

Antibiotic resistance of *Escherichia coli* isolated from chicken in Malaysia

ABSTRACT

Colibacillosis is an important disease affecting the poultry industry in many countries, caused by the Avian Pathogenic *E. coli* (APEC): it manifests as various clinical signs. It contributes significantly to economic loss for poultry farmers as a result of high mortality and morbidity in poultry. To overcome this, antibiotics have been widely used to eliminate *E. coli* infection in poultry farms in recent years. Treatment with antibiotics has been considered as a vital regimen to control *E. coli* infection at the farm level for many years. However, high frequency of antibiotic resistance of *E. coli* isolates from chicken has become the centre of attention due to public health importance. The aim of the present study is to determine the multidrug resistant profiles of *E. coli* strains isolated from chicken. *E. coli* isolates obtained from clinical cases were re-identified and classified by conventional methods. Multidrug resistant profiles against 13 different antibiotics of 125 *E. coli* isolates were determined by using disk diffusion method according to Clinical Laboratory Standard Institute (CLSI). Antibiogram revealed that 81.6% of the *E. coli* isolates showed multidrug resistant profiles to different antibiotics. Most of the *E. coli* isolates were highly resistant to erythromycin (52.8%), followed with tetracycline (52.0%), spectinomycin (39.2%), trimethoprim (38.4%) and flumequin (37.6%). Out of 125 isolates tested, 19.2% were resistant to more than eight antibiotics, with one isolates found to be multidrug resistant to most of antibiotics except polymyxin B. These findings also demonstrated that most of the isolates were susceptible to antibiotics commonly used for *E. coli* infections treatment in poultry with lowest resistant score against polymyxin B (92.8%) and colistin (92.0%). Moderate resistant profiles were observed towards amoxicillin (25.6%), apramycin (16%), kanamycin (8.8%) and streptomycin (8.0%). High percentage of multidrug resistance was found among the *E. coli* isolated from chicken as an indicator to more serious problems in animal health. Therefore, continuous surveillance of antibiotic resistance profiles in chicken and other food animals is crucial to ensure food chain safety.

Keyword: *E. coli*; Antibiotic resistant; Antibiotic; Chicken