

## ABSTRAK

*Outer Membrane Protein* (OMP) berperan penting dalam proses adhesi dan invasi ke sel inang pada bakteri gram negatif salah satunya bakteri *Klebsiella pneumoniae*. Ekstraksi untuk mendapatkan target isolat melalui sonikasi. Ekstrak kasar dimurnikan menggunakan Ammonium sulfat dengan kelebihan daya larut yang tinggi dan sering digunakan untuk proses pemurnian protein. Tujuan penelitian adalah untuk mengetahui pengaruh pemurnian Ammonium sulfat terhadap visualisasi pita protein pada elektroforesis menggunakan metode SDS – PAGE. Jenis penelitian menggunakan eksperimental laboratorium. Bahan uji berupa isolat bakteri murni *Klebsiella pneumoniae* dari BBLK Surabaya. Penelitian dilakukan di ITD Surabaya pada bulan Oktober – Mei 2024. Bahan uji dimurnikan menggunakan Ammonium sulfat dengan variasi konsentrasi 10%, 20%, 30%, dan 40%. Hasil penelitian berupa variasi pita protein dengan berat molekul yang berbeda pada setiap perlakuan setelah dilakukan elektroforesis SDS - PAGE. Ekstrak kasar atau *crude* tanpa replikasi terdapat 10 pita yang terlihat jelas, pemurnian 10% terdapat 13 pita dari akumulasi 6 replikasi, pemurnian 20% terdapat 2 pita yang terlihat samar, sedangkan pemurnian 30% dan 40% tidak didapatkan pita. Hasil pita protein diukur berat molekul dan dianalisa visualisasinya menggunakan aplikasi *Gel Analyzer 23.1*. Berdasarkan hasil uji regresi linear pada aplikasi *Gel Analyzer*, nilai R square sebesar 0,946 dan 0,975, sehingga kesimpulan dari penelitian ini adalah terdapat pengaruh pemurnian protein dengan variasi konsentrasi Ammonium sulfat terhadap visualisasi OMP bakteri *Klebsiella pneumoniae* pada metode SDS – PAGE.

**Kata Kunci** : *Klebsiella pneumoniae*, *Outer Membrane Protein* (OMP), Ammonium sulfat, SDS - PAGE

## **ABSTRACT**

*Outer Membrane Proteins (OMP) play an important role in the process of adhesion and invasion of host cells in gram-negative bacteria including Klebsiella pneumoniae. Extraction to obtain target isolates by sonication. The crude extract is purified using Ammonium sulfate with high excess solubility and is often used for protein purification. The purpose of the study was to determine the effect of Ammonium sulfate purification on protein band visualization on electrophoresis using the SDS–PAGE method. Type of research using laboratory experiments. The test material is a pure bacterial isolate of Klebsiella pneumoniae from BBLK Surabaya. The material was purified with variation in the concentration of Ammonium sulfate 10%, 20%, 30%, and 40%. Research was conducted at ITD Surabaya in October – May 2024. The results of the study were variations in protein bands with different molecular weights on each treatment after electrophoresis SDS – PAGE running. Unreplicated crude extract contains 10 clearly visible bands, 10% purification of 13 bands from accumulated 6 replicates, 20% purification of 2 faintly visible bands, while 30% and 40% purification are not obtained. Protein band results are measured by molecular weight and visualized using the Gel Analyzer 23.1 application. Based on the regression results of the Gel Analyzer application, R squared values of 0.946 and 0.975, so the conclusion of this study is that there is an effect of purifying proteins with variations in Ammonium sulfate concentration on the Klebsiella pneumoniae OMP visualization of the SDS–PAGE method.*

**Keywords:** *Klebsiella pneumoniae, Outer Membrane Protein (OMP), Ammonium sulfate, SDS – PAGE*