

**Título:** Growth Modelling of *Salmonella* and *E. coli* on Conventional Lettuces

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**Resumo:** Leafy greens are widely consumed worldwide specially to prevent various kinds of diseases. However, the association of foodborne outbreaks to fresh produce is increasing around the world. Several pathogens and risk factors can be associated with fresh produce, being *Salmonella* and pathogenic *Escherichia coli* frequently cited. Lettuce (*lactuca sativa* L.) is one of the most consumed leafy green around the world, as well as in Brazil, especially due to its low cost and all year availability. The aim of this study was to assess the growth modelling of *Salmonella* and *Escherichia coli* on conventinal lettuces sold in hypermarkets of Southern Brazil. Curly variety lettuces were purchased from hypermarkets and strains of *E. coli* ATCC 8739 and *Salmonella* Enteritidis SE86 were inoculated on the crops, being incubated at the desired temperature of 5 °C, 10 °C, 25 °C and 37 °C for 0 hours, 2 hours, 6 hours, 24 hours and 48 hours. The predictive primary model described by Baranyi and Roberts (1994) was used in this study to calculate the growth kinetic parameters of *Salmonella* SE86 and *E. coli* on lettuce. The growth curves for each temperature were built by fitting data to the Combase's DMFit (<http://browser.combase.cc/DMFit.aspx>). The following parameters were obtained: maximum growth rate, lag time and maximum population density. It was observed that at 5 °C and 10 °C in all time intervals analysed no significant growth was obtained, fitting with a linear model. The curves obtained for the other temperatures, except for *Salmonella* at 37°C, showed a high correlation coefficient ( $R^2 > 0.95$ ). Reaching the temperature of 25 °C, *Salmonella* and *E. coli* on lettuce showed a lag time of  $1.15 \pm 0.55$  h and  $3.28 \pm 4.86$  h, respectively. Despite the difference on the lag time, the growth rate and population density were quite similar for both pathogens. However, it was observed that in the first hours *E. coli* growth faster than *Salmonella*. This study demonstrated the influence of different temperatures on the growth of distinct microorganisms. Due to this, it can be concluded that if there is some contamination, the lettuce can be kept under 10 °C for 48 hours without a significant increase in microbial load. Above these temperatures a significant growth of microorganisms were observed, being a potential risk for the consumers.

**Palavras-chaves:** Lettuce, *Salmonella*, *E. coli*, Predictive modeling

**Agência Fomento:** CAPES