

## Comparison of two methods for monitoring antibiotic residues in broiler carcasses

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### Abstract

This study was performed to compare the sensitivity of seven plate methods and commercial kits for the detection of antibiotics in vitro and in poultry carcasses. In the first step, different concentrations of five commonly used antibiotics in poultry breeding were prepared and the sensitivity of both methods in antibiotic residue detection was evaluated. Subsequently, 20 days old broilers were divided into 5 groups. After an adaptation period and feeding non-antibiotic diet, groups were treated with therapeutic doses of Oxytetracycline, Enrofloxacin, Florfenicol, and Fosfomycin through drinking water. One group was considered as a control. At antibiotic discontinuation day (day 0) and days 1, 2, 3, 4, 5, and 6 thereafter, 3 chicks from each group were slaughtered and thigh muscle, liver and kidney were sampled and residual antibiotics were evaluated by both methods. The results showed that sensitivity of commercial kits was higher in in-vitro condition than that of poultry carcass. In the seven plate method, the residuals were more detectable in the liver and kidney. The commercial kit was able to detect antibiotics only up to 24 hours, after which almost all specimens were negative. The seven plate method was positive for most of the specimens up to three days after discontinuation. This study showed that the efficacy of the seven-plate method was more than commercial kits, and in order to increase the efficiency of detection methods, it is recommended to perform it on the liver and kidney of four carcasses from each herd (total of 8 samples). If at least four samples are positive, the herd is considered as infected and the HPLC method is used to confirm the specimens.

**Key words:** Seven plate, Commercial kit, Antibiotic residue, Broilers

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