

PENGARUH LAMA STERILISASI DAN PENYIMPANAN SUHU RUANG TERHADAP KUALITAS KIMIA DAN TOTAL BAKTERI PRODUK TONGSENG DAGING DOMBA KEMASAN KALENG

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan lama sterilisasi dan penyimpanan suhu ruang terhadap kualitas tongseng daging domba yang dikemas menggunakan kemasan kaleng. Perlakuan lama sterilisasi (*holding time*) yang digunakan, yaitu T0 (kontrol, tanpa sterilisasi), T1 (25 menit), T2 (35 menit) dan T3 (45 menit) dengan temperatur 121°C. Parameter yang diuji meliputi kualitas kimia (air, protein, lemak, dan kolagen) menggunakan alat *Near Infrared Spectroscopy* (NIRS) *Food Scan* dan pengujian total bakteri produk yang dilakukan dengan menggunakan metode *Total plate count* (TPC). Pengujian dilakukan secara berkala pada hari ke-0, 14, dan 28. Perlakuan penyimpanan dilakukan pada suhu ruang ($\pm 27^{\circ}\text{C}$) untuk sampel dengan perlakuan sterilisasi (T1, T2, T3) dan suhu *freezer* (-18°C) untuk sampel kontrol (T0). Sebanyak tiga kali pengulangan uji dilakukan untuk setiap perlakuan. Pengujian total bakteri dilakukan secara duplo untuk tiap pengenceran. Data penelitian yang diperoleh akan dianalisis menggunakan metode variansi pola faktorial. Perbedaan rerata diuji dengan *Duncan's New Multiple Range Test* (DMRT). Berdasarkan hasil pengujian terhadap kualitas kimia, lama waktu sterilisasi (*holding time*) berpengaruh nyata ($P < 0,05$) terhadap kadar air (70,34 - 71,84%). akan tetapi tidak berpengaruh nyata ($P > 0,05$) terhadap kadar protein (23,79 - 24,48%), lemak (5,29 - 5,96%), dan kolagen (1,83 - 2,34%) tongseng daging kambing kemasan kaleng. Didapati perlakuan lama waktu sterilisasi terbaik adalah perlakuan T2 (35 menit). Pengaruh lama simpan sendiri berpengaruh nyata ($P < 0,05$) terhadap kadar air (70,38 - 71,63%). akan tetapi tidak berpengaruh nyata ($P > 0,05$) terhadap kadar protein (23,84 - 24,37%), lemak (5,44 - 5,80%), dan kolagen (1,91 - 2,26%). Nilai dari data cemaran bakteri menunjukkan hasil di bawah ambang batas cemaran bakteri pada produk pangan olahan daging kemasan kaleng (1×10^2). Perlakuan sterilisasi dengan temperatur 121°C selama 25-45 menit memiliki efektivitas yang sama untuk menghentikan aktivitas bakteri pada penyimpanan suhu ruang ($\pm 27^{\circ}\text{C}$) dengan tongseng kaleng tanpa perlakuan sterilisasi yang disimpan pada suhu *freezer* (-18°C).

Kata Kunci: tongseng daging domba, lama sterilisasi, penyimpanan suhu ruang, kualitas kimia, total bakteri.

THE EFFECT OF STERILIZATION DURATION AND ROOM TEMPERATURE STORAGE TIME ON CANNED LAMB TONGSENG CHEMICAL QUALITY AND TOTAL BACTERIAL CONTAMINATION

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ABSTRACT

The objective of this research is to determine the effect of sterilization *holding time* and room temperature storage duration differences on canned lamb tongseng chemical quality and total bacterial contamination. Sterilization time duration *treatment (holding time)* that is used are T0 (control, without sterilization), T1 (25 minutes), T2 (35 minutes) and T3 (45 minutes) with the temperature of 121°C. Parameters tested include chemical quality (water, protein, fat and collagen level) using *Near Infrared Spectroscopy* (NIRS) *Food Scan machine* and total bacterial product tested using *Total plate count* (TPC) method. Tests were done periodically on days 0, 14, and 28. Storage duration *treatment* was *conditioned* at room temperature ($\pm 27^{\circ}\text{C}$) for samples with sterilization *treatment* (T1, T2, T3) and *freezer* temperature (-18°C) for control samples (T0). A total of three repetitions were applied for each *treatment* samples. Total bacteria was tested in dual sample replications for each dilution. The research data obtained, analyzed using the factorial method. Mean differences were tested using Duncan's New Multiple Range Test (DMRT). Based on the results of chemical quality testing, the length of sterilization time (*holding time*) had a significant effect ($P < 0.05$) on water level (70.34 - 71.84%). However, there was no significant effect ($P > 0.05$) on protein level (23.79 - 24.48%), fat level (5.29 - 5.96%), and collagen level (1.83 - 2.34%) of canned lamb tongseng. From this research can be conclude that most effective sterilization time *treatment* is T2 (35 minutes). Storage time *treatment* had a significant effect ($P < 0.05$) on water level (70.38 - 71.63%). However, there was no significant effect ($P > 0.05$) on protein level (23.84 - 24.37%), fat level (5.44 - 5.80%), and collagen level (1.91 - 2.26%). Counted total plate of bacterial contamination data shows results below the minimum limitation for bacterial contamination in processed canned meat food products (1×10^2). Sterilization treatment in the temperature of 121°C in 25-45 minutes has same effectivity to stop bacterial activity on room temperature storage ($\pm 27^{\circ}\text{C}$) with unsterilized freezer temperature (-18°C) stored product.

Keywords: lamb tongseng, sterilization time, storage duration, chemical quality, total bacterial contamination.