

TITLE: PREVALENCE OF PATHOGENIC MICROORGANISMS IN PORK SLAUGHTERHOUSE EQUIPMENTS

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ABSTRACT:

The monitoring of enterobacteriaceae and aerobic mesophilic bacteria is performed in the food industry because these microorganisms are indicators of hygienic and sanitary conditions. The objective of this study is evaluate the prevalence of pathogenic bacteria on surfaces of equipment and utensils used in the boning sector of a pork slaughterhouse. The abattoir is certified by Brazilian Federal Inspection System (SIF), and has quality principles applied to each phase of debone process to identify the main hazard analysis critical control points (HACCP). Applying quality management tools were determined the monitoring of 16 critical points throughout the deboning process. From a total of 377 samples collected in 12 months, 68.7% (259/377) showed compliance with the microbiological parameters established for surfaces of equipment and utensils by the European Community normative (CE 471/2001 - up to 10 CFU/cm² for aerobic mesophylls and 1 CFU/cm² for enterobacteriaceae). The aerobic mesophilic microorganisms were present in a larger quantity than the enterobacteriaceae microorganisms. Averages of 55.54 CFU/cm² for aerobic mesophylls and 6.67 CFU/cm² for enterobacteriaceae were verified, these results are higher than allowed in the mentioned legislation. The prevalence of non-compliant results indicated a strong association between aerobic mesophilic bacteria and enterobacteriaceae ($r = 80\%$, at 5% significance), which can be attributed to the fact that the mesophilic aerobic bacteria group includes a larger amount of bacteria species. The microorganisms of the enterobacteriaceae family and indicators of fecal contamination could be linked to the foodborne diseases throughout slaughter process. Additionally was verified a prevalence above 60% in the conveyor belts inside the abattoir. In the light of the results, from the microbiological point of view we verified that even quality control programs is being implemented, is indispensable to slaughterhouse managers review the application of efficient hygiene methods in order to ensure the performance components of the Food Safety Management process.

Keywords: Slaughterhouse; Abattoirs; pathogenic bacteria contamination; foodborne diseases.

Development Agency: The authors are grateful to National Council for Scientific and Technological Development (CNPq) and National Council for the Improvement of Higher Education (CAPES) for the financial support and research scholarship during this work.