The Presence, Species Composition, Antibiotic Resistance, and Virulence Potential of Vibrio Bacteria from Commercially Purchased Florida Brown Shrimp, Farfantepenaeus aztecus

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Vibrio is a large and diverse genus of marine bacteria, some of which are known to cause illness in humans. In particular, Vibrio vulnificus and Vibrio parahaemolyticus, common to brackish Florida environments, have gained considerable recent media attention as potential sources of human illness. The purpose of this study was to examine the Vibrio bacterial communities isolated from the rostrums of brown bait shrimp (Farfantepenaeus aztecus) purchased from two east Florida bait shops which employ substantially different live bait holding methods. The study addressed three specific goals: 1) determining the presence/absence and species composition of the Vibrio community on bait shrimp and in associated water samples; 2) assessing the virulence potential of Vibrio species isolated from these sources; 3) determining the susceptibility of the Vibrio isolates to each of four antibiotics. Laboratory techniques included microbial culture, PCR, gel electrophoresis, and antimicrobial sensitivity testing. Vibrio vulnificus, V. parahaemolyticus, and one or more non-target Vibrio species were isolated from bait shrimp and water samples. Shrimp obtained from a bait store employing a flow-through holding system exchanging low salinity (22ppt) water with the Indian River Lagoon harbored all three Vibrio types, while shrimp obtained from a recirculating holding system maintained at higher salinity (40ppt) at another shop typically harbored only non-target Vibrio and, rarely, V. parahaemolyticus. All V. vulnificus isolates obtained from flow-through system shrimp were found to be of clinical type. Antimicrobial sensitivity test results indicated all Vibrio isolates examined were susceptible to most or all of the antibiotics tested.

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