139 **Fosfomycin: a potent antimicrobial used to reduce non-typhoidal *Salmonella enterica* serovars in Brazilian broilers.**

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Reduction of foodborne pathogens in poultry production is essential to ensure food safety. Some *Salmonella* serovars show great importance in public health as *Salmonella Enteritidis* (SE), *S. Typhimurium* (ST) and *S. Heidelberg* (SH). Reduction of *Salmonella* in birds on the field is the main goal in poultry industry. This study was performed at Mercolab Laboratory, to evaluate the antimicrobial fosfomycin (FOS 350, 35% calcium fosfomycin, Ourofino Animal Health, Brazil) in reducing or eliminate infection caused by SE, ST and SH in broiler chickens. A total of 180 Cobb chicks, 3 d old were orally infected with 10⁶ cfu/mL of each *Salmonella* serovar. Birds were divided into 6 groups, housed in floor pen: ST (G1-control and G2-fosfomycin), SE (G3–control and G4–fosfomycin) and SH (G5–control and G6–fosfomycin). Fosfomycin (40 mg/kg/lw) was offer by water 24h after inoculation, during 5 d. Before start treatment (24h after *Salmonella* serovars inoculation) 8 (n = 8) broilers/group were euthanized and the cecum were collected to perform bacterial cell count. To evaluate fosfomycin action 24h and 48h after the end of the treatment 11 chicks from each group was euthanized per period, and bacterial counts were performed. Counts were expressed in log⁵ and analyzed by Kruskal Wallis in SPSS Statistics 8.0 software, using 5% of significance level, between control and challenge in the same serovar. The therapeutic treatment with fosfomycin in both periods (24h and 48h) in all treated groups G2–24h, 1.027b and 48h (1.000b), G4–24h, 1.118b and 48h (1.189b) and G6–24h, 1.652b and 48h (2.683b) showed reduction in bacterial load from cecum samples, compared with the non treated groups: G1–24h, 5.178a and 48h (5.410a); G3–24h, 4.331a and 48h (4.539a) and G5–24h, 6.809a and 48h (6.836a). Fosfomycin treatment reduces significantly the cecum colonization and consequently reduces bird’s *Salmonella* excretion.

**Key Words:** fosfomycin, broiler, samonella, cecum colonization, antibiotic

140 **Antibacterial activity of disinfectants against *Salmonella* Heidelberg, *S. Enteritidis*, and antibiotic-resistant *S. Enteritidis*.**


Disinfection is a vital step to ensure a microorganism load reduction at animal infections. Most common commercial biocides used on livestock are quaternary ammonium, sodium hypochlorite or glutaraldehyde. Bacteria pathogenic to chickens include *Salmonella enterica*, with a high prevalence of prevalence of serovars Enteritidis and Heidelberg in Brazilian poultry flocks. A total of 60% of *Salmonella* strains isolated are resistant to at least one antibiotic. The objective of this experiment was to evaluate the antibacterial efficiency of commercial hypochlorite disinfectants against *S. Heidelberg* (SH), *S. Enteritidis* (SE) and *S. Enteritidis* resistant to rifampicin (SER). Microbiology analyses were adapted from Kich et al. (2004) using a bacterial suspension of 10⁶ cfu/mL. Two commercial disinfectants were tested: Product A was a 12% sodium hypochlorite concentrated solution diluted down to obtain a final concentration of 2%, to equate in strength to Product B, 2% ready-to-use biocide. For each product, 2 dilutions were used: 1:10 and 1:20, and compared with a control group (no disinfectant added), with 5 plates repetitions for group. Product A was effective for all Salmonella at both dilutions tested (P < 0.01). Product B inhibited SH growth at both dilutions; however, it could not control SE (1.25 × 10⁶ cfu/mL⁻¹) and SER (3.0 × 10⁵ cfu/mL⁻¹) at the 1:20 (P < 0.01). Bacterial grows can vary considerably in their response to disinfectants and resistance is often intrinsic but it may also be genetically acquired. SER showed considerable growth in the presence of biocide, which can be explained by studies that showed an expression of target site mutations of antibiotic-resistant microorganisms that leads to biocide accommodation, that allows an exchange of antibiotic and biocide resistance mechanisms. This evaluation of antibacterial activity demonstrated a variation depending on dilution, product used and strain. This demonstrates the importance of the correct choice and in vitro evaluation of biocide to ensure appropriate disinfection.

**Key Words:** disinfection, sodium hypochlorite, biocide dilution, *Salmonella enterica*, antibiotic resistant