DETECTION OF HEPATITIS A VIRUS AND BACTERIAL CONTAMINATION IN RAW OYSTERS IN THAILAND

Leera Kittigul, Kannika Pombubpa, Suntharee Sukonthalux, Tippawan Rattanatham, Fuangfa Utrarachkij and Pornphan Diraphat

Department of Microbiology, Faculty of Public Health, Mahidol University, Bangkok, Thailand

Abstract. This study was conducted to determine the presence of hepatitis A virus (HAV) in raw oysters (*Crassostrea belcheri*) using a virus concentration method and reverse transcription-nested polymerase chain reaction (RT-nested PCR). A total of 220 oyster samples were collected from oyster farms and local markets in Thailand. HAV was found in three oyster samples. Nested PCR products of HAV detected in oysters were characterized further by DNA sequencing of the VP1/2A region and subjected to phylogenetic analysis. All HAV sequences (168 basepairs) were associated with human HAV subgenotype IB (GIB). Fecal coliforms and *Escherichia coli* were determined using the multiple tube fermentation method, to assess the microbiological quality of collected oysters. Among oyster samples tested, 65% had fecal coliforms higher than the standard level for raw shellfish [<20 Most Probable Numbers (MPN)/g]; MPN values in the range of 21.0-4.6 x 10^4/g. Most oyster samples (85%) were contaminated with *E. coli* in the range of 3.0-4.6 x 10^4 MPN/g. One oyster sample with an acceptable level of fecal coliforms contained HAV GIB. *E. coli* was found in all HAV-positive oyster samples. The results suggest a significant presence of HAV and bacterial indicators of fecal contamination in raw oysters, which are a health risk for consumers and a source of gastrointestinal illness. Enteric viruses should also be tested to assess the microbiological quality of oysters.

Key words: hepatitis A virus, MPN, oysters, virus concentration, RT-nested PCR

Correspondence: Dr Leera Kittigul, Department of Microbiology, Faculty of Public Health, Mahidol University, 420/1 Ratchawithi Road, Bangkok 10400, Thailand.
Tel: 66 (0) 2354 8528; Fax: 66 (0) 2354 8538
E-mail: phlkt@mahidol.ac.th