

Immunohistochemistry of hepatopancreas of *Litopenaeus vannamei*, in two different temperature

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Abstract

This study aimed to investigate the effect of water temperature on the shrimp hepatopancreas of *Litopenaeus vannamei* by immunohistochemical method. In this research, a total of 50 shrimp with an average length of 23 ± 1 cm and an average weight of 28 ± 0.5 gr were accidentally caught from shrimp farms of the Choebdeh Abadan from Khuzestan province in two different seasons of the year. The shrimp were sampled for the histological and structural study of the hepatopancreas. After killing the shrimp by physical method, the hepatopancreas of each shrimp was transferred to Davidson's solution. The tissue samples were processed by routine histological procedure, using ascending ethanol for dehydration, xylene for clearing, and paraffin impregnation. 4-6 μm sections were taken and stained with hematoxylin-eosin and TUNEL immunohistochemistry technique. Finally, slides were studied by a light microscope equipped with a Dino-lite lens and Dino-capture software. The results indicated that the hepatopancreas structure is a tubular organ that can be affected by water temperature. In the warm season, the diameter of the tubules was smaller than in the cold season ($p \leq 0.05$). There was a significant difference in the percentage of apoptosis between the tubule-forming cells in the warm and cold seasons.

Key words: Immunohistochemistry, Hepatopancreas, *Litopenaeus vannamei*, Temperature

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