



## SUGGESTED PROCESSING METHODS FOR LOWERING THE RISK OF INTOXICATION BY TETRADOTOXIN (TTX) IN PUFFERFISHES

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### Abstract

One of the most dangerous invasive species that is found in Mediterranean Sea is pufferfish (*Lagocephalus sceleratus*). While the consumption of pufferfish species very common in Asian countries and mostly Japan there is no economical value of pufferfishes in Turkey due to risk of intoxication after consumption. The distribution of the toxin has been reported in viscera and the skin of the fish, particularly during the spawning season in female pufferfish. Characteristic symptoms could be related to neuromuscular and gastrointestinal systems. These symptoms are: advanced general paresthesia; paralysis of phalanges and extremities; pupillary dilatation, reflex changes and increased neuromuscular symptoms (dysarthria; dysphagia, aphagia; lethargy; incoordination, ataxia; floating sensation; cranial nerve palsies; muscular fasciculations). Last phase contain respiratory failure, impaired mental faculties, extreme hypotension, seizures, loss of deep tendon and spinal reflexes could be occurred. As tetrodotoxin is heat-stable like other toxins there is no a certain method for the complete elimination of TTX. However, some processing methods could be suggested for lowering the risk of TTX. Depuration method is to keep the pufferfish in a non-contaminated seawater for 3-4 months. Another methods are based on fermentation process for decreasing the amount of TTX. During fermentation TTX concentration of the ovaries, liver and flesh of the pufferfish was decreased in some studies however, detailed studies are still necessary.

**Keywords:** Pufferfish, TTX, toxin decrease, processing methods, safety

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