

Pathology and immunohistochemical evaluation of *Vibrio alginolyticus* infection in *Macrobrachium rosenbergii*

ABSTRACT

Vibriosis is one of the common bacterial diseases plaguing the prawn and shrimp industry. However, the sequential histopathological changes associated with *Vibrio alginolyticus*-induced vibriosis is scanty in literature. This study investigated the histological alterations in groups of *Macrobrachium rosenbergii* experimentally injected intramuscularly between the second and third abdominal segment with 50 μ L of 10⁷ CFU of *V. alginolyticus*. Twenty-four hours post inoculation, the organism was isolated and molecularly characterized while infected giant freshwater prawns were observed for histological alterations and immunoreactivity in different tissues due to the experimental challenge. The lesions observed in the organs include incipient haemocytic infiltration into the interstitial space of the tubules of the hepatopancreas and loss of epithelial layer, muscular necrosis and disruption of muscular layer with haemocytic infiltration, hyperplasia of epithelial cells and degeneration of the epithelium, deformed and necrotizing lamellae, and enlargement of the lamellar sinus of the gill, and the heart is characterized by localized nodular haemocytic reaction and melanization. Organs such as the heart, gill, hepatopancreas and muscle following injection of the putative bacteria showed immunohistochemical activity. Hence, histology and immunohistochemistry still remain important tools for vibriosis disease diagnoses in giant freshwater prawns.

Keyword: Pathology; Immunohistochemistry; *Macrobrachium rosenbergii*; *Vibrio alginolyticus*