食物安全焦點
Food Safety Focus

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食物環境衞生署 Food and Environmental Hygiene Department

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食物安全中心
風險評估組
科學主任朱源强先生報告

Reported by Mr. Johnny CHU, Scientific Officer, Risk Assessment Section, Centre for Food Safety

二零一四年十二月，食物安全中心(中心)接獲歐洲聯盟委員會食品和飼料快速預警系統的通報，指歐洲嬰兒食品生產商凱莉嬰幼兒食品有限公司（Holle Baby Food GmbH）回收旗下嬰兒米糊的特定批次產品，原因是有關產品被驗出阿托品和東莨菪鹼含量超出最高容許限量。本文將探討食物中阿托品和東莨菪鹼的來源、其安全性及規管情況。

什麼是阿托品和東莨菪鹼？

阿托品和東莨菪鹼是天然存在於某幾科植物中的生物鹼（有機鹼性物質），遍布植物各個部分，是這些植物的致毒成分。事實上，這些毒素是植物避免成為草食性動物果腹之物的重要武器。

人類把含阿托品和東莨菪鹼的植物萃取物作醫藥用途已有數百年的歷史。舉例來說，阿托品和東莨菪鹼可用於緩解噁心、暈浪和胃腸痙攣，並可在驗眼時放大瞳孔。

食物中的阿托品和東莨菪鹼

人類食用的農作物一般不含阿托品和東莨菪鹼，相關的食物中毒個案通常是由於穀類作物受到含生物鹼的植物種子污染所致。

曼陀蘿等植物含有高濃度的阿托品和東莨菪鹼，這些植物廣泛分布於溫帶和熱帶地區，農田間的雜草也可見其蹤影。在收割穀類作物時，這些植物的種子很可能會被誤作農作物一併收去。亞麻籽、黃豆、小米、葵花籽和蕎麥及這些植物的製品中都曾發現摻雜了這類雜質。

In December 2014, the Centre for Food Safety (CFS) received notification from the Rapid Alert System for Food and Feed of the European Commission (RASFF) that Holle Baby Food GmbH, a baby food manufacturer in Europe, had initiated a recall of certain batches of baby porridge because the products were detected with atropine and scopolamine at levels exceeding the maximum permitted level. This article discusses the occurrence, safety and regulation of atropine and scopolamine in foods.

What are Atropine and Scopolamine?

Atropine and scopolamine are alkaloids (organic basic substances) which naturally occur in plants of several families. The chemicals can be found in all parts of these plants and are responsible for the toxic effects of the plants. In fact, they play an important role in protecting the plants against being eaten by herbivores.

Plant extracts containing atropine and scopolamine have been used for centuries in human medicine. For example, atropine and scopolamine may be used to treat nausea and motion sickness, intestinal cramping, and for dilating pupils for eye examination.

Occurrence in Foods

In general, common crops grown for human consumption do not contain atropine or scopolamine. Hence, poisoning associated with the consumption of foods is usually the result of contamination of grain crops with seeds of the alkaloid-containing plants.

High concentrations of atropine and scopolamine have been found in some plants such as *Datura* species. They are widely distributed in temperate and tropical regions and may be present as weeds of cultivated fields. During harvesting of grain crops, their seeds may be accidentally harvested. Hence, they have been found as impurities in linseed, soybean, millet, sunflower and buckwheat and their products.

洋金花是香港其中一種曼陀蘿植物(相片由漁農自然護理署提供)

Datura metel is one of the *Datura* species that can be found in Hong Kong (Photos by courtesy of the Agriculture, Fisheries and Conservation Department)

焦點個案 Incident in Focus

對健康的影響

阿托品和東莨菪鹼一旦進入人體，很容易被胃腸道吸收，並迅速地進入身體組織，最後主要隨尿排出。阿托品和東莨菪鹼對神經系統的作用相若，兩者都能阻斷神經傳導物質乙醯膽鹼的活性。

誤食阿托品和東莨菪鹼會對身體產生多種急性影響，例如瞳孔放大、心率變化、口乾、便秘、尿瀦留和面部潮紅等，這些短期影響通常會在進食後30至60分鐘出現。由於阿托品和東莨菪鹼在人體內會被快速排出，所以不會對健康產生長遠的影響。

歐洲食品安全局在二零一三年把這兩種毒素組合的急性毒性參考劑量訂為每公斤體重0.016微克。化學物質的急性毒性參考劑量是根據進行評估時所有已知的科學資料，按人體的體重計算，估算人在24小時或以下的時間內可從食物及／或食水攝入該化學物質而不致對健康帶來明顯風險的分量。

規管情況

目前尚沒有針對阿托品和東莨菪鹼的國際或國家食物安全標準，本港亦沒有具體法律條文規管食物中的阿托品和東莨菪鹼。但無論如何，所有在本港出售的食物都必須適宜供人食用。

中心採取的行動

為保障市民健康，中心在接報後已即時聯絡該產品於本港的主要入口商回收有關產品，並把事件知會業界和市民。此外，為確保市面上不再有通報提及的產品出售，中心已派員巡查本地主要的零售點，並未發現有受影響的產品出售。

注意要點：

- 阿托品和東莨菪鹼是天然存在於某幾科植物中的生物鹼。
- 相關的食物中毒個案通常是由於農作物受到含生物鹼的植物種子污染所致。
- 進食有關產品可能會出現短期的不良影響，但不會對健康產生長遠的影響。

給業界的建議

1. 業界應確保所出售或進口的食品適宜供人食用，並符合本港法例標準。
2. 業界須核實其供應商有良好的監控措施確保所使用的原材料符合食物法例。

給市民的建議

1. 消費者應立即停止讓嬰幼兒進食有關產品。
2. 嬰幼兒如食用上述產品後不適，應盡快求醫。

Public Health Significance

Once consumed, atropine and scopolamine are readily absorbed from the gastrointestinal tract, quickly and extensively distributed into tissues, and excreted predominantly in the urine. Atropine and scopolamine have similar effects on the nervous system; they block the activity of acetylcholine which is involved in neurotransmission.

Atropine and scopolamine can induce a variety of acute effects, for example, dilated pupils, change of heart rate, dryness of the mouth, constipation, urinary retention, and flushed skin. Symptoms of short term effects usually occur in 30 to 60 minutes after consumption. The chemicals present will be excreted from the body and therefore there are no long term health effects.

In 2013, the European Food Safety Authority (EFSA) established a group Acute Reference Dose (ARfD) of 0.016 μg/kg b.w. expressed as the sum of the chemicals. ARfD of a chemical is an estimate of the amount of a substance in food (and/or drinking-water), normally expressed on a body-weight basis, which can be ingested in a period of 24 hours or less without appreciable health risk to the consumer on the basis of all known facts at the time of the evaluation.

Regulatory Control

Currently, there is no international or national food safety standard developed for atropine and scopolamine in foods. There is also no specific regulation on atropine and scopolamine in foods stipulated in the Laws of Hong Kong. Nevertheless, all foods for sale in Hong Kong must be fit for human consumption.

Actions Taken

To protect public health, the CFS has immediately contacted the major importer of the products concerned in Hong Kong to initiate a recall of the products from the market. The CFS has also alerted the trade and the public of the incident. Besides, to ensure all products mentioned in the RASFF notification are not available in the market, the CFS has conducted checks on major local retail outlets and has not found the products available for sale.

Key Points to Note:

- Atropine and scopolamine are alkaloids which naturally occur in plants of several families.
- Poisoning associated with foods is the result of contamination of crops with seeds of the alkaloid-containing plants.
- Consumption of implicated products may cause short term adverse effects. Long term health effects are not expected.

Advice to the Trade

1. The trade should ensure that the foods they sell or import are fit for human consumption and comply with legal standards.
2. The trade should verify that their suppliers have controls in place to ensure that the raw materials they used comply with food legislation.

Advice to the Public

1. Consumers should not feed infants and toddlers with the products concerned.
2. If infants and toddlers feel sick after consuming the products concerned, medical advice should be sought.

風險傳達 工作一覽 Summary of Risk Communication Work

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食物安全平台
Food Safety Platform

配方產品和嬰幼兒食物的營養聲稱
Nutrition Claims on Formula Products and Foods for Infants and Young Children

食物安全中心
風險評估組
科學主任廖珮珊女士報告

Reported by Ms. Melissa LIU, Scientific Officer,
Risk Assessment Section,
Centre for Food Safety

由今期起，我們會一連三期探討配方產品和嬰幼兒食物的營養和健康聲稱。

營養聲稱

“營養聲稱”（包括營養素含量聲稱和營養素比較聲稱）是指述明、指出或暗示某食品含有特定營養特質的陳述。很多預先包裝食物，包括供嬰幼兒食用的預先包裝食物都載有這類聲稱。

食品法典委員會認為，擬供嬰幼兒食用的食物（包括配方產品）不應獲准作出營養和健康聲稱，除非相關的食品法典委員會標準或國家法例另有明確規定。然而，有些國家仍然准許這類產品在符合特定條件的情況下作出營養聲稱。舉例來說，在美國，為年齡兩歲以上幼童而設的食品只要每食用分量含超過160毫克鈣，便可聲稱為“高鈣”；如每食用分量的鈣含量比另一同類產品多80毫克鈣，便可聲稱為“鈣含量更高”。

This article is the first of a series of three articles that focus on nutrition claims and health claims in formula products and foods for infants and young children (“IYC food”).

Nutrition Claim

“Nutrition claim” (includes “nutrient content claim” and “nutrient comparative claim”) means any representation which states, suggests or implies that a food has particular nutritional properties. It can be found on many prepackaged foods, including those for infants and young children.

The Codex Alimentarius Commission (Codex) opines that nutrition claims shall not be permitted for foods for infants and young children (including formula products) except where specifically provided for in relevant Codex standards or national legislation. However, nutrition claims on these products are still allowed in some countries when specific conditions are fulfilled. For example, in the USA, foods for children aged over two years can make “high calcium” claim when the product contains more than 160 mg calcium per serving; “More calcium” is permitted when a serving of the product has 80 mg calcium more than another product being compared.

本港／海外市場上配方產品和嬰幼兒食物的營養聲稱例子
Examples of nutrition claims on formula products and IYC foods available in the local/overseas market

營養聲稱 Nutrition Claim	例子 Examples
營養素含量聲稱 Nutrient content claim	• 含豐富鈣 Good source of calcium • 蘊含DHA With DHA • 無蔗糖 Sucrose free
營養素比較聲稱 Nutrient comparative claim	• 添加更多維他命D Enriched with vitamin D • 含有更多鐵質 Extra iron • 增加三倍DHA（與原有配方比較） Increased DHA level by 3 times (compared to its original formula)

部分營養聲稱能提供有用資訊

現代的生產商普遍在較大嬰兒及幼兒配方產品中額外添加各種各樣的營養素，這些營養素並非是對兒童的生長和發育必不可少，而是可能對某些兒童的健康有額外益處。為強調這些自行決定額外添加的營養素的效益，生產商採用了“含DHA”等聲稱。有意見認為這類聲稱能夠幫助照顧者比較市場上的同類產品，從而作出有依據的選擇。

事實上，在加拿大和美國等地的配方產品一向有分高鐵含量和低鐵含量。一些鐵含量最少達1毫克／100千卡的產品可標記“含鐵質”以資識別，方便家長作出選擇。

此外，與其他預先包裝食物一樣，一些嬰幼兒食物亦有不同的配方。例如，幼兒果汁有普通配方和“少糖”配方，產品上的“少糖”聲稱有助照顧者迅速識別出何者為較健康的選擇。同樣地，嬰幼兒食物上的“低鈉”聲稱亦有助照顧者遵從減少鈉攝入量的膳食指引來安排嬰幼兒的飲食。

有營養聲稱的產品是否比沒有的更健康或更好？

嬰兒配方產品是非母乳餵哺嬰兒出生後首數月惟一賴以全面滿足營養需求的食品。為滿足嬰兒的營養需要並符合國際(食品法典委員會)或國家要求，這類

Certain Nutrition Claims Provide Useful Information

Nowadays, manufacturers often add various nutrients to follow-up formula due to their possible additional health effects to certain children, although these nutrients are not considered essential to children’s growth and development. To highlight the properties of these voluntarily added nutrients, they make claims such as “contains DHA”. There are views that such claims may help carers compare similar products in the market and make informed purchasing decisions.

In fact, in places such as Canada and the USA, traditionally there are formula products with low and high amounts of iron. Some products with iron content of at least 1 mg/100 kcal may be marked as “with iron” to help parents distinguish them from their counterparts.

Besides, similar to other prepackaged foods, certain IYC foods are available in different versions. For example, when fruit juice for young children comes with both the regular version and a “less sugar” version, the “less sugar” claim on the product may help carers quickly identify the healthier choice. Similarly, “low sodium” claim on IYC foods may facilitate carers make meal plans for their child, following the dietary guidelines of reducing sodium intake.

Are Products With Nutrition Claims Healthier or Better than Those Without?

Infant formulae are the only food which wholly fulfil the nutrition requirement of non-breastfed infants during their first few months of life. To meet infants’ nutritional need and fulfil the international (Codex) or national requirements, the nutrient contents of these products are carefully crafted

產品的營養素含量均經過精心調配，成分大同小異。因此，附有營養聲稱的嬰兒配方產品並不一定比那些沒有聲稱的有更大的健康益處。

有時候，產品所標榜的營養特質其實不過是食物的天然特點，而非特別配方或加工處理的成果。例如牛奶天然含有鈣，聲稱“鈣質來源”的產品並不一定“較有營養”，因為其鈣含量很可能與那些沒有作出聲稱的同類產品相若。

聲稱“低脂”的產品對需要減少攝入脂肪的較大兒童和成人可能是不錯的選擇，但對兩歲以下的嬰幼兒來說卻不然，因為他們正需要攝取足夠的脂肪來幫助正常生長和發育，並不適宜限制脂肪的攝入量。對他們來說，“低脂”食品不但不是較佳選擇，更非適當的選擇。

從以上例子可見，雖然一些配方產品和嬰幼兒食物的營養聲稱能夠為消費者提供重要的資訊，但亦有些對作出精明的食物選擇是無甚裨益的。家長和照顧者可參閱營養標籤，了解食品的營養成分。

and may not have any major differences. An infant formula with nutrition claim does not necessarily mean that it carries more health benefits than those without such claim.

Sometimes, the nutritional property described by the nutrition claim on a product is due to the natural characteristic of a food, rather than any special formulation or processing. For example, cow's milk is a natural source of calcium; a product claimed to be "source of calcium" may not necessarily be "more nutritious" as it likely has similar calcium content as those without the claim.

Products with "low fat" claims may be a good option for older children and adults to limit dietary fat intake. However, infants and young children below two years old should avoid limiting fat intake in their normal diet as they need adequate fat for proper growth and development. For these children, foods with "low fat" claims are neither superior nor suitable choices.

As illustrated by the above examples, while some nutrition claims on formula products and IYC foods provide important information, others may not always be useful in making smart food choices. Parents and care-givers can read the nutrition label to understand the nutritional property of the food product.

食物事故點滴
Food Incident Highlight

豆乾中的二甲基黃

食物安全中心(中心)在進行一項專項食品調查時，發現一批由台灣進口的預先包裝豆乾含有不准在食物中使用的染色料二甲基黃。中心一方面把事件通知台灣當局，並指令有關商戶把問題產品下架，一方面公布事件，提醒市民注意。

二甲基黃是一種工業用化學物，用於工業染色，如擦亮劑和其他蠟製品、汽油和肥皂等。國際癌症研究中心已將其劃為“或可能令人類患癌”的第2B類物質。

中心在進口豆乾中檢出二甲基黃，成功把一個更嚴重的食物安全問題曝光。台灣當局在收到中心的通知後，亦在當地展開深入調查，並在逾100種食品(包括豆乾和即食麵)中檢出二甲基黃。雖然中心以監管食物供應鏈為工作重點，但由於本港大部分食物均由外地供應，針對製成品的監察制度仍然是保障食物安全和市民健康的重要一環。中心呼籲業界停止售賣該批食品，消費者亦不應食用有關食品。

受影響的豆乾
The affected dried beancurd

Dimethyl Yellow in Dried Beancurd Products

Last month, the Centre for Food Safety (CFS) found a batch of pre-packed dried beancurd imported from Taiwan containing the non-permitted colouring matter dimethyl yellow in a targeted food surveillance project. The CFS has contacted the Taiwan authority, instructed the traders concerned to take the affected product off the shelves, and alerted the public of the incident.

Dimethyl yellow is an industrial chemical used to colour polishes and other wax products, gasoline, and soap. The International Agency for Research on Cancer has classified dimethyl yellow as a Group 2B agent, i.e. possibly carcinogenic to humans.

The detection of dimethyl yellow in the imported beancurd has unveiled a more serious underlying problem. Upon receiving the CFS's notification on the discovery, the Taiwan authority has conducted an in-depth investigation and found dimethyl yellow in over 100 products, including dried beancurd products and instant noodles. Despite placing more emphasis on monitoring the food supply chain, the CFS's surveillance system focusing on end products remains an important tool in safeguarding food safety and protecting public health given that the majority of the local food supply is from outside Hong Kong. The CFS advises traders to stop selling the affected products and consumers not to consume the products concerned.

油魚和玉梭魚的規管

最近本地傳媒報道，有食客懷疑因吃了作劍魚出售的油魚而出現排油腹瀉。

油魚(學名為棘鱗蛇鯖)和玉梭魚(學名為異鱗蛇鯖)這兩種海魚含豐富脂肪，並含有人體難以消化的蠟酯。這些魚如未經適當處理及／或進食過量，有些人可能會出現胃痙攣和排油腹瀉。在二零零七年的油魚事件中，便有多名市民報稱進食標籤為“鱈魚”的魚類製品後出現排油腹瀉。

排油腹瀉不會導致大量體液流失，因此不會致命。雖然香港和澳洲、加拿大、英國、美國和新加坡等地一樣，並不禁止出售和進口油魚及玉梭魚；但業界不得在產品上加上失實說明，應加上正確標籤出售，讓消費者作出知情的選擇。有關油魚的識別和標籤，業界可參考食物安全中心(中心)發出的相關指引。

中心作初步調查後，有關個案已交由海關跟進處理。

Regulatory Approaches of Sale of Oilfish and Escolar

Recently, local media reported a case of oily diarrhoea which was suspected to be related to the consumption of oilfish sold as swordfish.

Oilfish (*Ruvettus pretiosus*) and escolar (*Lepidocybium flavobrunneum*) are marine fish rich in fat and contain wax esters which are indigestible by humans. If the fish is not prepared properly and/or eaten in large quantities, it may cause stomach cramps and oily diarrhoea in some individuals as in the oilfish incident in 2007 where cases of oily diarrhoea were reported after consumption of fish products labelled as "cod fish".

The oily diarrhoea does not cause significant loss of body fluid and is not life-threatening. In Hong Kong, like other places such as Australia, Canada, the UK, the US and Singapore, the sale and import of oilfish and escolar is permitted. However, members of the trade must not falsely describe their products and should provide proper label for consumers to make informed choices. Traders may make reference to the guidelines issued by the Centre for Food Safety (CFS) on the identification and proper labelling of oilfish.

Subsequent to the CFS's initial investigation, the case has been referred to the Customs and Excise Department.