



河豚毒素和其他地區對 食用河豚的規管

Tetrodotoxin and Regulation of Puffer Fish
as Food in Other Places

食物安全中心
The Centre for Food Safety

業界諮詢論壇
Trade Consultation Forum

2021年4月16日

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食物環境衛生署
Food and Environmental
Hygiene Department

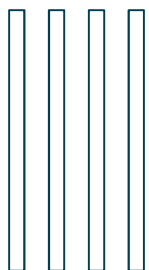


食物安全中心
Centre for Food Safety



因進食河豚引致中毒的個案

- 四月十二日發生一宗懷疑與進食河豚有關的中毒個案
- 一名男子於一所食肆進食河豚，約一個半小時後出現暈眩和心悸
- 病人前往醫院求醫，情況穩定
- 建議業界不應進口及銷售河豚類食品



Poisoning due to consumption of puffer fish

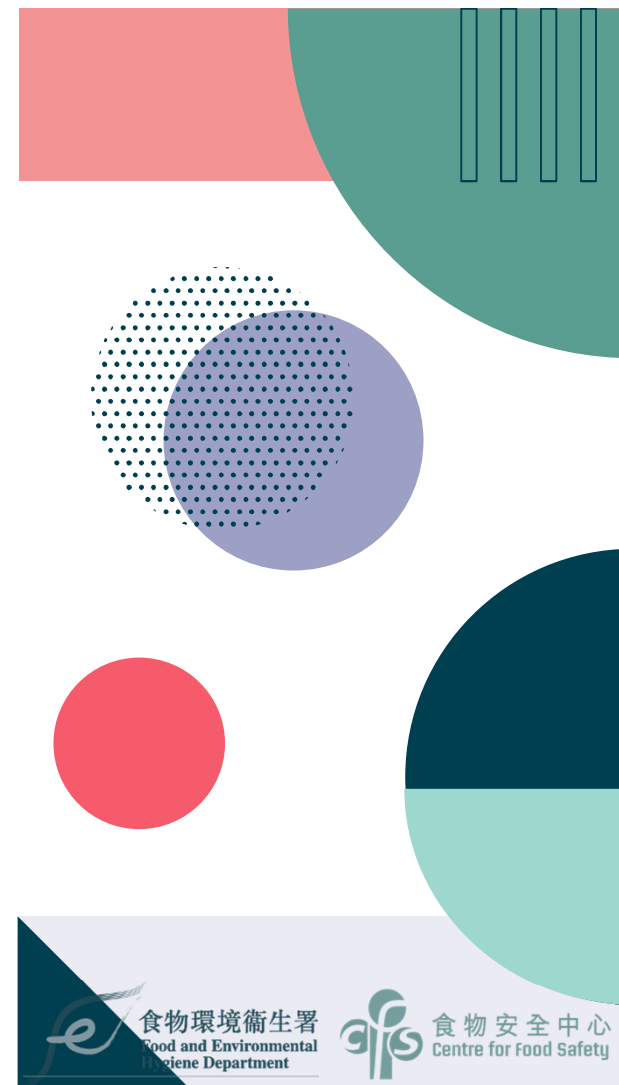
- On April 12, there was a suspected puffer fish poisoning case
- A man developed dizziness and palpitation 1½ hr after consuming puffer fish at a restaurant.
- He attended a hospital and his condition was stable
- Advice the trade not to import or sell puffer fish as food



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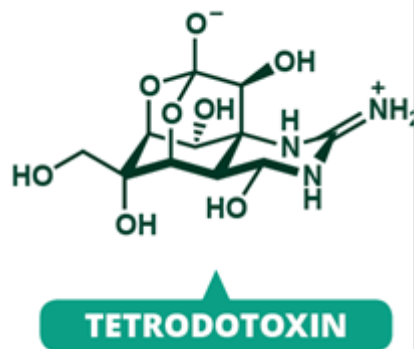
食用河豚的 風險

Dangers of puffer fish
consumption



食用河豚的風險

- 河豚含有強烈毒素 (TTX)
- 可以致命
- 無已知的解毒劑或抗毒素
- 治療只屬支援性質



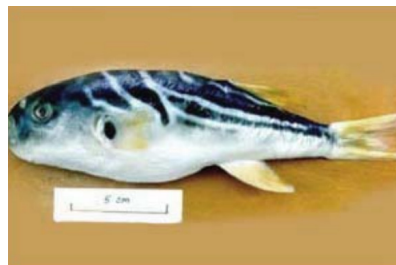
Dangers of puffer fish consumption

- Existence of tetrodotoxin (TTX)
- Can be lethal
- No known antidote
- Treatments are supportive only

為何河豚毒素能引致中毒？

河豚毒素

- 主要導致神經和腸胃症狀
- 非常耐熱，不會被烹煮和乾燥等配製過程破壞
- 任何一條河豚也可能含有致命分量的毒素，因此沒有任何抽取樣本的方法能保證整批河豚的安全



黃鰭多紀魷
Takifugu xanthopterus
由漁農自然護理署提供
Photo courtesy of AFCD

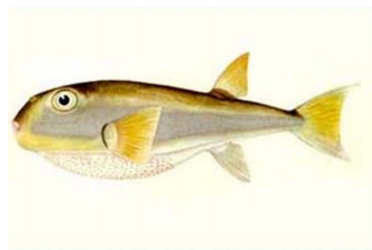
Why TTX can cause poisoning?

TTX

- Primarily results in neurological and gastrointestinal signs
- Heat-stable, and unlikely destroyed by food preparation steps (e.g. cooking and drying)
- No adequate sampling scheme can assure a safe lot since any single fish may contain a lethal dose of toxin

河豚毒素的來源

- 由某些海洋細菌製造例如溶藻弧菌 (*Vibrio alginolyticus*)等
- 河豚通過食用含有毒素的生物(如浮游生物)積累毒素
- 毒素水平會受品種、河豚不同的部位、性別、季節等因素影響



月兔頭魷
Lagocephalus lunaris
由漁農自然護理署提供
Photo courtesy of AFCD

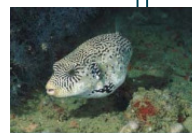
Source of TTX

- Produced by some marine bacteria such as *Vibrio alginolyticus*
- Accumulates in puffer fish through the consumption of toxic organisms (e.g. planktons)
- Toxicity level varies among families and species and also according to different body parts, sex, seasons, etc.

甚麼魚含有河豚毒素？

魷形目 (*Tetraodontiformes*) 的魚類，當中包括以下的科：

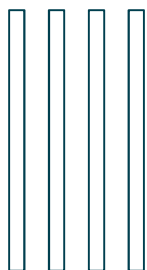
- 四齒魷科(*Tetraodontidae*) (如：河豚)
- 三齒魷科(*Triodontidae*) (如：三齒魷)
- 二齒魷科(*Diodontidae*) (如：刺規魚)
- 翻車魷科(*Molidae*) (如：翻車魚)
- 鱗魷科(*Balistidae*) (如：鱗豚)
- 箱魷科(*Ostraciidae*) (如：箱豚) 等



What kind of fish may have TTX?

Fish of order *Tetraodontiformes*, which include the following families:

- *Tetraodontidae* (e.g. puffer fish)
- *Triodontidae* (e.g. three-toothed puffer)
- *Diodontidae* (e.g. porcupine fish)
- *Molidae* (e.g. ocean sunfish)
- *Balistidae* (e.g. triggerfish)
- *Ostraciidae* (e.g. boxfish) etc.

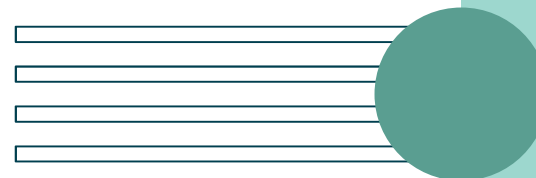
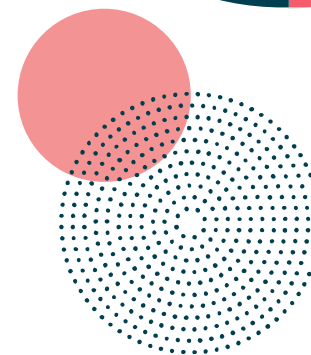




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食用河豚的 規管

Regulation of Puffer Fish
as Food





食用河豚的規管

食品法典委員會

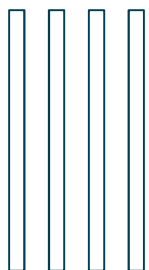
- 河豚的交易在國際食品市場上並不普遍
- 沒有對河豚類食品的特定標準或建議

加拿大

- 禁止河豚進口

中國內地

- 禁止加工經營所有野生河豚
- 有條件開放養殖及加工特定品種的河豚



Regulation of puffer fish as food

Codex Alimentarius

- Trading of puffer fish is not common on international food market
- No specific standard or recommendation regarding puffer fish

Canada

- Importation of puffer fish is prohibited

Mainland China

- Processing of wild caught puffer fish is prohibited
- Farming and processing of specific species of puffer fish are allowed under certain specific conditions

食用河豚的規管

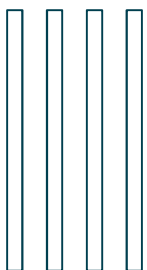
台灣

- 有關法規規定，漁民不可以捕撈或養殖之河豚魚供食品加工及餐飲業者為原料

歐盟

- 不同種類的河豚均不能在市場售賣

*包括四齒魨科、翻車魨科、二齒魨科和瓦氏尖鼻魨



Regulation of puffer fish as food

Taiwan

- Relevant regulations state that fishermen should not supply captured or farmed puffer fish to trade and catering service for food processing

European Union

- Puffer fish are not allowed to be placed on the market

*including Tetraodontidae, Diodontidae and Canthigasteridae families.

食用河豚的規管

日本

- 多重規管限制，包括：
 - ◆ 網捕地區的規定、廚師的要求、供應河豚的食肆的要求、飼養河豚的規管等

美國

- 美國食物及藥物管理局(US FDA)有一個特別的安排
 - ◆ 只限紐約市的唯一進口商
 - ◆ 非常限量(屠宰處理的冷藏河豚)
 - ◆ 每年不多於三次
 - ◆ 不能供一般銷售
 - ◆ 只分銷到少於20間屬一個協會成員的餐館，其成員的廚師須經過特別訓練

Regulation of puffer fish as food

Japan

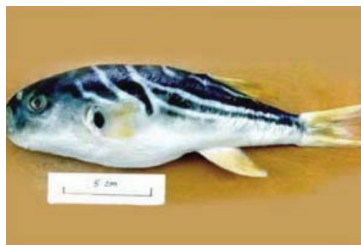
- Multiple regulatory restrictions :
 - ◆ Harvest areas for certain puffer fish, training and registration for puffer fish chefs, requirements for puffer fish restaurants as well as regulation on farming of puffer fish

United States

- US Food and Drugs Administration has a special arrangement
 - ◆ A sole importer in New York City
 - ◆ Very limited importation (frozen, dressed fugu)
 - ◆ No more than three times a year
 - ◆ Not for general distribution.
 - ◆ Only distributed to less than 20 member restaurants of an organisation where the chefs have been trained to handle the fish

規管河豚的困難

- 總括而言，大部分地方仍禁止出售河豚
- US FDA表示
 - ◆ 由於任何一條河豚也可能含有致命分量的毒素
 - ◆ 因此沒有抽取樣本的方法能保證整批河豚的安全



黃鰭多紀魷
Takifugu xanthopterus
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Photo courtesy of AFCD

Difficulty in the control of puffer fish

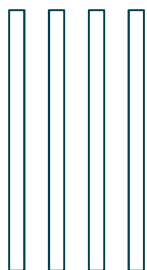
- In summary, majority of places do not allow the sale of puffer fish as food
- According to US FDA
 - ◆ Any single fish may contain a lethal dose of toxin; and
 - ◆ No adequate sampling scheme can assure a safe lot



食用河豚的規管

本地的規管

- 香港法例第132章指明在本港出售的食物必須適宜供人食用
- 建議業界不應進口及銷售河豚類食品



Regulation of puffer fish as food

Local perspective

- Cap. 132 stipulates that all food available for sale in Hong Kong must be fit for human consumption
- Advise the trade not to import or sell puffer fish as food



謝謝 Thank you

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