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CHARACTERIZATION OF *VIBRIO PARAHAEMOLYTICUS* ISOLATED FROM COASTAL SEAWATER IN PENINSULAR MALAYSIA

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Abstract. Twenty-one *Vibrio parahaemolyticus* isolates representing 21 samples of coastal seawater from three beaches in peninsular Malaysia were found to be sensitive to streptomycin, norfloxacin and chloramphenicol. Resistance was observed to penicillin (100%), ampicillin (95.2%), carbenicilin (95.2%), erythromycin (95.2%), bacitracin (71.4%), cephalothin (28.6%), moxalactam (28.6%), kanamycin (19.1%), tetracycline (14.3%), nalidixic acid (9.5%) and gentamicin (9.5%). Plasmids of 2.6 to 35.8 mDa were detected among plasmid-containing isolates. All isolates carried the *Vp-toxR* gene specific to *V. parahaemolyticus* and were negative for the *tdh* gene, but only one isolate was positive for the *trh* gene. DNA fingerprinting of the isolates using ERIC-PCR and PFGE showed that the isolates belong to two major clonal groups, with several isolates from different locations in the same group, indicating the presence of similar strains in the different locations.

INTRODUCTION

Vibrio parahaemolyticus is a well-known human pathogen and widely distributed in the marine and estuarine environment. *V. parahaemolyticus* is also associated with gastroenteritis from consumption of contaminated seafood (Nishibuchi and Kaper, 1995). A previous study showed that both *tdh* and/or *trh* genes are important virulence factors in *V. parahaemolyticus* (Shirai *et al*, 1990). Identification of *V. parahaemolyticus* strains isolated from the environment by standard biochemical tests is difficult, thus, the PCR method targeting the regulatory gene (*toxR*) was developed (Kim *et al*, 1999). The increasing prevalence of *V. parahemolyticus* demands an effective typing scheme to determine the origin and divergence of strains. In the present study, both the ERIC-PCR and PFGE methods were used to compare the relatedness of the strains isolated from different locations.

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MATERIALS AND METHODS

Sample collection, enrichment and isolation

Seawater samples were collected at three beaches (Morib, Kuala Lukut and Port Klang) on the west region of peninsular Malaysia from May to August, 2002. Samples were collected in presterilized bottles and examined 1 hour after sample collection. One milliliter of seawater was added to 9 ml of alkaline peptone water (APW). A series of four-fold dilution of each sample was made and the dilution of 10^{-4} bottle was incubated overnight at 37ºC. The next day, aliquots of 1 ml of the duplicate bottle (10^{-4}) was transferred into 5 ml of Salt Polymyxin Broth (SPB) and a series of four-fold dilution was prepared and further incubated overnight at 37ºC. Finally, 100 μl of the 10^{-4} dilution was plated onto the CHROMagar™ *Vibrio* and incubated overnight