

## **KAJIAN SOSIS AYAM FERMENTASI PROBIOTIK: Isolasi BAL Probiotik dan Aplikasinya untuk Meningkatkan Kualitas Sosis ayam Fermentasi Probiotik**

### **INTISARI**

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Tujuan dari penelitian ini adalah 1. mendapatkan isolat BAL yang dapat berperan sebagai probiotik asal daging ayam broiler, yang teridentifikasi spesiesnya dan diketahui kemampuan sebagai starter dalam pembuatan sosis ayam fermentasi, dan kinetika fermentasinya. 2. mengetahui pengaruh penambahan isolat BAL terpilih untuk menggantikan nitrit pada lama fermentasi dan lama pengeringan yang berbeda terhadap kualitas sosis ayam fermentasi. 3. mengetahui pengaruh penambahan isolat BAL terpilih untuk menggantikan nitrit selama penyimpanan terhadap kualitas sosis ayam fermentasi. Materi yang digunakan adalah daging ayam broiler, isolat BAL dan nitrit ( $\text{NaNO}_2$ ). Hasil dari penelitian ini adalah didapatkan isolat BAL yang tahan pada pH 2,5 dan pepsin (0,3 g/l), tahan pada garam empedu 0,3% + pankreatin 0,1%, dan bersifat antibakteri terhadap *Escherichia coli* dan *Staphylococcus aureus*. Isolat BAL mampu tumbuh dalam kondisi pertumbuhan sosis fermentasi yaitu yang tumbuh pada media yang mengandung garam sampai 2,5% dan nitrit ( $\text{NaNO}_2$ ) sampai 150 ppm. Isolat BAL juga masih dapat tumbuh pada suhu 14°C. Isolat BAL terpilih yaitu *Lactobacillus fermentum* BR 17 yang mempunyai nilai  $\mu_{\text{maks}}$  sebesar 0,137/jam dan  $(K_m) = 0,36$  g/100 ml. Sosis fermentasi yang dibuat dengan penambahan *L. fermentum* BR 17 menghasilkan sosis fermentasi yang lebih baik pada total BAL, keasaman, pH dan *weight loss* jika dibanding dengan sosis yang ditambahkan nitrit dan Nitrit-*L. fermentum* BR 17 pada tahap fermentasi. Selama tahap fermentasi terjadi peningkatan total BAL dan keasaman, penurunan pH dan peningkatan *weight loss*. Sosis fermentasi *L. fermentum* BR 17 mempunyai hasil yang lebih baik pada total mikroorganisme dan total BAL pada tahap pengeringan. Selama tahap pengeringan terjadi penurunan total *Escherichia coli*, dan aktivitas air. Penyimpanan sosis fermentasi *L. fermentum* BR 17 pada suhu ruang menghasilkan kualitas mikrobiologi, kualitas fisiko-kimia dan kualitas sensoris yang lebih baik. Selama penyimpanan sampai hari ke 20 kualitas mikrobiologi, kualitas fisokimia dan kualitas sensoris masih dapat dipertahankan. Kesimpulan dari penelitian ini yaitu 1. terdapat lima isolat BAL sebagai probiotik dari daging ayam broiler, dan satu isolat terpilih teridentifikasi sebagai *Lactobacillus fermentum* BR 17. 2. penggunaan *Lactobacillus fermentum* BR 17 menghasilkan sosis ayam terfermentasi dengan kualitas mikrobiologi dan fisiko-kimia yang lebih baik dibandingkan nitrit dan nitrit-*Lactobacillus fermentum* BR 17 selama fermentasi dan pengeringan. 3. *Lactobacillus fermentum* BR 17 pada sosis fermentasi mampu menggantikan nitrit sebagai

aditif dalam mempertahankan kualitas mikrobiologi, fisiko-kimia dan sensoris sosis ayam terfermentasi selama penyimpanan.

Kata kunci: Isolasi BAL Probiotik, Nitrit, Sosis Fermentasi, Penyimpanan

**STUDY OF PROBIOTIC FERMENTED CHICKEN SAUSAGE Isolation of BAL Probiotics and Its Application to Improve the Quality of Probiotic Fermented Chicken Sausages**

**ABSTRACT**

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The objectives of this study were to obtain 1. get BAL isolates that can act as probiotics from broiler chicken meat, which species were identified and know the ability as a starter in maked fermented chicken sausages, and the fermentation kinetics. 2. knowing the effect of addition of selected BAL isolates to replace nitrite at different fermentation times and different dried times for the quality of fermented chicken sausages. 3. knowed the effect of the addition of selected BAL isolates to replace nitrite during storage against the quality of fermented chicken. The material, of this experiment were broiler chicken meat, LAB isolates and nitrite (NaNO<sub>2</sub>). The results of this study were obtaining probiotic LAB isolates that were resistant at pH 2,5 and pepsin (0,3 g/l), resistant to bile salts 0,3% + pancreatin 0,1%, antibacterial in *Escherichia coli* and *Staphylococcus aureus*. LAB isolates were able to grow in conditions of growth of fermented sausages which were grown on media containing salt up to 2,5% and nitrite (NaNO<sub>2</sub>) to 150 ppm. Lactic acid bacteria isolates can still grow at a temperature of 14°C. The selected LAB isolate was *Lactobacillus fermentum* BR 17 which had a maximal value of 0,137/hour and (Km) = 0,36 g/100 ml. Fermented sausages made by the addition of nitrite, probiotic LAB, and probiotic nitrates during the fermentation stage produced probiotic LAB fermented sausages that have better results in total LAB, lactic acid levels, pH and weight loss. During the fermentation stage there was a total increase in LAB and lactic acid levels, a decrease in pH and an increase in weight loss. The fermented sausage at the drying stage shows LAB fermented sausage probiotics have better results in total microorganisms and total LAB. During the drying stage there were a decrease in total *Escherichia coli*, and water activity. Storage of nitrite fermented sausages, probiotic LAB, and probiotic LAB nitrates at room temperature changed in microbiological quality, physico-chemical quality and sensory quality. The conclusion of this study was 1. there were five isolates of LAB as probiotics from broiler chicken meat, and one selected isolate identified as *Lactobacillus fermentum* BR 17. 2. used of *Lactobacillus fermentum* BR 17 to produce fermented chicken sausages with better quality microbiology and physico-chemical compared to nitrite and nitrite-*Lactobacillus fermentum* BR 17 during fermentation and drying. 3. *Lactobacillus fermentum* BR 17 in fermented sausages can replace nitrite as an additive in maintained the microbiological, physico-chemical and sensory qualities of fermented chicken sausages during storage.

Keywords: Isolation of Probiotic LAB, Nitrite, Fermentation Sausage, Storage