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Mixed infection of abdominal segment deformity disease (ASDD) and *Enterocytozoon hepatopenaei* (EHP) in cultured *Litopenaeus vannamei*: Histopathological and bacteriological studies

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The diseased shrimp samples of cultured *Litopenaeus vannamei* showing symptoms of Abdominal Segment Deformity Disease (ASDD) with retarded growth were collected during the period 2013-2014 from East Godavari and Srikakulam Districts of Andhra Pradesh, India and subjected to histopathological and microbiological studies. Shrimp tissues (viz. Gills, gut, muscle and hepatopancreas) were fixed in Davidson's fluid and processed for histopathology. Gills have revealed the presence of excessive vacuolization. The innermost serosal layer of gut wall were eroded and sloughed-off into the lumen. The layers showed disintegration and also found the presence of encapsulated cysts bearing the spores of *Enterocytozoon hepatopenaei* (EHP). The muscle fibres were highly disintegrated, irregular, wavy and with more lacunae. In some regions, heavy haemocytic infiltration was also observed. In hepatopancreas, the tubules were completely degenerated and empty with severe haemocytic infiltration into the inter-tubular spaces. Chromatin-margination and nuclear hypertrophy were found in the tissue. Microsporidian cysts of *Enterocytozoon hepatopenaei* (EHP) were found inside the B cells of the hepatopancreatic tubule epithelium as granular inclusions. PCR studies confirmed the presence of EHP. Haemolymph collected from the diseased samples have revealed the presence of *Vibrio harveyi*, *V. alginolyticus* and *V. vulnificus* as the associated bacteria. Our study is the first report from India for the mixed infection of ASDD and EHP in cultured *L. vannamei*.

Biography

Janakiram Pasupuleti has obtained his PhD in Zoology from Andhra University, Visakhapatnam, India in the year 1999 and continued his Post-doctoral studies in the same University. He is working as an Assistant Professor (Senior) in the division of Fish Pathology, Dept. of Marine Living Resources, Andhra University. He has published 16 research papers in national and international journals. He has been serving as one of the reviewers for the *Indian Journal of Fisheries*.

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