

PULSED FIELD GEL ELECTROPHORESIS ANALYSIS OF *VIBRIO CHOLERAE* ISOLATES IN SOUTHERN THAILAND

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Abstract. Forty isolates of *V. cholerae* O1, O139 and non-O1/non-O139 collected from outbreaks in Songkhla and Phuket Provinces of southern Thailand during 1999-2001 and sporadic cases from different regions of Thailand during 1993-2002 were characterized using pulsed field gel electrophoresis (PFGE). Digestion of chromosomal DNA of the *V. cholerae* isolates with restriction endonuclease *NotI*, followed by PFGE, generated 10 distinct restriction endonuclease analysis patterns consisting of 8 to 13 bands, ranging in size from 78 to 394 kb. PFGE patterns of O1 Inaba strains from the outbreak in Songkhla were identical (P1) except one isolate (P3). The O1 Inaba outbreak strains from Phuket in the same period belonged to P2 pattern, whereas the O1 Ogawa strain from the outbreak in Phuket isolated in 1999 was of P7 pattern. These patterns of O1 Inaba and Ogawa strains were slightly different suggesting that the isolates were epidemiologically related and therefore the outbreaks were likely due to the same *V. cholerae* clone. Isolates of *V. cholerae* O1 Inaba from sporadic cases in the neighboring area (eg, Pattani Province) in a similar period of time of the outbreak in Songkhla Province had very similar patterns, with only one single band different from those of the outbreak isolates. This indicates that the Inaba strains isolated from Songkhla Province during the 2001 cholera outbreak belonging to P1 pattern had not spread to other regions in 2001 and 2002. On the otherhand, the sporadic isolates collected from other regions of Thailand were quite distinct from the outbreak isolates in Songkhla Province, especially those from Chaiyaphum and Chaing Mai Provinces, which belonged to P5 and P6 pattern, respectively. Isolates of *V. cholerae* O139 and non-O1/non-O139 gave different patterns from that of *V. cholerae* O1. This study shows that the PFGE technique is markedly advantageous in distinguishing strains of *V. cholerae* isolates leading to insightful detailed characteristics of these isolates in Thailand.

Key words: *V. cholerae*, PFGE, southern Thailand

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