

Explore the prevalence and antibiotic resistance of microbial isolates in different poultry rearing models

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Outline

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Abstract

The emergence and spread of antibiotic resistance in bacteria are considered major public health problems. In the food animal, poultry is increasingly recognized as a reservoir of antibiotic-resistant bacteria that contribute to the dissemination and persistence of antibiotic resistance mechanisms. Because of consumers' increasing concerns about antibiotic-resistant bacteria in meat, many countries, including South Korea, the United States, and Europe, have enforced an organic food certification policy to reduce the use of antibiotics in livestock. The first study was performed in South Korea to compare *Enterococcus* spp. loads as an indicator of fecal contamination, profiles of *Enterococcus* resistance to antibiotics currently used in veterinary medicine, and rates of multidrug resistance in isolates obtained from conventional and organic chicken carcasses. The results suggest that organic food certification is effective in reducing fecal contamination and the burden of antibiotic-resistant *Enterococcus* spp. in chicken carcasses. The aim of the second study was to evaluate and compare the prevalence of *Salmonella* and the incidence of antimicrobial resistance in conventional (n=2) and NAE (n = 2) broiler farms in the Southeast US. The *Salmonella* prevalence declined as the birds aged. Antimicrobial resistance among *Salmonella* isolates from all sample types was high in all four farms (76%), exhibiting frequent resistance to tetracycline (76%) and streptomycin (70%). *Salmonella enterica* serotype Kentucky is the predominant serotype and exhibits persistence in litter environments. In conclusion, although no antibiotic ever can reduce antibiotic resistance, continued attention should be paid to transmission in the environment in the future.

References

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