

**Histopathology of the gill, abdomen, and lymphoid organ
of giant black tiger shrimp (*Penaeus monodon*) infected
with white spot syndrome virus (WSSV)**

**A special problem
presented to
The Division of Biological Sciences
College of Arts and Sciences
University of the Philippines in the Visayas
Miagao, Iloilo**

**In partial fulfillment
of the requirements for the degree of
Bachelor of Science in Biology**

**by
JOHN SEPACIO APINES**

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Abstract of Special Problem entitled

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Histological changes in giant black tiger shrimp, *Penaeus monodon*, were investigated at various time intervals after injection with white spot syndrome virus (WSSV). After infection with the virus, mortalities were observed. Gills, abdomen and lymphoid organ (LO) were then dissected and subjected to histological examination. The study revealed that the lymphoid organ was the most severely damaged compared to the gills and abdomen. The abdomen, although low in prevalence, was one of the target organs of the virus. Light microscopy showed the aggregation of hemocytes in the abdominal muscles of the shrimp. The infected shrimp were found to have a high prevalence of apoptotic cells. The results of this study supported the earlier findings that cell death in viral infection may have resulted mainly from apoptosis and that increasing numbers of apoptotic cells probably caused the death in WSSV-infected shrimp. Moribund shrimp had extensive deterioration of vital tissues such as the gills and lymphoid organs, thus, affecting vital processes in the shrimp body. Gross signs of lethargy and weakness were observed in the moribund shrimps. Hemocyte aggregation as well as formation of spheroids were observed in the hemal sinuses of the LO, the abdominal region and the gills. The results are discussed in relation to the hypotheses of acquired tolerance and quasi-immune response in shrimp.