

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

GROWTH AND SURVIVAL OF MULTI-DRUG RESISTANT (MDR) *SALMONELLA enterica* SOROTYPE ENTERITIDIS IN COMMERCIALY MATURED BEEF

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The control of pathogenic and deteriorating microorganisms is essential for food industry, ensuring innocuity to food products. *Salmonella* spp. is an important pathogen associated with outbreaks of foodborne diseases. In this study, the behavior of multi-drug resistant (MDR) *Salmonella enterica* sorotype Enteritidis O:45 was evaluated in fresh, cooled and vacuum-packed commercially matured beef (1°C for 21 days). A total of 45 steaks (100 g each) were distributed in a completely randomized design with four treatments (bacterial groups) and three replications. Steaks were inoculated with *Salmonella*, at the concentration of three log of CFU per gram of meat, and then were vacuum packed and stocked in an incubator B.O.D. at 0 ± 1°C. Total count of mesophilic, psychrotrophic, lactic acid bacteria and *Salmonella* were assessed in steaks at 24 to 48 hour intervals during 21 consecutive days, totalizing 15 analysis points. Data were analyzed using DMFit software to estimate the parameters initial concentration, lag phase duration (λ), growth rate (log of UFC g⁻¹ h⁻¹) and final concentration (μ_{max}) based on software's standard model (DModel). These parameters were then compared between bacterial groups by ANOVA and, in case of differences, means were separated by Tukey test ($p < 0.05$). Statistical difference was found on the lag phase, with *Salmonella* and mesophilic group presenting higher values; in the final concentration, with psychrotrophic and mesophilic groups having higher values; and in the initial concentration, with mesophilic group differing from the others. Mesophilic group presented a lag phase duration of 189.19 hours, with growth of 0.055 log of CFU g⁻¹ h⁻¹, initial concentration of 2.77 and final concentration of 6.33 log of CFU g⁻¹. Psychrotrophic group presented a lag phase of 92.29 hours, with growth of 0.028 log of CFU g⁻¹ h⁻¹ and concentration varying from 1.10 to 6.84 log of CFU g⁻¹. Lactic acid bacteria presented a lag phase of 160.84 hours, with growth of 0.0267 log of CFU g⁻¹ h⁻¹ and concentration varying from 1.2 to 4.61 log of CFU g⁻¹. *Salmonella* presented a lag phase of 199.55 hours, with growth rate of 0.068 log of CFU g⁻¹ h⁻¹ and concentration varying from 2.72 to 5.67 log of CFU g⁻¹. The results of this research indicate the risk of pathogens development in meat products under the evaluated storage condition, reinforcing the importance of good manufacturing practices in the food chain to reduce the occurrence this microorganisms, according to the law.

Keywords: food microbiology, food safety, meat pathogens

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