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ANTIMICROBIAL RESISTANCE PATTERNS IN *Escherichia coli* OF POULTRY ORIGIN IN THE KANDY DISTRICT

K. G. R. N. Karunarathna[1], A. Arulkanthan[1], N. U. A. Jayasena[2]

[1]Department of Veterinary Pathobiology,
[2]Department of Basic Veterinary Sciences,
Faculty of Veterinary Medicine and Animal Science,
University of Peradeniya

Infection by pathogenic *Escherichia coli* causes considerable economic losses in the poultry industry and the emergence of drug resistance in this pathogen due to indiscriminate use of antimicrobials in commercial poultry farming is a major concern. This study was conducted to compare antimicrobial resistance patterns among *E. coli* isolates from commercial and backyard poultry farms, as we predicted that irrational use of antimicrobials increases the occurrence of drug resistant strains of *E. coli* in commercial layers.

Ten commercial layer farms in the Kandy district were selected as the test group and five backyard poultry farms were used as the control group. Composite faecal and litter samples were collected from layer farms, and composite faecal samples were collected from backyard poultry farms. Antimicrobial sensitivity tests were carried out on *E. coli* isolates from these samples against enrofloxacin, amoxicillin, neomycin, tetracycline and sulphamethoxazole-trimethoprim. Fisher's exact test was used to test for an association between the occurrence of antimicrobial resistance and poultry management system. Of the test group, 90% of faecal isolates and 30% of litter isolates were resistant to at least one of the antimicrobials tested. Faecal isolates from layer farms were resistant to all antimicrobials tested except enrofloxacin while the control group was only resistant to neomycin (60% of samples). Apparent multidrug resistance was observed in faecal *E. coli* isolates in the test group but not in backyard poultry, with 60% of layer faecal isolates being resistant to two or more antimicrobials. Of the litter isolates, 20% showed apparent multidrug resistance. There was a significant association between the occurrence of tetracycline resistance in *E. coli* and the type of poultry management system ($P = 0.03$).

According to information obtained from farmers, factors that may predispose to the development of drug resistance were use of antimicrobials without professional advice, prolonged use of prophylactic antimicrobials, poor litter management and improper biosecurity measures. This study indicates that measures should be undertaken to ensure the rational use of antimicrobials in the commercial poultry industry in order to prevent the emergence of antimicrobial resistance.