

# MICROBIOLOGICAL QUALITY OF CHICKEN BREAST SOUS VIDE MEAT AFTER *SALMONELLA ENTERICA* SUBSP. *ENTERICA* AND *PIMPINELLA ANISUM* ESSENTIAL OIL

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## Abstract

Sous Vide (SV) is a French term which means "under vacuum". The significant level of microorganism contamination of poultry meat especially during cutting operations is an important issue. The aim of the study was to determine the microbiological quality of chicken breast sous vide meat after application of *Salmonella enterica* subsp. *enterica* and anise essential oil.

*Salmonella enterica* subsp. *enterica* and *Pimpinella anisum* essential oil were applied on the chicken breast meat after purchase in the store. After application, the samples were treated by sous vide at four different temperatures (50 °C, 55 °C, 60 °C, and 65 °C) during four different time intervals (5; 15; 30; and 60 minutes). The primary objective was to isolate bacteria by matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) Biotyper and identified bacteria with mass spectrometry (MS).

We identified the isolated Gram + and Gram - bacteria by MALDI-TOF MS Biotyper. The most commonly isolated species of samples were Gram negative bacteria. The main species of *Salmonella enterica* subsp. *enterica* microorganisms varied depending on temperature and time, but the highest value was 3.90 log cfu x g<sup>-1</sup> had a sample cooked sous vide at 55 °C and 5 minutes and the lowest value of 1.3 log cfu x g<sup>-1</sup> had a sample cooked sous vide at 65 °C and 30 minutes.

The effect of anise essential oil was not significant as the results were not clear enough and the increasing temperature and time of action played a dominant role.

**Key words:** Chicken breast meat, Sous vide, Temperature, *Salmonella enterica* subsp. *enterica*, Anise essential oil, MALDI-TOF MS Biotyper.