ABSTRACT

Cockroach (*Periplaneta americana*) is one of the vectors in the environment that can transmit disease. Cockroaches can act as potential mechanical vectors of antibiotic resistant bacteria. *Enterobacteriaceae* is a gram-negative bacillus bacteria that has natural habitats in the digestive tract of humans and animals. *Enterobacteriaceae* that produce *Extended Spectrum β-lactamases* (ESBLs) have emerged as major pathogens in hospitals. The purpose of this study was to analyze the prevalence patterns of ESBL inhibiting bacteria in cockroaches that live in hospitals and residential homes. In this study, a total of 200 cockroaches consisting of 100 cockroaches from the hospital environment and 100 cockroaches from the residential environment were analyzed bacteriologically for the isolation and collection of pathogenic bacteria that produce ESBL. Positive colony as an ESBL-producing screening was approved by the *Double Disk Synergy Test* (DDST) for the confirmation test of ESBL-producing bacteria, then *Polymerase Chain Reaction* (PCR) was performed to test the ESBL gene. The results of 100 household cockroach samples that produced ESBL bacteria were 14 (14%) samples. While 100 hospital cockroaches produced 26 positive ESBL results (26%). The ESBL, SHV, TEM and CTX-M genes of hospital cockroaches were found to be positive for the SHV gene (7%), the TEM gene (0%) and the CTX-M gene (19%) while the housing cockroach was found to be positive for the SHV gene (11%), the gene TEM (0%) and CTX-M gene (2%). There is a difference (p 0.05) from the ESBL CTX-M gene.

Keywords: ESBL, *E coli*, Cockroach, Indonesia