

Bacterial diversity and its evolution during storage of fresh beef from different origins under different atmosphere and temperature conditions

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The purpose of this study was to evaluate the bacterial diversity and its evolution during storage of fresh beef, depending on its origin, packaging and storage temperature. Two batches of three vacuum packed striploins from United Kingdom and Belgium were obtained from a food wholesaler located in the Walloon Region. Fifteen days after slaughter, the striploins were sliced and individually kept under vacuum for 30 days: i) at -1 °C; ii) at +4 °C and iii) at -1 °C for 15 days and then at +4 °C for 15 days. The bacterial diversity was evaluated by metagenomic approach 15, 30 and 45 days after slaughter. Furthermore, each 15 days part of the vacuum packed striploin slices were repacked under modified atmosphere (70 % O₂/30 % CO₂), stored at +4 °C for 2 days and at +8 °C for 5 days, and then analyzed. Metagenomic analysis revealed a selection of the initial flora depending on atmosphere and temperature conditions. The development of *Lactobacillus algidus* was favored in samples preserved under vacuum at -1 °C, while a predominance of *Lactococcus piscium* was observed for samples stored at +4 °C. Moreover, storage under modified atmosphere favored the development of *Leuconostoc gasicomitatum*. These microorganisms have already been isolated from beef, but no study has evaluated their role in food conservation. The next step of this study will be to isolate and characterize strains of *Lactobacillus algidus* from meat and to assess their bioprotective potential.