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**Pengaruh Kepadatan Starter Lactiplantibacillus plantarum GMP 1 terhadap Mutu Mikrobiologis dan Kadar
Histamin Terasi Udang Rebon**
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Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

INTISARI

PENGARUH KEPADATAN STARTER *Lactiplantibacillus plantarum* GMP 1 TERHADAP MUTU MIKROBIOLOGIS DAN KADAR HISTAMIN TERASI UDANG REBON

Terasi udang rebon merupakan produk fermentasi tradisional yang berisiko mengalami cemaran mikroba dan pembentukan histamin selama fermentasi spontan. Penelitian ini bertujuan mengevaluasi pengaruh penambahan starter *Lactiplantibacillus plantarum* GMP 1 pada kepadatan 10^7, 10^8, dan 10^9 CFU/mL selama fermentasi terhadap mutu mikrobiologis dan kadar histamin terasi udang rebon. Parameter yang diamati meliputi pH, *Total Plate Count* (TPC) bakteri asam laktat (BAL), TPC *Enterobacteriaceae*, cemaran *Escherichia coli* dan *Salmonella* sp., serta kadar histamin. Hasil penelitian menunjukkan bahwa penambahan starter *Lactiplantibacillus plantarum* GMP 1 dan lama fermentasi meningkatkan jumlah BAL, menurunkan pH, serta menghambat pertumbuhan *Enterobacteriaceae*. Perlakuan dengan kepadatan starter 10^8 CFU/mL selama 8 hari menghasilkan kondisi mikrobiologis yang optimal dengan pH 7,32 ± 0,04, TPC BAL sebesar 8,18 ± 0,61 log CFU/g, dan TPC *Enterobacteriaceae* sebesar 3,26 ± 0,32 log CFU/g. Kadar histamin tidak terdeteksi pada perlakuan tersebut dan tetap berada di bawah batas aman (<50 ppm) selama fermentasi. Pengujian cemaran *Escherichia coli* dan *Salmonella* sp. menunjukkan hasil negatif pada seluruh produk akhir, sehingga memenuhi persyaratan keamanan mikrobiologis. Penggunaan starter *Lactiplantibacillus plantarum* GMP 1 berpotensi meningkatkan keamanan dan mutu terasi udang rebon melalui peningkatan dominasi BAL, penghambatan bakteri kontaminan, dan pengendalian pembentukan histamin.

Kata kunci: terasi udang rebon, *Lactiplantibacillus plantarum* GMP 1, bakteri asam laktat, histamin, fermentasi.

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ABSTRACT

THE EFFECT OF *Lactiplantibacillus plantarum* GMP 1 STARTER DENSITY CULTURE ON THE MICROBIOLOGICAL QUALITY AND HISTAMINE LEVELS OF SHRIMP PASTE

Rebon shrimp paste is a traditional fermented product that is susceptible to microbial contamination and histamine formation during spontaneous fermentation. This study aimed to evaluate the effect of *Lactiplantibacillus plantarum* GMP 1 starter cultures at inoculum levels of 10^7, 10^8, and 10^9 CFU/mL during fermentation on the microbiological quality and histamine content of rebon shrimp paste. The observed parameters included pH, total lactic acid bacteria (LAB) count, *Enterobacteriaceae* count, contamination by *Escherichia coli* and *Salmonella* spp., and histamine content. The results showed that the addition of *Lactiplantibacillus plantarum* GMP 1 and fermentation time enhanced the microbiological quality of shrimp paste by increasing LAB populations, reducing pH, and suppressing the growth of *Enterobacteriaceae*. Fermentation with a starter density of 10^8 CFU/mL for 8 days resulted in optimal microbiological characteristics, with a pH of 7.32 ± 0.04, a LAB count of 8.18 ± 0.61 log CFU/g, and an *Enterobacteriaceae* count of 3.26 ± 0.32 log CFU/g. Histamine was not detected under this treatment and remained below the safety limit (<50 ppm) throughout fermentation. *Escherichia coli* and *Salmonella* spp. were not detected in any of the final products, indicating compliance with microbiological safety standards. These findings suggest that the application of *Lactiplantibacillus plantarum* GMP 1 has the potential to improve the safety and quality of rebon shrimp paste by promoting LAB dominance, inhibiting contaminant bacteria, and controlling histamine formation.

Keywords: rebon shrimp paste, *Lactiplantibacillus plantarum* GMP 1, histamine, fermentation, lactic acid bacteria.