

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

GROWTH AND SURVIVAL OF *SALMONELLA enterica* SOROTYPE ENTERITIDIS IN COMMERCIALLY MATURED BEEF

Jorge Luiz da SILVA^{*1}, Maxsueli Aparecida Moura MACHADO², Bruno Serpa VIEIRA³,
Eduardo Eustáquio de Souza FIGUEIREDO⁴

*corresponding author: jorge.silva@svc.ifmt.edu.br

^{1,2,3,4}Universidade Federal de Mato Grosso, Cuiabá, Mato Grosso, Brasil

Salmonella is one of the main pathogens associated with outbreaks of foodborne diseases in human. Appropriate packaging and refrigeration of products during storage are essential to control bacterial growth. In this study the behavior of *Salmonella enterica* sorotype Enteritidis ATCC number 10708 was verified in fresh, cooled and vacuum-packed commercially matured beef (1°C for 21 days). The meat cut used was *longissimus dorsi*. 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 first 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 $0 \pm 1^\circ\text{C}$. 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 $\text{CFU g}^{-1} \text{h}^{-1}$) and final concentration ($\mu_{\text{máx}}$) 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 only for the initial concentration, where lactic acid bacteria presented lower concentration when compared to the other microorganisms. Mesophilic group presented a lag phase of 250.16 hours, with growth of $0.017 \log$ of $\text{CFU g}^{-1} \text{h}^{-1}$, initial concentration of 3.35 and final concentration of $6.74 \log$ CFU g^{-1} . Psychrotrophic group presented a lag phase of 250.16 hours, with growth of $0.059 \log$ of $\text{CFU g}^{-1} \text{h}^{-1}$ and concentration varying from 3.72 to $6.95 \log$ of CFU g^{-1} . Lactic acid bacteria showed lag phase of 193.31 hours, with growth of $0.018 \log$ of $\text{CFU g}^{-1} \text{h}^{-1}$ and concentration varying from 1.75 to $5.97 \log$ of CFU g^{-1} . *Salmonella* showed a lag phase of 311.89 hours, with a growth rate of $0.030 \log$ of $\text{CFU g}^{-1} \text{h}^{-1}$ and concentration varying from 3.27 to $6.54 \log$ CFU g^{-1} . The results for *Salmonella*, in which lag phase was 13 days and reached an increase of $3.27 \log$ of CFU g^{-1} from day 1 to 21, is highlighted. The results of this research indicate a significant risk of pathogens development in meat products under the evaluated storage condition.

Keywords: bacteria, food safety, meat microbiology

Acknowledgments: CNPq, FAPEMAT, UFMT e IFMT

Promoção e Realização:



Apoio Institucional:



Organização:

