

Species Identification and Presumptive *Vibrio* Contamination in Selected Polychaete Live Feed in Sri Lankan Shrimp Hatcheries

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Polychaetes are abundant, segmented marine worms that are widely used as a live feed source in hatcheries. As they are live feed, they can act as pathogen carriers to the shrimp hatcheries. In Sri Lanka, studies on the use of polychaetes in the shrimp hatcheries and their microbial risk are not reported. The present study aims to identify polychaete species used in shrimp hatcheries, assess presumptive *Vibrio* contamination, and compare presumptive *Vibrio* counts in local and imported polychaete species. In addition, antimicrobial susceptibility of the *Vibrio* isolates was also assessed. Polychaete species were identified morphologically using taxonomic keys. Polychaetes were fixed in 4% formaldehyde and observed under a stereo microscope for fine morphological and meristic characters. Live polychaetes were collected from collectors and importers, washed, crushed, suspended in sterilized distilled water, centrifuged, and supernatants were plated on thiosulfate-citrate-bile salts-sucrose (TCBS) agar, incubated at 30 °C for 24 h in an incubator. Following incubation, bacterial colonies were counted, and morphology was recorded. Isolated bacterial colonies were subjected to antimicrobial susceptibility testing using standard methodologies. Erythromycin at 1, 1.5, and 2 ppm, and oxytetracycline at 3, 4, and 5 ppm were used for testing. Two local species were identified as *Marphysa quatrefages* and *Leiochrides* sp. based on the morphological and morphometric characteristics. The imported polychaete species was confirmed as *Nereis virens*. Presumptive *Vibrio* count was significantly ($p < 0.05$) higher in *Nereis virens* (3.72 log CFU/ml) compared to the local *Marphysa quatrefages* (1.11 log CFU/ml), but did not vary from local *Leiochrides* sp. (1.45 log CFU/ml). Antimicrobial susceptibility testing revealed that *Vibrio* isolates obtained from both local and imported polychaete species were resistant to both antibiotics at all the tested concentrations. This study successfully identified two local polychaete species used in shrimp hatcheries and highlights the potential risk of *Vibrio* pathogen transmission through polychaetes.

Keywords: *Vibrio*, Antimicrobial, Polychaetes, Presumptive *Vibrio*, Shrimp