

## IMPACT OF *CARUM CARVI* ESSENTIAL OILS TO CHICKEN THIGHS SOUS VIDE MEAT AFTER *LISTERIA MONOCYTOGENES* APPLICATION

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### Abstract

Extending the shelf life of poultry meat are a major concern for the poultry industry. The shelf life of poultry depends on several factors, particularly initial bacterial loads, storage temperature and the gaseous environment around the meat. The objective of the study was to evaluate the microbiological quality of chicken thighs sous vide meat after application of *Listeria monocytogenes* and *Carum carvi* (caraway) essential oil.

*Listeria monocytogenes* and *Carum carvi* essential oil were applied on the chicken thighs meat without bones 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 min). 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).

Gram positive and Gram negative bacteria in all samples were identified including *L. monocytogenes* in treated groups. Most isolated species of samples were Gram negative bacteria. The main species of *Listeria monocytogenes* varied depending on temperature and time, but the highest value was 2.78 log cfu x g<sup>-1</sup> had a sample cooked sous vide at 55 °C and 5 minutes and the lowest value of 0 log cfu x g<sup>-1</sup> had a sample cooked sous vide at 65 °C and 30 minutes.

The effect of caraway essential oil has significant content on *L. monocytogenes* together with temperature and time.

**Key words:** Chicken thighs meat, Sous vide, *Listeria monocytogenes*, *Carum carvi* essential oil, Mass spectrometry.