

Antibiogram profiles and risk factors for multidrug resistance of *Salmonella enterica* recovered from Village Chickens (*Gallus gallus domesticus* Linnaeus) and other environmental sources in the Central and Southern Peninsular Malaysia

ABSTRACT

The emergence of multidrug resistance (MDR), including colistin resistance, among Enterobacteriaceae recovered from food animals poses a serious public health threat because of the potential transmission of these resistant variants to humans along the food chain. Village chickens or Ayam Kampung are free-range birds and are preferred by a growing number of consumers who consider these chickens to be organic and more wholesome. The current study investigates the antibiogram profiles of *Salmonella* isolates recovered from village chicken flocks in South-central Peninsular Malaysia. A total of 34 isolates belonging to eight serotypes isolated from village chickens were screened for resistance towards antimicrobials including colistin according to the WHO and OIE recommendations of critical antibiotics. *S. Weltevreden* accounted for 20.6% of total isolates, followed by serovars Typhimurium and Agona (17.6%). The majority of isolates (73.5%) demonstrated resistance to one or more antimicrobials. Eight isolates (23.5%) were resistant to ≥ 3 antimicrobial classes. Colistin resistance (minimum inhibitory concentrations: 4–16 mg/L) was detected among five isolates (14.7%), including *S. Weltevreden*, *S. Albany*, *S. Typhimurium*, and *Salmonella* spp. Univariable analysis of risk factors likely to influence the occurrence of MDR *Salmonella* revealed that the flock size, poultry production system, and use of antibiotics in the farm were not significantly ($p > 0.05$) associated with MDR *Salmonella*. The current study highlights that MDR *Salmonella* occur at a lower level in village chickens compared to that found in live commercial chickens. However, MDR remains a problem even among free-range chickens with minimal exposure to antibiotics.

Keyword: Chicken; Antibiotic; Resistance; *Salmonella*; Colistin; Malaysia