PENGARUH PENAMBAHAN $FeCl_3$ PADA MEDIA MAC CONKEY AGAR TERHADAP JUMLAH KOLONI BAKTERI *Klebsiella Pneumoniae*

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ABSTRAK

Latar belakang : Bakteri *klebsiella pneumoniae* adalah bersifat gram negatif yang menjadi agen penyebab penyakit nosokomial dan sepsis. Pertumbuhan bakteri dipengaruhi oleh ketersediaan zat besi (Fe) yang berperan dalam metabolisme dan pembelahan sel. $FeCl_3$ dapat digunakan sebagai sumber ion Fe^{3+} yang mendukung pertumbuhan bakteri. Penelitian mengenai pengaruh penambahan $FeCl_3$ terhadap jumlah koloni bakteri *Klebsiella pneumoniae* pada media MacConkey Agar masih terbatas.

Tujuan penelitian: Mengetahui pengaruh penambahan $FeCl_3$ pada media Mac Conkey Agar terhadap jumlah koloni bakteri Klebsiella pneumoniae

Metode Penelitian: Penelitian ini menggunakan desain eksperimen sejati atau *true experimental* dengan pendekatan rancangan acak lengkap (RAL). Isolat *Klebsiella pneumoniae* ditanam pada media MacConkey Agar dengan variasi konsentrasi $FeCl_3$ 0 µM, 10 µM, 30 µM, dan 50 µM, masing-masing enam kali pengulangan. Media diinkubasi pada suhu 37°C selama 24 jam, perhitungan jumlah koloni (CFU/ml) dilakukan dengan alat *colony counter*. Data dianalisis menggunakan uji Shapiro-Wilk dan One Way ANOVA.

Hasil Penelitian: Hasil statistik One Way ANOVA menunjukkan nilai signifikansi sebesar 0,405 ($p > 0,05$), yang berarti penambahan $FeCl_3$ pada konsentrasi 10 µM, 30 µM, dan 50 µM tidak berpengaruh signifikan terhadap jumlah koloni (CFU/mL) *Klebsiella pneumoniae* dibandingkan kelompok kontrol.

Kesimpulan: Penambahan $FeCl_3$ pada media MacConkey Agar tidak berpengaruh signifikan terhadap jumlah koloni (CFU/mL) *Klebsiella pneumoniae*. Media MacConkey Agar standar sudah cukup efektif untuk mendukung pertumbuhan bakteri tanpa penambahan $FeCl_3$.

Kata Kunci: $FeCl_3$, *Klebsiella pneumoniae*, MacConkey Agar, Jumlah koloni.

THE EFFECT OF $FeCl_3$ ADDITION TO MACCONKEY AGAR ON THE COLONY COUNT OF *Klebsiella pneumoniae*

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ABSTRACT

Background : *Klebsiella pneumoniae* is a gram negative bacterium that is the causative agent of nosocomial infections and sepsis. Bacterial growth is influenced by the availability of iron (Fe), which plays a role in metabolism and cell division. $FeCl_3$ can be used as a source of Fe^{3+} ions, which support bacterial growth. Research on the effect of $FeCl_3$ addition on the number of K. pneumoniae colonies on MacConkey Agar media is still limited

Objective: To determine the effect of adding $FeCl_3$ to Mac Conkey Agar media on the number of *Klebsiella pneumoniae* bacterial colonies.

Methods: This research uses a true experimental design with a completely randomized design (CRD) approach. *Klebsiella pneumoniae* isolates were grown on MacConkey Agar with varying $FeCl_3$ concentrations of 0 µM, 10 µM, 30 µM, and 50 µM, each replicated six times. Following incubation at 37°C for 24 hours, bacterial growth was quantified by determining colony counts (CFU/mL) using a colony counter. Data analysis was conducted using the Shapiro–Wilk normality test followed by One-Way ANOVA.

Results: One Way ANOVA results test showed a significance value of 0.405 ($p > 0.05$), which means that the addition of $FeCl_3$ at concentrations of 10 µM, 30 µM, and 50 µM did not cause a significant difference in Klebsiella pneumoniae colony counts (CFU/mL) compared to those observed in the control group.

Conclusion: The addition of $FeCl_3$ to MacConkey Agar medium did not significantly affect the colony count (CFU/mL) of *Klebsiella pneumoniae*. Standard MacConkey Agar medium was effective enough to support bacterial growth without the addition of $FeCl_3$.

Kata Kunci: $FeCl_3$, *Klebsiella pneumoniae,* MacConkey Agar, Colony Count