

UJI AKTIVITAS BAKTERI ASAM LAKTAT (*Lactobacillus bulgaricus* dan *Streptococcus thermophilus*) YOGHURT DALAM MENGHAMBAT PERTUMBUHAN BAKTERI *Streptococcus pyogenes* PENYEBAB IMPETIGO KRUSTOSA

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ABSTRAK

Impetigo krustosa merupakan infeksi kulit oleh bakteri *Streptococcus pyogenes* yang menjadi penyakit kulit tersering nomor tiga pada anak. Belakangan ini telah banyak produk-produk kesehatan kulit dengan berbahan dasar yoghurt yang dapat digunakan sebagai terapi pencegahan. Tujuan penelitian ini adalah untuk mengetahui aktivitas bakteri asam laktat (*Lactobacillus bulgaricus* dan *Streptococcus thermophilus*) yoghurt dalam menghambat pertumbuhan bakteri *Streptococcus pyogenes* penyebab impetigo krustosa. Penelitian ini merupakan penelitian eksperimental dengan metode *Posttest-only with Control Group Design*. *Streptococcus pyogenes* yang digunakan berasal dari balai lingkungan kerja Yogyakarta. Sampel terbagi dalam 10 kelompok konsentrasi 0%, 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, dan 45% kemudian dibandingkan kelompok pertumbuhan *Streptococcus pyogenes* konsentrasi 0% (kelompok kontrol) dengan kelompok perlakuan. Rancangan yang digunakan pada penelitian ini menggunakan metode Rancangan Acak Lengkap (RAL). Analisis data untuk menguji perbedaan bermakna konsentrasi yoghurt menggunakan Uji *One Way ANOVA* dan dilanjutkan dengan Uji *Post-Hoc Bonferroni*. Hasil Uji *One Way ANOVA* menunjukkan bahwa terdapat perbedaan yang signifikan karena nilai $p=0,000$ ($p<0,05$). Hasil Uji *Post-Hoc Bonferroni* tidak memiliki perbedaan yang signifikan karena memiliki nilai $p=1,000$ ($p>0,05$). Pada konsentrasi 5% dengan presentase penghambatan sebesar 99,35%, konsentrasi 10% dengan presentase penghambatan 99,50%, konsentrasi 15% dengan presentase penghambatan 99,60%, konsentrasi 20% dengan presentase penghambatan 95,65%, konsentrasi 25% dengan presentase penghambatan sebesar 99,69%, konsentrasi 30% dengan presentase penghambatan sebesar 99,71%, konsentrasi 35% dengan presentase penghambatan sebesar 99,75%, konsentrasi 40% dengan presentase penghambatan sebesar 99,77% dan konsentrasi 45% dengan presentase penghambatan sebesar 99,82%. Kesimpulan bakteri asam laktat (*Lactobacillus bulgaricus* dan *Streptococcus thermophiles* yoghurt dapat menghambat pertumbuhan *Streptococcus pyogenes* dan konsentrasi hambat minimum dalam menekan pertumbuhan *Streptococcus pyogenes* adalah 5%, karena pada konsentrasi tersebut mampu menghambat lebih dari 50% pertumbuhan *Streptococcus pyogenes*.

Kata kunci: Bakteri asam laktat, Efek antibakterial yoghurt, *Streptococcus pyogenes*.

**ACTIVITY TEST OF YOGHURT LACTIC ACID BACTERIA
(*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) INHIBITING THE
GROWTH OF *Streptococcus pyogenes* WHICH CAUSES IMPETIGO
CONTAGIOSA**

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ABSTRACT

Impetigo contagiosa is a skin infection by *Streptococcus pyogenes* bacteria which is the third most common disease in children. Lately there have been many skin health products made from yoghurt that can be used as preventive therapy. The purpose of this study was to determine the activity of lactic acid bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophilus*) yoghurt in inhibiting the growth of *Streptococcus pyogenes* bacteria that causes of impetigo contagiosa. This study is an experimental study with the Posttest- only with Control Group Design method. *Streptococcus pyogenes* used are from the Yogyakarta work environment center. Samples were divided into 10 concentration groups of 0%, 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, and 45% then compared to the growth group *Streptococcus pyogenes* concentration of 0% (control group) with treatment group. The design used in this study uses a Completely Randomized Design (CRD) method. Data analysis to test the significant differences in the concentration of yoghurt using the One Way ANOVA Test and continued by the Bonferroni Post-Hoc Test. One Way ANOVA Test results show that there are significant differences because the value of $p = 0,000$ ($p < 0.05$). Bonferroni Post-Hoc Test results did not have a significant difference because it has a value of $p = 1,000$ ($p > 0.05$). At 5% concentration with 99.35% inhibition percentage, 10% concentration with 99.50% inhibition percentage, 15% concentration with 99.60% inhibition percentage, 20% concentration with 95.65% inhibition percentage, 25% concentration with the percentage of inhibition of 99.69%, the concentration of 30% with the percentage of inhibition of 99.71%, the concentration of 35% with the percentage of inhibition of 99.75%, the concentration of 40% with the percentage of inhibition of 99.77% and the concentration of 45% with the percentage of inhibition by 99.82%. Conclusion Lactic acid bacteria (*Lactobacillus bulgaricus* and *Streptococcus thermophiles* yoghurt can inhibit the growth of *Streptococcus Pyogenes* and the minimum inhibitory concentration in suppressing the growth of *Streptococcus Pyogenes* is 5%, because at that concentration can inhibit more than 50% growth of *Streptococcus Pyogenes*.

Keywords: Lactic acid bacteria, yoghurt's antibacterial effect, *Streptococcus pyogenes*