

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

## ABSTRAK

Diare masih menjadi masalah kesehatan di negara berkembang, termasuk Indonesia. Diare yaitu perubahan konsistensi tinja akibat kandungan air di dalam tinja melebihi normal dengan peningkatan frekuensi buang air besar lebih dari tiga kali sehari. Salah satu upaya untuk mencegah diare yang disebabkan oleh bakteri patogen usus yaitu dengan mengkonsumsi minuman probiotik. Yoghurt merupakan minuman probiotik yang menguntungkan bagi kesehatan karena kandungan bakteri asam laktat. Penelitian ini bertujuan untuk menguji aktivitas bakteri asam laktat (*L. bulgaricus* dan *S. thermophilus*) yoghurt dalam menghambat pertumbuhan isolat *E. coli* penyebab diare. Penelitian ini merupakan *true experimental post test-only with control group design*. Untuk mengetahui penghambatan bakteri asam laktat terhadap *E. coli*, dilakukan pengontakan *E. coli* dengan berbagai konsentrasi yoghurt kemudian dilihat pertumbuhan koloni *E. coli* pada cawan yang berisi media *Eosin Methylen Blue Agar* (EMBA). Isolat bakteri *E. coli* yang digunakan diambil dari pasien diare dan telah diremajakan. Tiga puluh sampel pada penelitian ini terdiri dari 6 cawan kelompok kontrol dengan konsentrasi yoghurt 0%, dan kelompok perlakuan yang dibagi dalam beberapa konsentrasi yoghurt, yaitu 20%, 40%, 60%, 80%. Berdasarkan uji parametrik *one way anova*, hasil penelitian menunjukkan terdapat perbedaan bermakna antara pertumbuhan koloni *E. coli* dengan variasi konsentrasi yoghurt, dengan  $p= 0,000$  ( $p<0,05$ ). Sehingga dapat disimpulkan aktivitas bakteri asam laktat yoghurt dapat menghambat pertumbuhan isolat *E. coli*. Konsentrasi minum yang dapat menghambat kolonisasi *E. coli* yaitu 20% dengan angka penghambatan 99,39%.

---

**Kata kunci:** Bakteri asam laktat (*Lactobacillus bulgaricus* dan *Streptococcus thermophilus*) yoghurt, Bakteriosin, *Escherichia coli*, Penghambatan pertumbuhan *Escherichia coli*.

**TEST ACTIVITY OF LACTIC ACID BACTERIA (*Lactobacillus bulgaricus*  
AND *Streptococcus thermophilus*) YOGHURT IN SUPPRESSING THE  
GROWTH OF *Escherichia coli* ISOLATE CAUSING DIARRHEA**

**ABSTRACT**

*Diarrhea is still a health problem in developing countries, including Indonesia. Diarrhea is a change in stool consistency due to the water content in the stool exceeds normal with an increase in the frequency of defecation more than three times a day. One effort to prevent diarrhea caused by intestinal pathogenic bacteria is by consuming probiotic drinks. Yogurt is a probiotic drink that is beneficial to health because of the content of lactic acid bacteria. This study aimed to examine the activity of lactic acid bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) yogurt in inhibiting the growth of *Escherichia coli* isolates that caused diarrhea. This research was a true experimental posttest-only with control group design. To determine the inhibition of lactic acid bacteria against *E. coli*, *E. coli* contacting was carried out with various concentrations of yogurt and then seen the growth of *E. coli* colonies in dishes containing Eosin Methylene Blue Agar (EMBA) media. *E. coli* bacterial isolates used were taken from diarrhea patients and had been rejuvenated. Thirty samples in this study consisted of 6 control group dishes with 0% yogurt concentration, and the treatment group divided into several yogurt concentrations, namely 20%, 40%, 60%, 80%. Based on the one way anova parametric test, the results showed that there were significant differences between *E. coli* colony growth and variations in yogurt concentration, with  $p = 0,000$  ( $p < 0.05$ ). So that it can be concluded that the activity of yogurt lactic acid bacteria can inhibit the growth of *E. coli* isolates. The concentration of drinking which can inhibit *E. coli* colonization is 20% with an inhibition rate of 99.39%.*

---

**Keywords:** *Lactic acid bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) yogurt, *Escherichia coli*, Bacteriocin, Inhibition of *Escherichia coli* growth.*