

UJI BANDING EFEKTIVITAS BAKTERI ASAM LAKTAT YOGHURT SINGLE STRAIN DAN DOUBLE STRAIN DALAM MENGHAMBAT PERTUMBUHAN *Escherichia coli*

ABSTRAK

Escherichia coli merupakan flora normal pada saluran pencernaan manusia, namun apabila jumlahnya melebihi normal, *E. coli* akan bersifat patogen sehingga dapat menyebabkan diare. Salah satu upaya untuk menghambat pertumbuhan *E. coli* adalah dengan mengonsumsi yoghurt. Yoghurt dapat dibagi menjadi yoghurt *single strain* dan *double strain*. Penelitian ini bertujuan untuk mengetahui perbandingan efektivitas yoghurt *single strain* (*L. bulgaricus*) ; (*S. thermophilus*) dan *double strain* (*L. bulgaricus* dan *S. thermophilus*) dalam menghambat pertumbuhan *E. coli*. Penelitian ini merupakan penelitian *Quasi-experiental* dengan *post test only control group design*, dilakukan secara *in-vitro* dengan metode difusi sumuran. Jumlah perlakuan dalam penelitian ini adalah 13 perlakuan, dibagi menjadi kelompok kontrol, yoghurt *single strain* (*L. bulgaricus*) konsentrasi 20%, 40%, 60%, dan 80%, yoghurt *single strain* (*S. thermophilus*) konsentrasi 20%, 40%, 60%, dan 80%, dan yoghurt *double strain* (*L. bulgaricus* dan *S. thermophilus*) konsentrasi 20%, 40%, 60%, dan 80%, masing-masing perlakuan terdiri dari 3 sampel. Berdasarkan uji parametrik *one way anova*, terdapat perbedaan bermakna diameter zona hambat yoghurt terhadap *E. coli* pada minimal dua perlakuan. Dilanjutkan dengan uji *post hoc Bonferroni*, yoghurt *double strain* (*L. bulgaricus* dan *S. thermophilus*) sudah bisa menghambat pertumbuhan *E. coli* pada konsentrasi 20%, sedangkan yoghurt *single strain* (*L. bulgaricus*) baru mulai menghambat pertumbuhan *E. coli* pada konsentrasi 40% dan yoghurt *single strain* (*S. thermophilus*) baru mulai menghambat pertumbuhan *E. coli* pada konsentrasi 60%. Sehingga dapat disimpulkan bahwa yoghurt *double strain* (*L. bulgaricus* dan *S. thermophilus*) memiliki efektivitas yang lebih baik dalam menghambat pertumbuhan *E. coli* dibandingkan yoghurt *single strain* (*L. bulgaricus*) ; (*S. thermophilus*).

Kata kunci : Asam Laktat, *Escherichia coli*, *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, Yoghurt

**COMPARATIVE TEST ON THE EFFECTIVENESS OF LACTIC ACID
BACTERIA OF THE SINGLE STRAIN AND DOUBLE STRAIN YOGHURT
IN INHIBITING THE GROWTH OF *Escherichia coli***

ABSTRACT

Escherichia coli is a normal flora in the human digestive tract, but if the amount of *E. coli* exceeds normal, it will be pathogenic so that it can cause diarrhea. One of the efforts to inhibit the growth of *E. coli* is by consuming yogurt. Yogurt can be divided into single strain and multiple strain yogurt. This study aimed to determine the effectiveness of single-strain yogurt (*L. bulgaricus*); (*S. thermophilus*) and double strain yogurt (*L. bulgaricus* and *S. thermophilus*) in inhibiting the growth of *E. coli*. This research was a Quasi-experiential study with post test only control group design, conducted in-vitro with well diffusion method. The number of treatments in this study were 13 treatments, divided into control groups, single strain yogurt (*L. bulgaricus*) with concentrations of 20%, 40%, 60%, and 80%, single strain yogurt (*S. thermophilus*) with concentrations of 20%, 40%, 60%, and 80%, and double strain yoghurt (*L. bulgaricus* and *S. thermophilus*) with concentrations of 20%, 40%, 60%, and 80%, each treatment consisted of 3 samples. Based on the one way ANOVA parametric test, there are differences on the diameter of the inhibition zone of yogurt against *E. coli* in at least two treatments. Followed by Bonferroni's post hoc test, double strain yogurt (*L. bulgaricus* and *S. thermophilus*) starts to inhibit the growth of *E. coli* at a concentration of 20%, while single strain yogurt (*L. bulgaricus*) begins to inhibit the growth of *E. coli* at a concentration of 40% and single strain yogurt (*S. thermophilus*) starts to inhibit the growth of *E. coli* at a concentration of 60%. So it can be concluded that double strain yogurt (*L. bulgaricus* and *S. thermophilus*) has a better strength in inhibiting the growth of *E. coli* than single strain yogurt (*L. bulgaricus*); (*S. thermophilus*).

Keywords : Lactic acid, *Escherichia coli*, *Lactobacillus bulgaricus*, *Streptococcus thermophilus*, Yogurt