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Detection of *Vibrio parahaemolyticus* in cockle (*Anadara granosa*) by PCR

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Abstract

This study aimed to determine the occurrence of *Vibrio parahaemolyticus* in cockles (*Anadara granosa*) at a harvesting area and to detect the presence of virulent strains carrying the thermostable direct hemolysin (*tdh*) and TDH-related hemolysin genes (*trh*) using PCR. Of 100 samples, 62 were positive for the presence of *V. parahaemolyticus* with an MPN (most probable number) value greater than 3.0 (>1100 MPN per g). The PCR analysis revealed 2 samples to be positive for the *tdh* gene and 11 to be positive for the *trh* gene. Hence, these results demonstrate the presence of pathogenic *V. parahaemolyticus* in cockles harvested in the study area and reveal the potential risk of illness associated with their consumption.
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Keywords: PCR; Cockles; *tdh*; *trh*; *Vibrio parahaemolyticus*

1. Introduction

Vibrio parahaemolyticus is a well-known human pathogen, causing gastroenterities through consumption of raw or undercooked seafood [1]. It is an important cause of food-borne illness in Asia and the United States [2,3]. The pathogenesis of *V. parahaemolyticus* is based on the presence of virulence factors: the thermostable direct hemolysin (TDH) and TDH-related hemolysin (TRH), encoded by the *tdh* and *trh* genes, respectively [4,5]. A *toxR* sequence (Vp-*toxR*,) specific to *V. parahaemolyticus* has been applied for definitive identification of *V. parahaemolyticus* isolates [11,7]. Sensitive and rapid molecular methods such as PCR have been applied to identify the presence of *tdh* and *trh* genes from *V. parahaemolyticus* [2,6–8]. PCR and other genotypic assays have been applied to environmental studies [7–9] and seafood surveys [4,8,7]. The aims of this study were to determine the occurrence of *V. parahaemolyticus* in cockles at a harvesting area and to detect the presence of virulent isolates carrying the *tdh* and *trh* genes.

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