

**PENGARUH FORMULA MEDIA TUMBUH DAN LAMA INKUBASI
Lacticaseibacillus casei AP TERHADAP NILAI pH,
KEASAMAN, DAN MIKROBIOLOGIS
PRODUK SUSU FERMENTASI**

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INTISARI

Penelitian ini dilakukan dengan tujuan untuk mengetahui pengaruh formula media tumbuh menggunakan *whey powder*, ekstrak tomat, dan ekstrak kacang hijau dan lama inkubasi terhadap pertumbuhan dan viabilitas *Lacticaseibacillus casei* AP. Kultur *Lacticaseibacillus casei* AP diberi perlakuan berupa perbedaan media tumbuh: yaitu MRS broth (P1) sebagai kontrol, *whey powder* 100% (P2), *whey powder* 50% + ekstrak tomat 50% (P3), dan *whey powder* 50% + ekstrak tomat 45% + ekstrak kacang hijau 5% (P4). Pengamatan dilakukan pada masa inkubasi jam ke-0, ke-4, ke-10, ke-16, dan ke-22. Parameter pengamatan sebanyak tiga kali ulangan meliputi pH, keasaman setara asam laktat, dan viabilitas dengan metode *Total Plate Count* (TPC). Data pengujian media tumbuh dianalisis menggunakan Rancangan Acak Lengkap (RAL) pola faktorial 4x5. Hasil pengujian berbeda nyata ($P < 0,05$) dilanjutkan dengan uji Duncan's *New Multiple Range Test* (DMRT). Media tumbuh terbaik dipilih untuk penyiapan inokulum dan dilanjutkan dengan fermentasi susu. Data pengujian produk susu fermentasi dengan jenis inokulum berbeda (P1 dan P3) dianalisis menggunakan *independent sample (t-test)*. Hasil pengujian menunjukkan bahwa formulasi media tumbuh berpengaruh nyata ($P < 0,05$) terhadap pH dan keasaman setara asam laktat, tetapi tidak berpengaruh nyata ($P > 0,05$) terhadap kualitas mikrobiologis. Hasil pengujian produk susu fermentasi menggunakan inokulum berbeda (P1 dan P3) berpengaruh nyata ($P < 0,05$) pada uji keasaman setara asam laktat dan mikrobiologis, tetapi tidak berpengaruh nyata ($P > 0,05$) terhadap nilai pH.

Kata kunci : *Lacticaseibasillus casei* AP, *whey*, ekstrak kacang hijau, ekstrak tomat.

THE EFFECT OF FORMULA GROWTH MEDIUM AND INCUBATION DURATION FOR *Lacticaseibacillus casei* AP ON pH VALUE, ACIDITY, AND MICROBIOLOGICAL FERMENTED MILK PRODUCTS

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ABSTRACT

This study was conducted to determine the effect of media formulation consist of whey powder, tomato extract, and mung bean extract and incubation duration on the growth and viability of *Lacticaseibacillus casei* AP. *Lacticaseibacillus casei* AP cultures was treated on different media formulation: MRS broth (P1) as control, 100% whey powder (P2), 50% whey powder + 50% tomato extract (P3), and 50% whey powder + 45% tomato extract + 5% mung bean extract (P4). Observations were made at the 0th, 4th, 10th, 16th, and 22nd hour of incubation. Observation parameters for three replicates included pH, lactic acid concentrations, and viability using the Total Plate Count (TPC) method. Data of pH, lactic acid, and viability was analyzed using a completely randomized design (CRD) 4x5 factorial pattern. The test results were significantly different ($P < 0.05$) followed by Duncan's New Multiple Range Test (DMRT). Selected media formulation was used to growth bacteria culture that was used for milk fermentation. Fermented milk product test data with different inoculum types (P1 and P3) was analyzed using independent sample (t-test). The test results showed that the growth media formulation had a significantly affected ($P < 0.05$) on pH and lactic acid concentrations, but no significantly affected ($P > 0.05$) on microbiological quality. The test results of fermented milk products using different inoculums (P1 and P3) had a significant effect ($P < 0.05$) on lactic acid concentrations acidity and microbiological, was but no significant effect ($P > 0.05$) on pH value.

Keywords: *Lacticaseibacillus casei* AP, whey, mung bean extract, tomato extract.