天冬酰胺的安全性
Safety of Aspartame

業界諮詢論壇

Trade Consultation Forum

20 September 2023

食物環境衞生署
Food and Environmental Hygiene Department

食物安全中心
Centre for Food Safety

背景
Background

- 國際癌症研究機構和聯合國糧食及農業組織／世界衞生組織食物添加劑聯合專家委員會（專家委員會）最近評估天冬酰胺的安全性，並於2023年7月14日發表結果。

- The International Agency for Research on Cancer (IARC) and Joint FAO/WHO Expert Committee on Food Additives (JECFA) have recently evaluated the safety of aspartame and released the results on 14 July 2023.

甚麼是天冬酰胺?
What is aspartame?

- 天冬酰胺是一種高甜度、低熱量的人造甜味劑。
- 自八十年代以來廣泛用於多種食品如汽水、口香糖和雪糕。
- 其甜度比砂糖高約200倍，因此只需少量即可達致食物中與砂糖相同的甜度。

- Aspartame is an intense, low-calorie artificial sweetener.
- Widely used since the 1980s in various food products like soda, chewing gum and ice-cream.
- Approximately 200 times sweeter than table sugar and thus smaller amounts can achieve the same level of sweetness as sugar in food.

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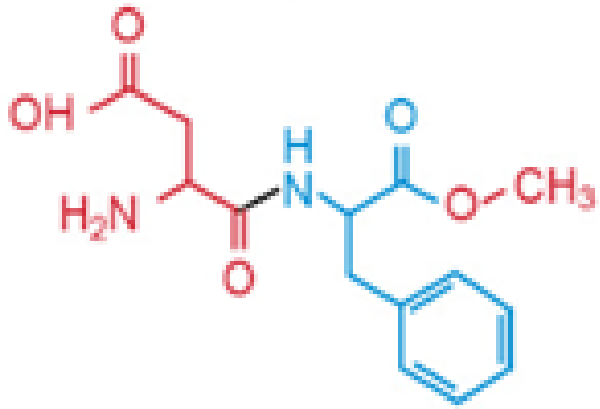
甚麼是天冬酰胺?
What is aspartame?

- 天冬酰胺由兩個天然存在的氨基酸組成，分別是天冬氨酸和苯丙氨酸。

- Aspartame is made of the two naturally occurring amino acids, aspartic acid and phenylalanine.

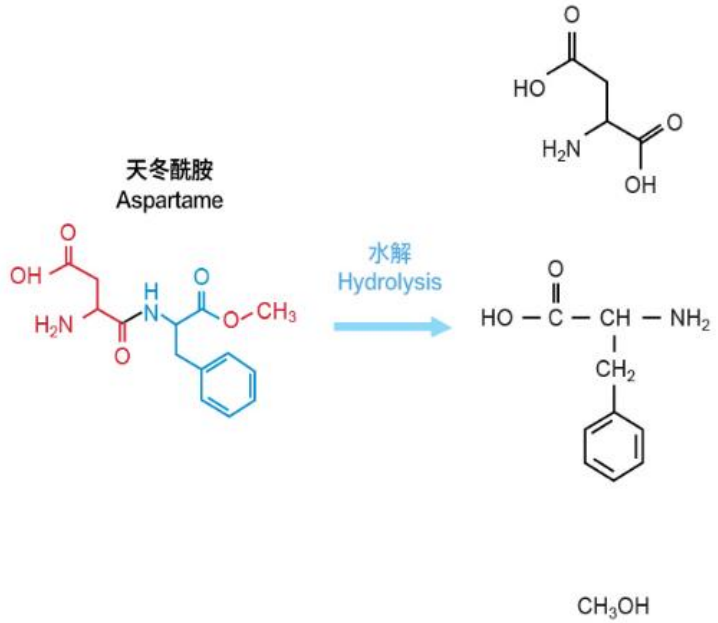
天冬酰胺
Aspartame



甚麼是天冬酰胺?
What is aspartame?

- 天冬酰胺在進食後會被完全水解，產生天冬氨酸、苯丙氨酸和甲醇。這些物質都是天然存在於體內和多種食物中。

- After ingestion, aspartame is fully hydrolysed to aspartic acid, phenylalanine and methanol, all occur naturally in the body and in a wide variety of food.



天冬氨酸
Aspartic acid

苯丙氨酸
Phenylalanine

甲醇
Methanol

天冬酰胺的安全性
Safety of aspartame

- 40多年來，天冬酰胺一直是廣泛研究的課題。
- 專家委員會於1981年評估天冬酰胺的安全性，並訂定每日可攝入量為每日每公斤體重0-40毫克。
- 食品法典委員會認可天冬酰胺在食品中用作甜味劑。

- Aspartame has been the subject of extensive investigation for more than 40 years.
- JECFA evaluated the safety of aspartame in 1981 and established an acceptable daily intake (ADI) of 40 mg/kg body weight per day.
- Aspartame is recognised by the Codex Alimentarius Commission as suitable for use in foods as a sweetener.

天冬酰胺的安全性
Safety of aspartame

- 由於有新的研究結果，國際癌症研究機構和聯合國糧食及專家委員會最近進行了獨立和互補的評估，以探討與攝入天冬酰胺相關的潛在致癌危害和其他健康風險。

- Given the availability of new research results, IARC and JECFA have recently conducted independent and complementary reviews to assess the potential carcinogenic hazard and other health risks associated with aspartame consumption.

國際癌症研究機構和專家委員會的評估
Evaluations by IARC and JECFA

- 國際癌症研究機構基於對實驗動物和人類致癌性的“有限證據”，把天冬酰胺分類為或可能令人類患癌（組別2B）。
- 在三項可評估天冬酰胺與癌症的觀察性研究中，國際癌症研究機構發現飲用含人造甜味劑的飲品與患肝癌風險有正向關聯。
- 然而，不能排除偶然性、偏見或干擾因素作為對正向結果的解釋。

- IARC classified aspartame as possibly carcinogenic to humans (Group 2B) based on limited evidence for cancer in humans.
- In the three observational studies that allowed an assessment of aspartame and cancer, IARC noted that a positive association was observed between the consumption of artificially sweetened beverages and the risk of liver cancer.
- However, chance, bias or confounding could not be ruled out as an explanation for the positive findings.

國際癌症研究機構和專家委員會的評估
Evaluations by IARC and JECFA

- 專家委員會的結論是，實驗動物或人體的數據均沒有強力證據表明進食天冬酰胺後會產生不良影響。
- 不可能在動物攝取天冬酰胺與患上癌症之間建立聯繫。
- 從飲食攝取天冬酰胺不會影響健康。
- 無理據改變此前為天冬酰胺所訂定的每日可攝入量(即每日每公斤體重0-40毫克)。

- JECFA concluded that no convincing evidence from experimental animal or human data that aspartame has adverse effects after ingestion.
- Not possible to establish a link between aspartame exposure in animals and the appearance of cancer.
- Dietary exposure to aspartame does not pose a health concern.
- No reason to change the previously established ADI of 0-40 mg/kg body weight for aspartame.

《食物內甜味劑規例》(第132U章)
Sweeteners in Food Regulations (Cap. 132U)

- 在本港，所有甜味劑，包括天冬酰胺，受《食物內甜味劑規例》(第132U章)所規管。
- 所有批准用於食物中的甜味劑都通過專家委員會的安全評估。

- In Hong Kong, all sweeteners including aspartame are regulated under the Sweeteners in Food Regulations (Cap. 132U).
- All these permitted sweeteners have already undergone safety evaluation conducted by JECFA.

給業界的建議
Advice to trade

- 只可於食物中使用准許的甜味劑，而添加的分量以發揮該甜味劑的預期作用所需的最低分量為限。

- 預先包裝食物如含有食物添加劑（包括甜味劑），必須在食物標籤上列明其作用類別及其本身所用名稱或識別編號。

- Use only the permitted sweetener in food and the quantity added is limited to the lowest possible level necessary to accomplish its desired effect.

- Food additives including sweetener in prepackaged food must be listed by their functional classes and specific names or identification numbers.

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