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Recent update on the prevalence of vibrio species among cultured grouper in Peninsular Malaysia

ABSTRACT

Vibrio infections are common among marine fish and lead to serious problems in the aquaculture sector. This study reports a recent occurrence of Vibrio species (spp.) isolated from cultured groupers in Peninsular Malaysia using the gyrB and pyrH genes. A total of 147 Vibrio strains were successfully isolated from 77 (64%) groupers using culture method and subjected to gyrB and pyrH sequencing for species identification and confirmation. Results showed that 89% of Vibrio strains were identified and clustered to six groups of Vibrio spp., while 11% were not clustered to any Vibrio spp. using the gyrB sequences. Meanwhile, by analysis of the pyrH sequences all the 147 Vibrio strains (100%) were successfully identified and clustered into 11 groups of Vibrio spp., including the gyrB non-identified strains. The pyrH gene provides a better resolution for identification of Vibrio spp. compared with the gyrB gene. Thus, the pyrH gene was more suitable for a rapid determination of Vibrio spp. distribution in Peninsular Malaysia. Using the pyrH gene, our study found higher prevalence of Vibrio vulnificus (33%), V. alginolyticus (24%) and V. parahaemolyticus (22%), followed by V. rotiferianus (5%), V. harveyi (3%), V. tubiashii (2%), V. campbellii (2%), V. ponticus (1%), V. diabolicus (1%), V. owensii (1%) and others Vibrio sp. (7%). Thus, the results of this study revealed that the occurrence of pathogenic vibrios among grouper fish is still high in Malaysian aquaculture. In addition, the pyrH gene was proved as a suitable marker for rapid identification of Vibrio species compared with the gyrB gene.

Keyword: Grouper; GyrB; Malaysia; Phylogenetics diversity; PyrH; Vibrio