



Measuring Mercury Level in Edible Tissue of Farmed Whiteleg Shrimp (*Litopenaeus vannamei*) in Bushehr Province of Iran Using Cold Vapor Method

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Abstract

BACKGROUND: Many toxic elements enter human food in different ways by various industries which can put people's lives in danger. Heavy metals can be rarely removed from the body after absorption and deposition in tissues, which can lead to diseases and complications in the body. Mercury is one of the heavy metals that can poison people after consumption of contaminated seafood. The measurement of pollutants such as mercury that present in aquatic animals and environment is one of challenges for humans.

OBJECTIVES: This study aims to measure the amount of mercury accumulation in the edible tissue of whiteleg shrimp (*Litopenaeus vannamei*) found in farms of Bushehr Province in Iran.

METHODS: In this research, 70 whiteleg shrimps were collected during four sampling stages in July, August, September and October for two consecutive years. Total mercury level was measured by the cold vapor method.

RESULTS: The level of mercury was 0-0.009 mg/kg of body weight, while the recommended limit for mercury is 0.1 mg/kg according to the WHO. The microscopic study on tissue sections did not show any histopathological changes.

CONCLUSIONS: The mercury level in the edible tissue of whiteleg shrimps in Bushehr province is much lower than the recommended level and does not pose any danger to residents and consumers.

Keywords: Cold vapor, Heavy metals, Mercury, Shrimp, Tissue

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Figure Legends and Table Captions

Table 1. The level of mercury in the edible tissues of the shrimps (mg/kg).

Table 2. The recommended limit of heavy metals in fishes (ppm).

Figure 1. Mercury level in the samples compared to recommended limit proposed by the WHO and NHMRC guideline.

Figure 2. The shrimp farming pond.

Figure 3. Preservation of samples for histology in a Davidson's fixative.

Figure 4. Atomic absorption spectrophotometer (SavantAA, GBC LLC., USA).