

ABSTRAK

Intan Verdiani

DETEKSI GEN *blaZ* SEBAGAI PENYANDI RESISTENSI PENISILIN PADA BAKTERI *Staphylococcus aureus* DARI URINE PASIEN INFEKSI SALURAN KEMIH

xv + 54 Halaman + 6 Tabel + 14 Lampiran

Infeksi saluran kemih (ISK) merupakan salah satu infeksi bakteri yang paling umum terjadi dan sering kali disebabkan oleh berbagai jenis bakteri. Dalam beberapa tahun terakhir, prevalensi *Staphylococcus aureus* pada kasus ISK menunjukkan peningkatan, seiring meningkatnya resistensi terhadap antibiotik, terutama golongan β -laktam seperti penisilin. Penelitian ini bertujuan untuk mendeteksi gen *blaZ* yang berperan dalam resistensi penisilin pada *S. aureus* yang diisolasi dari urine pasien ISK.

Penelitian ini dilakukan pada bulan November hingga Mei 2025 menggunakan desain deskriptif kuantitatif. Sebanyak 100 bahan uji urine pasien ISK diperoleh dari RSPAL Dr. Ramelan Surabaya. Identifikasi bakteri dilakukan di Laboratorium Mikrobiologi RSPAL Dr. Ramelan menggunakan alat Vitek 2 Compact. Uji resistensi fenotipik terhadap penisilin G dilakukan di Laboratorium Bakteriologi Jurusan TLM Poltekkes Kemenkes Surabaya menggunakan metode difusi cakram Kirby-Bauer. Deteksi gen *blaZ* dilakukan secara genotipik menggunakan metode Real-Time PCR di Laboratorium Biologi Molekuler TLM Poltekkes Kemenkes Surabaya.

Hasil penelitian menunjukkan bahwa dari lima isolat *Staphylococcus aureus* yang resisten secara fenotipik terhadap penisilin G, hanya tiga isolat (60%) yang positif membawa gen *blaZ*. Hal ini menunjukkan bahwa tidak semua resistensi terhadap penisilin G disebabkan oleh gen *blaZ*, sehingga dimungkinkan adanya keterlibatan gen lain atau mutasi genetik yang mendasari resistensi pada isolat lainnya.

Kata kunci: Infeksi Saluran Kemih, *Staphylococcus aureus*, *blaZ*.

Daftar Bacaan: 62 Buku (2015 - 2024)

ABSTRACT

Intan Verdiani

Detection of the blaZ gene as a Penicillin Resistance Determinant in Staphylococcus aureus from the Urine of Patients with Urinary Tract Infections

xv + 54 Pages + 6 Tables + 14 Appendices

Urinary tract infection (UTI) is one of the most common bacterial infections and is often caused by various types of bacteria. In recent years, the prevalence of Staphylococcus aureus in UTI cases has increased, along with rising resistance to antibiotics, particularly the β -lactam group such as penicillin. This study aimed to detect the blaZ gene, which plays a role in penicillin resistance in S. aureus isolated from the urine of UTI patients.

This study was conducted from November to May 2025 using a descriptive quantitative design. A total of 100 urine samples from UTI patients were obtained from RSPAL Dr. Ramelan Surabaya. Bacterial identification was carried out at the Microbiology Laboratory of RSPAL Dr. Ramelan using the Vitek 2 Compact system. Phenotypic resistance testing against penicillin G was performed at the Bacteriology Laboratory of the Department of Medical Laboratory Technology, Poltekkes Kemenkes Surabaya using the Kirby-Bauer disc diffusion method. Genotypic detection of the blaZ gene was carried out using the Real-Time PCR method at the Molecular Biology Laboratory of the same department.

The results showed that out of five Staphylococcus aureus isolates phenotypically resistant to penicillin G, only three isolates (60%) were positive for the blaZ gene. This indicates that not all penicillin G resistance is caused by the blaZ gene, suggesting the possible involvement of other resistance genes or genetic mutations underlying the resistance in the remaining isolates

Keywords: Urinary Tract Infection, Staphylococcus aureus, blaZ.

References: 62 Books (2015 - 2024)