

**UJI POTENSI MEDIA NUTRIENT BROTH DENGAN PENAMBAHAN
GLUKOSA 0,3% DAN TANPA GLUKOSA TERHADAP PERTUMBUHAN
BAKTERI *Klebsiella pneumoniae***

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ABSTRAK

Latar Belakang: Pertumbuhan *Klebsiella pneumoniae* dipengaruhi oleh ketersediaan nutrisi, terutama sumber karbon seperti glukosa. Media nutrient broth (NB) umum digunakan untuk peremajaan kultur, namun tidak selalu mengandung glukosa. Penambahan glukosa 0,3% diduga dapat meningkatkan pertumbuhan bakteri karena menyediakan sumber energi yang mudah dimetabolisme. Dalam praktik laboratorium, media yang mampu menghasilkan pertumbuhan cepat dan konsisten sangat dibutuhkan untuk efisiensi peremajaan kultur.

Tujuan: Penelitian ini bertujuan untuk mengetahui potensi media Nutrient Broth dengan penambahan glukosa 0,3% apakah mampu menumbuhkan bakteri *Klebsiella pneumoniae* dibandingkan dengan media Nutrient Broth tanpa glukosa.

Metode: Jenis penelitian ini adalah *quasi experimental* dengan desain *nonequivalent control group design*. Sampel penelitian berupa *Klebsiella pneumoniae* yang ditumbuhkan pada dua kelompok media, yaitu Nutrient Broth dengan glukosa 0,3% dan Nutrient Broth tanpa glukosa, masing-masing sebanyak 16 replikasi. Pertumbuhan bakteri diukur berdasarkan nilai kekeruhan menggunakan nephelometer pada waktu inkubasi jam ke-0, 4, 8, 12, 16, 20, 24, 28, 32, dan 36. Analisis data dilakukan menggunakan uji statistik yang sesuai berdasarkan distribusi data.

Hasil: Hasil penelitian menunjukkan bahwa pertumbuhan *Klebsiella pneumoniae* pada media Nutrient Broth dengan penambahan glukosa 0,3% memiliki nilai kekeruhan yang lebih tinggi dibandingkan media tanpa glukosa. Hasil uji menunjukkan nilai signifikansi (Sig. (2-tailed)) $p < 0,05$ ($0,000 < 0,05$), sehingga dapat disimpulkan bahwa media Nutrient Broth dengan glukosa 0,3% mampu menumbuhkan bakteri *Klebsiella pneumoniae* dibanding media Nutrient Broth tanpa glukosa.

Kesimpulan: Media Nutrient broth 0,3% berpotensi menumbuhkan bakteri *Klebsiella pneumoniae* dengan persentase efektifitas sebesar 188,41% atau sangat efektif.

Kata kunci: *Klebsiella pneumoniae*, Nutrient Broth, glukosa 0,3%, pertumbuhan bakteri, kekeruhan

**POTENTIAL TEST OF NUTRIENT BROTH MEDIA WITH THE ADDITION
OF 0.3% GLUCOSE AND WITHOUT GLUCOSE ON THE GROWTH OF
Klebsiella pneumoniae BACTERIA**

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ABSTRACT

Background: The growth of *Klebsiella pneumoniae* is influenced by the availability of nutrients, particularly carbon sources such as glucose. Nutrient broth (NB) is commonly used for culture rejuvenation, but it does not always contain glucose. The addition of 0.3% glucose is thought to enhance bacterial growth by providing an easily metabolized energy source. In laboratory practice, media capable of producing rapid and consistent growth is essential for efficient culture rejuvenation.

Objective: This study aimed to determine the potential of Nutrient Broth media with the addition of 0.3% glucose, whether it is able to grow *Klebsiella pneumoniae* bacteria compared to Nutrient Broth media without glucose.

Method: This type of research is a quasi-experimental with a nonequivalent control group design. The research sample was *Klebsiella pneumoniae* grown in two groups of media, namely Nutrient Broth with 0.3% glucose and Nutrient Broth without glucose, each with 16 replications. Bacterial growth was measured based on turbidity values using a nephelometer at incubation times of 0, 4, 8, 12, 16, 20, 24, 28, 32, and 36 hours. Data analysis was carried out using appropriate statistical tests based on data distribution.

Results: Showed that the growth of *Klebsiella pneumoniae* in Nutrient Broth with 0.3% glucose had higher turbidity values compared to the medium without glucose. The test results showed a significance value (Sig. (2-tailed)) $p < 0.05$ ($0.000 < 0.05$), so it can be concluded that Nutrient Broth media with 0.3% glucose is able to grow *Klebsiella pneumoniae* bacteria compared to Nutrient Broth media without glucose.

Conclusion: 0,3% Nutrient Broth media has the potential to grow *Klebsiella pneumoniae* bacteria with an effectiveness percentage of 188,41% or very effective.

Keywords: *Klebsiella pneumoniae*, Nutrient Broth, 0.3% glucose, bacterial growth, turbidity