

1 Characterization of *Vibrio parahaemolyticus* from Different Regions by ERIC-PCR
2 and Analysis of the Association between Genetic Diversity, Virulence, and Antibiotic
3 Resistance Genes

4 邱品禎(5121)

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6 **Outline**

- 7 I. Introduction
8 II. Antimicrobial resistance and genomic analysis of *Vibrio parahaemolyticus* isolates
9 from foodborne outbreaks, Huzhou, China, 2019-2023.
10 III. Characterization of pathogenic *Vibrio parahaemolyticus* isolated from fish
11 aquaculture of the southwest coastal area of Bangladesh.
12 IV. Diversity of *Vibrio parahaemolyticus* in marine fishes of Bangladesh.
13 V. Conclusion

14 **Abstract**

15 *Vibrio parahaemolyticus* is a significant foodborne pathogen commonly
16 associated with seafood consumption, posing serious public health risks worldwide.
17 Epidemiological studies have demonstrated the widespread prevalence of this
18 bacterium in aquatic environments and seafood products, highlighting the importance
19 of monitoring its distribution and outbreak potential. The genetic diversity of *V.*
20 *parahaemolyticus* contributes to its adaptability and virulence, making molecular
21 characterization essential for understanding strain variation and pathogenicity.
22 Traditional culture-based detection methods, although reliable, are often time-
23 consuming and labor-intensive, prompting the development of rapid molecular
24 techniques such as PCR-based typing and genomic analyses. Integrating
25 epidemiological data with molecular profiling enables more accurate risk assessment
26 and enhances food safety management strategies. Recent studies emphasize the
27 correlation between genetic markers, virulence factors, and antimicrobial resistance
28 patterns, providing insights into the pathogen's evolution and public health impact. This
29 body of research underscores the necessity for continuous surveillance and the
30 application of advanced molecular tools to ensure the safety of seafood products. By
31 combining epidemiology, genotyping, and rapid detection methods, a comprehensive
32 understanding of *V. parahaemolyticus* can be achieved, supporting effective prevention
33 and control measures in the seafood industry.

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