

## **Antibiotic resistance of *Vibrio* species isolated from shrimp culture environment in Puttalam District , Sri Lanka**

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In the shrimp culture industry in Sri Lanka financial losses due to the infectious diseases has become a major limiting factor in its development. *Vibrio* species are the most commonly found pathogenic bacteria which cause disease to humans and Vibriosis for shrimps. Occurrence of diseases frequently causes heavy economic losses to the industry. Antibiotics are normally used to prevent or treat disease outbreaks in shrimp farming. However, inappropriate use of antibiotics in shrimp farming can cause the development of antibiotic-resistant pathogens which can infect both cultured animals as well as humans. The aim of this study was to isolate and identify different types of *Vibrio* species from the shrimp culture environment and determine the antibiotic resistance of them. Shrimps (n=12), sediments (n=12) and water (n=12) samples were collected from 6 different shrimp farms in Puttalam District. Vibrios were isolated on thiosulfate-citrate-bile salts-sucrose (TCBS) agar and identified biochemically. Antibiotic sensitivity tests were carried on Mueller-Hinton agar (MHA) plates by disk diffusion method. During the study 146 isolates belonging to the family Vibrionaceae were recorded and identified as, *Aeromonas hydrophila*, *Vibrio metschnikovii*, *V. anguillarum*, *V. parahaemolyticus*, *V. harveyi*, *V. vulnificus*, *V. damsela*, *V. mimicus* and *V. fluvialis*. *Vibrio* isolates were found to be resistant to amoxicillin (68.5%), nitrofurantoin (25.2%), nalidixic acid (21%), tetracycline (5.18%) and chloromphenicol (4.48%). This study showed that *Vibrio* species are more resistant to amoxicillin in comparison with other antibiotics used in this study. Results also indicated that the application of antibiotics for the control of vibriosis in shrimp farms has limited effectiveness due to the development of resistant bacterial strains.

Keywords: shrimp culture, *Vibrio* sp., antibiotic resistance

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