

ABSTRAK

KHARISMA NAWANG DIVAYANTI
VISUALISASI OUTER MEMBRANE PROTEIN BAKTERI *Pseudomonas aeruginosa* DENGAN PERBANDINGAN METODE ISOLASI TRITON X – 100 DAN SARCOSYL MENGGUNAKAN SDS-PAGE
xiii + 43 Halaman + 2 Tabel + 10 Lampiran

Bakteri *Pseudomonas aeruginosa* merupakan patogen oportunistik gram-negatif yang memiliki resistensi tinggi terhadap antibiotik. Outer membrane protein (OMP) dari bakteri ini memiliki peranan penting dalam proses patogenitas dan dapat menjadi target dalam diagnosis maupun terapi. Penelitian ini bertujuan untuk membandingkan efektivitas surfaktan Triton X-100 dan Sarcosyl dalam proses isolasi OMP serta menganalisis profil protein menggunakan metode SDS-PAGE. Proses isolasi dilakukan melalui beberapa tahap, yaitu sonikasi, pemurnian dengan ammonium sulfat 70%, dan elektroforesis gel poliakrilamid. Hasil elektroforesis menunjukkan bahwa isolat crude menggunakan Triton X-100 menghasilkan enam pita protein, sedangkan Sarcosyl hanya menghasilkan tiga pita. Namun, setelah proses pemurnian, tidak ditemukan pita protein pada kedua metode. Hasil ini menunjukkan bahwa Triton X-100 memberikan visualisasi protein yang lebih banyak dan intens dibandingkan Sarcosyl. Perbedaan ini dipengaruhi oleh sifat kimia masing-masing surfaktan dalam melisiskan membran luar bakteri.

Kata kunci: *Pseudomonas aeruginosa*, outer membrane protein (OMP), Triton X-100, Sarcosyl, SDS-PAGE, isolasi protein

Daftar bacaan: 23 buku (2010–2023)

ABSTRACT

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VISUALIZATION OF OUTER MEMBRANE PROTEINS OF Pseudomonas aeruginosa USING SDS-PAGE WITH A COMPARISON OF TRITON X-100 AND SARCOSYL ISOLATION METHODS

xiii + 43 Pages + 2 Tables + 10 Appendices

Pseudomonas aeruginosa is a Gram-negative opportunistic pathogen known for its high antibiotic resistance. The bacterium's outer membrane proteins (OMPs) play a crucial role in its pathogenicity and serve as potential targets for diagnostic and therapeutic applications. This study aims to compare the effectiveness of the surfactants Triton X-100 and Sarcosyl in isolating OMPs and to analyze the protein profiles using the SDS-PAGE method. The isolation process involved several steps, including sonication, purification with 70% ammonium sulfate, and polyacrylamide gel electrophoresis. The electrophoresis results showed that crude isolates treated with Triton X-100 produced six protein bands, whereas Sarcosyl-treated isolates yielded only three bands. However, no protein bands were observed after the purification process with either method. These findings indicate that Triton X-100 resulted in more abundant and intense protein visualization compared to Sarcosyl. The difference is attributed to the chemical properties of each surfactant in lysing the bacterial outer membrane.

Keywords: *Pseudomonas aeruginosa, outer membrane protein (OMP), Triton X-100, Sarcosyl, SDS-PAGE, protein isolation*

References: *23 books (2010–2023)*