

**PERBANDINGAN BAKTERI ASAM LAKTAT YOGHURT SINGLE DAN
DOUBLE STRAIN DALAM MENGHAMBAT PERTUMBUHAN
*Shigella dysenteriae***

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ABSTRAK

Disentri merupakan penyakit infeksi intestinal ditandai dengan munculnya darah dalam feses. Salah satu upaya pencegahan berupa mengonsumsi susu fermentasi berupa yoghurt. Yoghurt merupakan olahan susu fermentasi menggunakan bakteri asam laktat (BAL). BAL yang digunakan berupa *single strain Streptococcus thermophilus*, *Lactobacillus bulgaricus*, dan *double strain S. thermophilus* dan *L. bulgaricus*. Tujuan Penelitian ini adalah untuk mengetahui perbandingan BAL yoghurt *single strain* dan *double strain* dalam menghambat pertumbuhan *Shigella dysenteriae* dengan menghitung rata-rata zona hambat yang terbentuk. Penelitian ini menggunakan metode *experimental design* dengan *post test only with control group design*. Pengujian bakteri menggunakan difusi sumuran. Total sampel sebanyak 15, dibagi menjadi 5 kelompok konsentrasi masing-masing 0%, 20%, 40%, 60%, dan 80%. Rancangan percobaan pada penelitian ini menggunakan metode Rancangan Acak Lengkap (RAL). Analisis data menggunakan uji *Kruskal Wallis* dan *Post Hoc Mann Whitney*. Hasil penelitian didapatkan median diameter zona hambat BAL yoghurt *double strain S. thermophilus* dan *L. bulgaricus* > *single strain L. bulgaricus* > *S. thermophilus*. Pada uji *Kruskal Wallis* didapatkan nilai $p=0,002$, terdapat perbedaan antara kelompok yang diberi perlakuan dan tidak diberi perlakuan. Hasil uji mendapatkan perbedaan signifikan median diameter zona hambat antar kelompok. Kesimpulan penelitian ini menunjukkan bahwa kemampuan BAL *double strain S. thermophilus* dan *L. bulgaricus* lebih baik dalam menghambat pertumbuhan *S. dysenteriae* dibandingkan dengan BAL yoghurt *single strain L. bulgaricus* atau *S. thermophilus*.

Kata Kunci : *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, *Shigella dysenteriae*, Bakteri asam laktat.

THE COMPARISON BETWEEN SINGLE AND DOUBLE STRAIN YOGHURT LACTIC ACID BACTERIA ON INHIBITING THE GROWTH OF *Shigella dysenteriae*

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ABSTRACT

Dysentery is an infectious intestinal disease characterized by the appearance of blood in the stool. One of the prevention efforts is consuming fermented milk as yogurt. Yoghurt is a fermented milk using lactic acid bacteria (LAB). LAB used as single strains of *Streptococcus thermophilus*, *Lactobacillus bulgaricus*, and double strains of *S. thermophilus* and *L. bulgaricus*. The purpose of this study was to determine the ratio of LAB of single strain and double strain yoghurt in inhibiting the growth of *Shigella dysenteriae* by calculating the average inhibition zone formed. This research used experimental design method with post test only with control group design. This study uses well diffusion. The total sample was 15, divided into 5 groups with 0%, 20%, 40%, 60%, dan 80% concentration respectively as controls. The experimental design in this study used the Completely Randomized Design (CRD) method. Data analysis used *Kruskal Wallis* test and *Mann Whitney Post Hoc* test. The results show that the average diameter of the LAB inhibition zone for double strains of *S. thermophilus* and *L. bulgaricus* > single strain *L. blugaricus* > *S. thermophilus*. In the *Kruskal Wallis* test, the p value was obtained = 0.002, it was found that the difference between the treated and untreated groups was obtained. The test results found a significant difference in the median inhibition zone diameter between groups. The conclusion of this study shows that the LAB double strains of *S. thermophilus* and *L. bulgaricus* are better at inhibiting growth *S. dysenteriae* compared to LAB single strains of *L. bulgaricus* or *S. thermophilus* yoghurt.

Keyword : *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, *Shigella dysenteriae*, Lactic acid bacteria.