CTX-M EXTENDED-SPECTRUM β-LACTAMASES AMONG CLINICAL ISOLATES OF ENTEROBACTERIACEAE IN A THAI UNIVERSITY HOSPITAL

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Abstract. This study presents updates on molecular epidemiology of extended-spectrum β-lactamases (ESBLs) in clinical isolates of Enterobacteriaceae from Srinagarind Hospital, Khon Kaen University, Thailand. All isolates were screened for the presence of ESBL genes, blaTEM, blaSHV, blaVEB and blaCTX-M, using PCR followed by nucleotide sequence determination. The results revealed that β-lactamase genes among 48 isolates collected between 1998 and 1999 were blaSHV (79%), blaCTX-M-9 (52%), blaTEM-1 (48%) and blaVEB (33%), whereas those found in 52 isolates collected in 2003 were blaTEM-1 (79%), blaCTX-M-15 (44%), blaSHV (36%), blaVEB (36%), blaCTX-M-14 (11%) and blaCTX-M-9 (10%). In addition, 45 isolates carried at least two different ESBL genes. Using PCR, part of insertion sequence ISEcpl was found in the upstream regions of blaCTX-M-14 and blaCTX-M-15. ERIC-PCR analysis revealed that most ESBL-producing isolates were of different strains. This is the first report of CTX-M-9, CTX-M-14 and CTX-M-15 β-lactamase genes in Enterobacteriaceae in Thailand.