

**VIABILITAS *Lactobacillus casei* AP DAN *Lactobacillus casei* AG
DALAM MEDIA TUMBUH DARI EKSTRAK TOMAT (*Solanum
lycopersicum*) DAN WHEY SUSU**

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INTISARI

Penelitian ini bertujuan untuk mengetahui kombinasi terbaik antara *whey* dan ekstrak tomat sebagai media untuk pertumbuhan dan penyimpanan *Lactobacillus casei* strain AP dan *Lactobacillus casei* strain AG. Kedua kultur bakteri diberi perlakuan media pertumbuhan berbeda: A0 (Kontrol = media MRS Broth), A1 (*Whey* 0% + Ekstrak tomat 100%), A2 (*Whey* 25% + Ekstrak tomat 75%), A3 (*Whey* 50% + Ekstrak tomat 50%), A4 (*Whey* 75% + Ekstrak tomat 25%), A5 (*Whey* 100% + Ekstrak tomat 0%). Kedua kultur bakteri ditumbuhkan selama 10 jam dan diukur peningkatan kekeruhan media pada jam ke-0, 2, 4, 6, 8 dan 10 menggunakan spektrofotometer pada λ 620 nm. Biomassa kultur dengan perlakuan media berbeda disimpan selama 30 hari untuk diukur viabilitas bakteri. Setiap pengujian dilakukan sebanyak 3 kali pengulangan. Data yang diperoleh dianalisis variansi sesuai Rancangan Acak Lengkap (RAL) pola searah dan faktorial. Hasil yang signifikan ($P < 0,05$) dilanjutkan dengan Uji *Duncan's New Multiple Ranges Test* (DMRT). Hasil penelitian menunjukkan bahwa penambahan *whey* susu pada media ekstrak tomat dengan persentase berbeda memberikan tingkat pertumbuhan yang berbeda. Pertumbuhan *Lactobacillus casei* AP tertinggi dihasilkan dari media A2 dan media A3. Pertumbuhan *Lactobacillus casei* AG tertinggi dihasilkan dari media A2. Pertumbuhan dari kedua kultur AP dan AG lebih rendah dibandingkan ketika ditumbuhkan pada media MRS. Perbedaan persentase *whey* dan tomat sebagai media tumbuh bakteri tidak memberikan pengaruh nyata ($P > 0,05$) terhadap viabilitas bakteri selama penyimpanan 30 hari. Viabilitas mampu dipertahankan selama penyimpanan dengan rerata viabilitas yang dihasilkan pada kultur bakteri *Lactobacillus casei* AP dan *Lactobacillus casei* AG berturut-turut adalah $10,28 \pm 1,13$ dan $9,89 \pm 1,41$.

Kata kunci: *Lactobacillus casei* AP, *Lactobacillus casei* AG, viabilitas, ekstrak tomat, *whey* susu

VIABILITY OF *Lactobacillus casei* AP AND *Lactobacillus casei* AG IN GROWTH MEDIUM FROM TOMATO EXTRACT (*Solanum lycopersicum*) AND WHEY MILK

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ABSTRACT

The aim of this experiment was to determine the best combination of whey and tomato extract used as a growth medium and storage of *Lactobacillus casei* strain AP and *Lactobacillus casei* strain AG. Both bacterial cultures were treated with different growth medium: A0 (Control = MRS Broth medium), A1 (Whey 0% + Tomato extract 100%), A2 (Whey 25% + Tomato extract 75%), A3 (Whey 50% + Tomato extract 50%), A4 (Whey 75% + Tomato Extract 25%), A5 (Whey 100% + Tomato Extract 0%). Both bacterial cultures were grown for 10 hours and the increase in medium turbidity was measured at 0, 2, 4, 6, 8 and 10 hours using a spectrophotometer at 620 nm. Cultured biomass with different medium treatments was stored for 30 days to measure bacterial viability. Each test was repeated 3 times. The data obtained were analyzed using variance a Completely Randomized Design (CRD) method with one-way ANOVA and factorial design. Significant results ($P < 0.05$) followed by Duncan's New Multiple Ranges Test (DMRT). The results showed that the addition of milk whey into tomato extract medium with different proportions resulted in different growth rates. The highest growth rate of *Lactobacillus casei* AP was resulted from A2 and A3 medium. The highest growth rate of *Lactobacillus casei* AG was resulted from A2 medium. The results of the growth rate of both cultures were still lower than MRS medium. The difference proportions of whey and tomato as a medium for bacterial growth did not have a significant effect ($P > 0.05$) on bacterial viability for 30 days. Viability was able to be maintained during storage with the mean viability resulted in the bacterial cultures of *Lactobacillus casei* AP and *Lactobacillus casei* AG were 10.28 ± 1.13 and 9.89 ± 1.41 , respectively.

Keywords: *Lactobacillus casei* AP, *Lactobacillus casei* AG, viability, tomato extract, whey milk