

PREVALENCE AND PATTERNS GENOTIVE SHV, TEM, CTX-M
BACTERIA ENTEROBACTERIACEAE PRODUCING ESBL FROM FAECES
DAIRY COWS AND PEOPLE AROUND FARM IN SURABAYA

TRIFFIT IMASARI

ABSTRACT

Enterobacteriaceae is Gram-negative bacteria gut flora, both in human and animal, that are also spread among environments. These bacteria are commonly as causative agent of nosocomial infection, and would be in community as well. Since identified in 1980s, the multiple drug resistant organisms such as ESBL (Extended Spectrum beta lactamases) producing bacteria is increasing. These bacterial strain are mostly resistant against third and also fourth generation cephalosporin. ESBL-producing bacteria are identified in both of human, environment and also in animal. There are three main ESBL genes that are commonly found namely SHV, TEM and CTX-M. The aims of this study was to explore the prevalence and pattern of ESBL gene among dairy cows and people around the farm. The study was observational analytic and comparative, by cross sectional approach. The faecal samples were collected from dairy cows and people around the farm, cultured on MacConkey supplemented with cefotaxim 1 mg/L, incubated at 37°C for 24 hours. Then the growing colony were tested for ESBL producer by DDST (Double Disk Synergy Test), then followed by PCR for ESBL gene. Total 49 samples were collected, consisting of 25 dairy cows faeces and 24 people faeces. Among these, were identified 18 samples (72%) positive in dairy cows and 19 samples (79.1%) positive results in the people around the farm. The ESBL gene, SHV, TEM, CTX-M were identified dairy cows were zero for SHV, TEM (12%), CTX-M (72%) while in people around the farm SHV (25%), TEM (16.7%), CTX-M (66.7%). There were significant different ($p < 0.05$) between dairy cows and people around the farm, of SHV ESBL gene and not different ($p > 0.05$) of TEM and CTX-M ESBL gene respectively. The ESBL genes have spread among animal (dairy cows) and human (people around farm).

Keywords: Enterobacteriaceae, ESBL gene, Dairy cows, Animals, Gut Flora