



## PUFFERFISH: TO EAT OR NOT TO EAT?

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### Abstract

Due to toxicity of Pufferfish, this fish was not considered commercially valuable and was not extensively studied. Currently, this opinion has changed, and the number of pufferfish studies has increased for many reasons, including their known toxin (tetrodotoxin: TTX) and their resistance to TTX toxicity. Tetraodontidae is a family of marine and estuarine fish that includes 130 species grouped in 19 genera that are potential carriers of tetrodotoxins (TTXs). 22 pufferfish species can be legally caught and sold for public consumption in Japan". One of the important pufferfish species which is consumed is the *Lagocephalus spadiceus*. It is a non-toxic pufferfish species and it is also consumed. "In 2006, about 90 % of pufferfish imported into Japan landed at Shimonoseki Port, of which 99.7 % was from China and most were frozen half-smooth golden puffer (*L. spadiceus*). Tetrodotoxin is a neurotoxin responsible for human intoxications and fatalities, commonly following the consumption of pufferfish. The most important organs for TTX accumulation are gonads and livers. In Japanese waters, the presence of pufferfish belonging to the Tetraodontidae family is very common. In fact, Japanese people are well-known consumers of fugu, which is considered a gastronomic delicacy. In humans, according to case studies, between 0.18 and 0.2 mg of TTX have been reported to cause severe symptoms, and a fatality was reported after an ingestion of around 2 mg of TTX. However, TTX poisoning cases still occur in this and other Asian countries. In Europe, the current legislative requirements establish that poisonous fish of the family Tetraodontidae and products derived from them must not be placed on the European markets. The risks associated with ingesting TTX due to the neurological damage that can produce potential death (resulting from respiratory failure) have been well documented. For these reasons, the sale and consumption of pufferfish must be controlled. In this study; to assess whether consumption of pufferfish should be limited worldwide, as well as its risks and economic benefits, we reviewed last several relevant studies and legal issues.

**Keywords:** Food-borne diseases, pufferfish, tetrodotoxin, toxicity