Deep-frying

While using an excessively high temperature accelerates the deterioration of deep-frying oil, using too low a temperature increases oil absorption into deep-fried food. Hence, it is important to control the oil's temperature between 150°C and 180°C during deep-frying.

After Deep-frying

Since small residues in the oil such as food particles and crumbs can char easily and speed up oil deterioration, they should be removed from the fryer frequently. Besides, salt promotes the migration of water from the inside to the surface of the food, leading to hydrolysis of the oil. Therefore, food should be seasoned after deep-frying instead as far as possible.

When the fryer is idle, for example during shift breaks, lower the oil temperature setting to 120-130°C to avoid prolonged heating or frequent heating up and cooling down. When the fryer is turned off, say after business hours, cover it to minimise exposure of oil to light and air which in turn can slow down photo-oxidation and oxidation in the deep-frying oil. Regular cleaning of the fryer can also avoid accumulation of food residues.

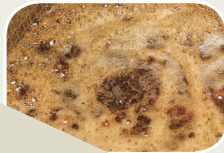
如果煎炸油出現以下任何情況，
便要更換！

If you find any of the following
occurs in your deep-frying oil,
CHANGE IT!

- 1 顏色或氣味異常
Having an unusual colour or odour
- 2 開始冒煙
Starting to smoke



- 3 出現泡沫
Starting to foam



- 4 總極性化合物含量超過27%
TPC level > 27%



圖2:更換煎炸油的指標
Figure 2. Indicators for changing deep-frying oil



營業時間後，應蓋上炸爐，以減少油與光線及空氣的接觸，從而減慢光氧化及氧化。定時清潔炸爐，亦可避免食物殘渣積聚。

甚麼時候應該換油？

油變質的快慢受多項因素影響，例如油炸食物的種類和分量及油炸溫度，因此難以只按固定時間或油炸次數建議更換煎炸油。

煎炸油如有異常顏色或氣味(例如油膩味)、開始冒煙(指煎炸油於建議油炸溫度(攝氏150-180度)開始出現冒煙情況)，或出現泡沫(即油炸時出現不易消散的奶白色泡沫)，便應及時更換。為了作出更客觀的評估，業界亦可考慮檢測煎炸油的總極性化合物含量。這是較為可靠的基準，以量度油的降解程度；當油的總極性化合物數值達27%以上，便應棄掉。此外，不應添加新鮮油以作稀釋或延長油的使用時間。

When Should We Change Oil?

Since the oil deterioration rate can be affected by various factors, such as types and amount of food it has fried and frying temperature, it may be difficult to recommend changing the deep-frying oil solely based on a fixed time period or the number of times it has been used.

Deep-frying oil should be changed in a timely manner if it has an unusual colour or odour (e.g. a rancid smell), starts to smoke (i.e. smoking of deep-frying oil observed at the recommended frying temperatures (150-180°C)) or starts to foam (i.e. formation of milky foam that cannot dissipate easily). For a more objective assessment, traders may also consider measuring the total polar compounds (TPC) in the deep-frying oil, a comparatively reliable benchmark for measuring the degradation of the oil; oil should be discarded when the TPC value is greater than 27%. Last but not least, topping up of oil should not be used as a means of diluting or prolonging oil use.

食物事故點滴 Food Incident Highlight

優化規例以保障公眾免受食物中金屬污染物的侵害 Enhanced Regulation to Protect the Public from Metallic Contaminants in Food

《2018年食物攙雜(金屬雜質含量)(修訂)規例》(《規例》)已由二零一九年十一月一日起生效。這條規例先適用於部分保質期較其他食物為短的新鮮食物例如水果、蔬菜、水生動物、家禽及肉類等，而由二零二零年十一月一日起亦會適用於保質/貯存期一般較長的其他食物。

從膳食中攝入過量金屬污染物，可能會造成各種不良的健康影響。經優化的《規例》涵蓋更多金屬污染物及食品，以令本港標準盡可能與食品法典委員會的標準保持一致，部分甚至較後者更為嚴格，例如魚類中的甲基汞。這些標準因應特定食品的本地食用量及相關風險而制訂，以期加強保障本港市民的健康。

雖然《規例》已加強保障，但市民應注意在現代工業世界中，金屬污染物無處不在，食物無可避免含有少量金屬污染物。市民宜保持均衡飲食，以免因偏吃而攝入過量金屬污染物。

The Food Adulteration (Metallic Contamination) (Amendment) Regulation 2018 came into force on 1 November 2019. It first took effect for certain fresh foods with a shorter shelf life e.g. fruits, vegetables, aquatic animals, poultry and meat, etc. while for other foods which normally have a longer shelf/storage life, it will take effect from 1 November 2020.

Excessive dietary exposures to metallic contaminants may lead to various adverse health effects. The enhanced regulation covers more metallic contaminants and food items. It has been aligned with the Codex standards as far as possible. Some local standards are more stringent than the Codex ones such as methylmercury in fish. These standards have been set to achieve better health protection for the local population taking into account the local consumption amount of the particular food and the associated risk.

While the regulation is enhanced, the public should note that low levels of metallic contaminants in foods are unavoidable as they are present everywhere in the modern industrial world. The public is advised to maintain a balanced diet to avoid excessive exposures to metallic contaminants from a small range of food items.

香料中的黃曲霉毒素及赭曲霉毒素A Aflatoxins and Ochratoxin A in Spices

上月，某本地機構就乾香料中的霉菌毒素發表其研究結果，指有部分樣本驗出含有黃曲霉毒素及赭曲霉毒素A。食物安全中心(中心)在接獲轉介後採取跟進行動，發現有一個樣本的黃曲霉毒素含量超出了法定標準。中心已指令涉事商戶停售受影響的產品，並加強抽檢香料，結果全部通過黃曲霉毒素測試。

國際癌症研究機構把黃曲霉毒素及赭曲霉毒素A分別列為第1組及第2B組致癌物，意即令人類患癌及可能令人類患癌。然而，由於本港市民進食的香料分量甚低，香料中的黃曲霉毒素及赭曲霉毒素A對健康構成影響的可能性不大。

為了減少食物受霉菌毒素污染的機會，市民應妥為存放食物(例如貯存於陰涼、乾爽及通風良好的地方)，而業界則必須遵循優良製造規範，並向可靠的供應商採購食物及配料。

Last month, a local organisation announced its own study results of mycotoxins in dried spices. Some samples were found to have aflatoxins and ochratoxin A. Upon referral, follow-up actions taken by the Centre for Food Safety revealed that one sample contained aflatoxins at a level exceeding the legal standard. The vendor was instructed to stop sale of the affected product. Enhanced surveillance was also conducted on spices for mycotoxins, and all test results were found satisfactory.

Aflatoxins and ochratoxin A are classified as Group I and Group 2B carcinogens respectively by the International Agency for Research on Cancer, which respectively mean that they are carcinogenic and possibly carcinogenic to humans. However, in view of the low consumption of spices in our local population, aflatoxins and ochratoxin A from spices are unlikely to pose a health concern.

To reduce the contamination by mycotoxins, the public is advised to store food properly (e.g. stored in a cool, dry and well-ventilated place). The trade has to observe Good Manufacturing Practice and to source food and ingredients from reliable suppliers.



風險傳達工作一覽 (二零一九年十月) Summary of Risk Communication Work (October 2019)

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給業界的快速警報 Rapid Alerts to Trade: 5	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: 45	上傳到食物安全中心網頁的新訊息 New Messages Put on the CFS Website: 49