

UJI AKTIVITAS BAKTERI ASAM LAKTAT (*Lactobacillus bulgaricus* dan *Streptococcus thermophilus*) SOYGURT DALAM MENGHAMBAT PERTUMBUHAN ISOLAT *Escherichia coli* PENYEBAB DIARE

Abstrak

Diare merupakan penyakit yang sering dialami balita hingga lansia. Penderita diare mengalami perubahan konsistensi feces menjadi lebih cair dan peningkatan frekuensi buang air besar. Menurut WHO (2018), diare penyebab kematian utama balita. Penyebab diare bakterial terbesar adalah *E. coli*. Akibat penggunaan antibiotik dapat menurunkan flora normal usus, sehingga bisa terjadi diare berulang. Dibutuhkan pemeliharaan flora normal usus, yaitu dengan mengkonsumsi minuman fermentasi seperti soygurt. Penelitian ini menguji aktivitas bakteri asam laktat (BAL) soygurt dalam menghambat pertumbuhan isolat *E. coli* penyebab diare. Penelitian ini berfokus untuk mengetahui konsentrasi hambat minimal (KHM) soygurt dalam menghambat *E. coli*. Penelitian ini menggunakan metode ekperimental, mengukur *post-test* hasil perlakuan yang dibandingkan dengan kontrol (0%). Pengujian bakteri dengan teknik dilusi cair. Data dari penghitungan koloni *E. coli* pada 30 cawan petri dianalisis menggunakan *One Way Anova* yang dilanjutkan *post-hoc Bonferroni*. Hasil penelitian ini menunjukkan pH soygurt yang terbentuk pada konsentrasi 20% (5,7), 40% (5,4), 60% (5,3) dan 80% (5,0). Penelitian ini menunjukkan terjadi penghambatan pertumbuhan *E. coli* pada konsentrasi 20%, 40%, 60%, 80% berturut-turut sebesar 99,76%, 99,92%, 99,99%, 99,99%. Uji *One Way Anova* menunjukkan $p=0,001$ ($p<0,005$), terdapat perbedaan pertumbuhan secara signifikan pada berbagai kelompok. Perbedaan terdapat pada konsentrasi 0% terhadap konsnetrasi 20%, 40%, 60% dan 80%. Penelitian ini menunjukkan semua konsentrasi dapat menghambat isolat *E. coli* penyebab diare, dengan konsnetrasi soygurt terendah adalah 20%.

Kata kunci : *E. coli*, BAL (*L. bulgaricus* dan *S. thermophilus*) soygurt, KHM

**ACTIVITY TEST OF LACTIC ACID BACTERIA (*Lactobacillus bulgaricus*
and *Streptococcus thermophilus*) SOYGURT IN INHIBITORY THE GROWTH
OF *Escherichia coli* ISOLATE CAUSE DIARRHEA**

Abstract

*Diarrhea was a disease that often occurred in toddlers to the elderly. Diarrhea sufferers' feces consistency would be more watery and the frequency would increase. According to WHO (2018), diarrhea was the main cause of death for children under five years old. The biggest cause of bacterial diarrhea was *E. coli*. Due to the use of antibiotics that could reduce the normal flora of the intestine, diarrhea could occur repeatedly. Conservation of normal intestinal flora was needed, that was by consuming fermented drinks such as soygurt. This study examined the behavior of lactic acid bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) soygurt in inhibiting the growth of *E. coli* isolates due to diarrhea. This study's focus was to determine the minimum inhibitory concentration (MIC) of soygurt in inhibiting *E. coli*. This study used an experimental method, measuring post-test results of work that would be compared with the control (0%). Testing bacteria was done by liquid dilution techniques. Data from counting *E. coli* colonies in 30 petri dishes were analyzed by using One Way Anova which continued with post-hoc Bonferroni. This study shows pH of soygurt formed in concentrations of 20% (5,7), 40% (5,4), 60% (5,3) and 80% (5,0). The growth inhibition of *E. coli* in concentrations of 20%, 40%, 60%, 80% is 99.76%, 99.92%, 99.99%, 99.99% respectively. One Way Anova test showed $p = 0,0001$ ($p < 0,005$), there were significant difference growth in the various groups. Differences are present on concentration of 0% against concentrations of 20%, 40%, 60%, and 60%. This study shows all concentrations can inhibit *E. coli* isolates that cause diarrhea, with lowest concentration of soygurt is 20%.*

Keyword : *E. coli*, LAB (*L.bulgaricus* and *S. thermophilus*) soygurt, MIC