Prevalence and Van Gene of Vancomycin-Resistant Enterococci Isolated from Ark Shell (Arca granulosa) in Thailand

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Introduction and Objectives
The prevalence of vancomycin resistant enterococci (VRE) in Thailand has been already reported in farm animals, food of animal origin, domesticated animals and humans. However, VRE in the environment has not been studied in Thailand. Therefore this study used ark shells which had been cultivated from in Gulf of Thailand as biological markers of VRE in the environment.

Materials and Methods
This study was conducted from 2005-2006. Ark shell samples were pooled with 25 grams of each sample and added to a 225 ml PBS buffer. After homogenizing by stomacher, one mL of homogenized was add into 9 mL of KF broth. Samples were screened for VRE by bile esculin azide agar (BEA agar) containing 6 μg of vancomycin per mL. An antimicrobial susceptibility test was performed using the agar dilution method for vancomycin (VN), ampicillin (AP), chloramphenicol (CHPC), erythromycin (ET), tetracycline (TE), tylosin (TS) and E-test for teicoplanin (TP).

Results and Discussion
Pooled ark shell samples were found to have 26 isolates (4.3%) which were classified as E. faecium 15 isolates (57.7%), E. faecalis 6 isolates (23.1%), E. gallinarum 3 isolates(11.5%) and E. casseliflavus 2 isolates (7.7%). All of the VRE isolated from the pooled ark shell samples were found to have low level resistant to VN and sensitive to TP. E. faecium 15 isolates were resistant to AP, CHPC, TE and TS 13.3% and resistant to ET 33.3%. E. faecalis 6 isolates were susceptible to AP and CHPC and resistant to ET, TE and TS 16.7%. E. gallinarum were susceptible to AP and resistant to

CHPC and TS 33.3% and resistant in ET and TE 66.7% and one from two of E. casseliflavus was resistant to ET only.

Figure 1: The results of multiple PCR assays that contained the three primer sets

Detection of the van gene from all of low level resistance VRE by polymerase chain reaction (PCR) found gene vanC1 in all of E. gallinarum isolates and vanC2/C3 in all of E. casseliflavus isolates. A low prevalence of VRE was found in this study which show a low level resistance to vancomycin and a susceptibility to teicoplanin. Therefore VRE should not be a public health threat in Thailand.

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References
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