

APLIKASI *Lactobacillus plantarum* JR21 DAN *Lactococcus lactis* FMK14 SEBAGAI KULTUR INDUK GANDA DALAM SOSIS AYAM FERMENTASI HALAL (NHAM KAI)

INTISARI

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Sosis ayam fermentasi halal (*Nham Kai*) dikembangkan untuk menyediakan produk *Nham* yang dapat dikonsumsi oleh semua kalangan. Dalam pengembangannya, sosis ayam difermentasi menggunakan penambahan inokulum *Lactobacillus plantarum* JR21 dan *Lactococcus lactis* FMK14, baik tunggal maupun kombinasi. Sosis yang difermentasi secara spontan digunakan sebagai kontrol. Sosis ayam difermentasi pada suhu ruang selama satu hari kemudian dilanjutkan pada suhu 4°C selama 3 hari. Kualitas produk ditentukan dengan menggunakan analisis kimia, mikrobiologi, dan fisik selama proses fermentasi. Pada hari keempat, sosis ayam halal dengan penambahan inokulum mencapai pH yang lebih rendah (4.57-4.70), sedangkan asam laktat yang dihasilkan lebih tinggi (0.42-0.46% w/v) dibandingkan dengan kontrol ($P < 0.05$). Konsentrasi bakteri asam laktat pada akhir fermentasi di semua perlakuan berada pada kisaran 8.56-9.73 log cfu/g. Analisis profil tekstur sosis ayam halal dengan penambahan inokulum, meliputi kekerasan (1970.89-2504.23 gForce) dan kealotan (733.88-1135.24 g) lebih tinggi dibandingkan dengan kontrol ($P < 0.05$). Akan tetapi, meski dapat menekan pertumbuhan *Clostridium perfringens*, dan *Staphylococcus aureus* pada akhir fermentasi, *starter culture* yang ditambahkan tidak mampu menekan jumlah *Fecal coliform* (>1100 MPN/g). Produksi *starter culture* kering pada strain *Lb. plantarum* JR21 menunjukkan bahwa setelah masa simpan, viabilitas BAL cukup stabil pada kisaran 6.79-7.06 log cfu/g. Kadar air bebas dan kadar air dapat dipertahankan konstan pada 0.32-0.39 dan 8.04-8.92%.

Kata Kunci: Sosis ayam fermentasi halal, fermentasi, kultur induk, *Lactobacillus plantarum* JR21, *Lactococcus lactis* FMK14

APPLICATION OF *Lactobacillus plantarum* JR21 AND *Lactococcus lactis* FMK14 AS DUAL STARTER CULTURES IN HALAL FERMENTED CHICKEN SAUSAGE (NHAM KAI)

ABSTRACT

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Halal fermented chicken sausage (Nham Kai) was developed to provide Nham that can be consumed by all consumers groups. Improvement of the traditional chicken Nham was investigated by inoculating each culture of *Lactobacillus plantarum* JR21 and *Lactococcus lactis* FMK14 as single culture and its combination. Spontaneous fermentation was used as control. The halal fermented chicken sausage was allowed to ferment at room temperature for 1 day and continued at 4 °C for 3 days. The product quality was determined by chemical, microbiological, and physical analysis during fermentation. In the fourth day of fermentation, the inoculated halal fermented chicken sausage exhibited lower pH ranging from 4.57-4.70 and higher total lactic acid ranging from 0.42-0.46% (w/v), comparing to control ($P<0.05$). The final concentration of lactic acid bacteria at all treatments were in a range of 8.56-9.73 log cfu/g. In terms of inoculated halal fermented chicken sausage texture profile analysis values, comprise of hardness (1970.89-2504.23 gForce) and chewiness (733.88-1135.24 g) were higher than the control ($P<0.05$). However, microbial counts revealed that although no *Clostridium perfringens*, and *Staphylococcus aureus* were detected, the starter cultures could not suppressed the number of *Fecal coliform* (>1100 MPN/g). The results on dried starter cultures production of *Lactobacillus plantarum* JR21 showed that after 6 weeks of storage, the viable lactic acid bacteria were remain constant at 6.79-7.06 log cfu/g. The values of water activity and moisture content were remain constant at 0.32-0.39 and 8.04-8.92%, respectively.

Keywords: Halal fermented chicken sausage, fermentation, starter culture, *Lactobacillus plantarum* JR21, *Lactococcus lactis* FMK14