



COLOUR-AIDED IN-LINE : SORTING A QUICK AND NON-INVASIVE METHOD FOR EVALUATING CHICKEN MEAT QUALITY

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The poultry sector enjoys a good brand image for its products, particularly chicken-based products which are appreciated for their nutritional properties. The poultry sector is at the heart of a process that is changing food sectors into "fast food" sectors. Consumers prefer practical, ready-to-use products. However, these trends generate additional constraints for the processor (stringent measures to avoid microbiological contamination, and high slicing line speeds). These constraints require even better quality raw meat. Colour-aided in-line sorting enables non-invasive evaluation of meat quality. It carries the advantages of speed and simplicity. Chicken breast sample processing on a conveyor belt takes less than 0.1 s, and this processing speed can still be improved.

The results reported in this paper show an acceptable variation in the colour component (L*) when integrating the following factors: genetics, farm system, slaughter system, cut, and preservation of the meat. The system studied proved well adapted to determining meat quality in an industrial setting.

Keywords: computer vision, chicken meat, quality, technological performance

TRADITIONAL MINCED MEAT: QUALITY, USE-BY DATE AND CHALLENGE TESTS

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In biochemical terms, traditional minced meat can be qualified as very high quality, with a low collagen-to-protein ratio, very low fat content and high protein content. In bacteriological terms, minced meat is free from pathogenic microorganisms (*Listeria*, *Salmonella* and *Staphylococcus aureus*). However, total flora, *Pseudomonas* and *Enterobacteria* at D0 were present in non-negligible numbers in these products. Bacterial challenge tests performed with *L. monocytogenes* bacteria showed that the two strains inoculated in these products behaved differently. The minced meat isolate responded better than the reference strain and grew faster at 8°C. Statistical analysis of the challenge test results highlighted a temperature effect, since despite start rates of 1000 bacteria / g of product, *L. monocytogenes* was unable to grow at a temperature of between 0 and 4°C. Conversely, a poor cold chain at around 8°C would be conducive to growth of *Listeria* bacteria.

Keywords: traditional minced meat, quality, microbiology, biochemical

DESTRUCTURED MEAT: EFFECTS OF SLAUGHTER SYSTEM AND WEATHER CONDITIONS

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The experiment studied three different industrial slaughter systems. Meteorological parameters were also recorded in an attempt to explain seasonal variations in meat quality.

This study revealed an effect of outside temperature on the occurrence of destructured meat, the incidence of the defect increasing with higher temperatures. The study also confirmed the relationships between destructurement, pH and colour measurements. Slaughter system does not appear to be a major risk factor for the destructurement defect when feed withdrawal is fully controlled and when a minimum

2 hr rest period at the slaughterhouse is complied with.
Keywords: destructured meat, slaughter, climatic conditions

RED OFFAL: OPTIMIZATION OF OFFAL PACKAGING

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The term red offal covers offal that undergoes no scalding or cooking operations at the slaughterhouse. Even today, far too much offal still presents poor microbiological stability during preservation. The implementation of quality control plans (HACCP) should lead to the production and commercialization of good-quality tripe products.

Consumer expectations on quality are particularly high in this sector, as much in terms of taste and texture properties as food safety and presentation.

It therefore becomes both advantageous and necessary for sector professionals to optimize the packaging of offal products in a context where preservation in modified atmosphere packaging is not yet fully controlled.

Optimizing the composition of a gaseous compound specific to the three selected categories of offal, i.e. sliced veal liver, veal kidneys, and veal sweetbreads, is doubly important since each organ has its own metabolism and therefore presents specific reactions to certain gases.

Five gaseous compounds were studied: 80%O₂ 20%CO₂; 70%N₂ 30%CO₂; 70%O₂ 30%CO₂; 80%N₂ 20%CO₂ and 100% CO₂. Each of these gaseous compounds was compared to stretch-film packaging, which was used as control.

Bacteriology analysis was performed by making counts of total and spoilage flora according to standardized methods. Odour evaluation, colour measurements (redness index), weight loss measurements and visual inspection were also performed.

Taken together, the conclusions of this first stage and the counts obtained for the study flora suggest that a 100% CO₂ atmosphere is the best packaging solution for the preservation of the three tripe products studied. A second stage consisting of challenge-tests using *Listeria monocytogenes* bacteria has been planned in order to estimate the use-by date for the three tripe products studied under the conditions identified by the first stage, i.e. packaging under a 100% CO₂ atmosphere.

Keywords: packaging, preservation, red offal

FRENCH DRY SAUSAGE AND CONTAMINATION: BEHAVIOUR *L. MONOCYTOGENES* IN ARTIFICIALLY CONTAMINATED DRY FERMENTED SAUSAGE

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Dry sausage was fabricated using standard methods with a sausage mix previously seeded with eight different strains of *L. monocytogenes*. The study showed that, in contrast with the decrease in pH, the decreased Aw combined with the increased concentration of NaCl had a very strong negative impact on the survival and indeed the growth of *L. monocytogenes* in dry sausages. Furthermore, statistical analysis showed that the decrease in contamination by *L. monocytogenes* during the sausage drying and curing phase was significantly strain-dependent at the end of the drying phase (P < 0.001).

Keywords: dry sausage, *L. monocytogenes*, adapted strains