

ABSTRAK

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DETEKSI GEN NUC PADA *Staphylococcus aureus* DARI URINE PENDERITA INFEKSI SALURAN KEMIH (ISK) DENGAN METODE PCR

xvi + 95 Halaman + 6 Tabel + 12 Lampiran

Infeksi Saluran Kemih (ISK) merupakan salah satu infeksi yang paling sering dijumpai di masyarakat dengan prevalensi yang cukup tinggi dan disebabkan oleh berbagai mikroorganisme, termasuk bakteri *Staphylococcus aureus*. Strain *Staphylococcus aureus* menghasilkan gen *Nuc*, yaitu gen yang mengkode enzim termonuklease atau enzim tahan panas dan sering digunakan sebagai target spesifik dalam mendeteksi keberadaan *Staphylococcus aureus* melalui metode PCR (*Polymerase Chain Reaction*). Penelitian ini bertujuan untuk mendeteksi gen *Nuc* sebagai penanda spesifik pada *Staphylococcus aureus* yang diisolasi dari urin penderita infeksi saluran kemih.

Penelitian dilakukan selama bulan April hingga Mei 2025 dengan desain penelitian deskriptif kuantitatif dan pengambilan sampel dilakukan secara *purposive sampling*. Sebanyak 30 sampel urin dari penderita infeksi saluran kemih diidentifikasi di Laboratorium Mikrobiologi RSPAL dr. Ramelan Surabaya menggunakan alat *Vitek 2 Compact*. Deteksi gen *Nuc* dilakukan dengan metode PCR konvensional menggunakan elektroforesis gel agarose di Laboratorium Biologi Molekuler Poltekkes Kemenkes Surabaya.

Hasil menunjukkan bahwa dari 30 sampel urin ISK yang diidentifikasi, terdapat 5 sampel urin yang positif teridentifikasi *Staphylococcus aureus*. Kelima sampel tersebut lalu dilanjutkan dengan deteksi gen *Nuc* menggunakan metode PCR konvensional dan didapatkan hasil bahwa kelima sampel urin penderita ISK yang telah teridentifikasi *Staphylococcus aureus* tersebut, seluruhnya menunjukkan hasil positif mengandung gen *Nuc* dengan presentase 100%. Hal ini mengindikasikan bahwa gen *Nuc* merupakan penanda molekuler yang sensitif dan spesifik dalam mendeteksi keberadaan *Staphylococcus aureus* pada sampel urin klinis penderita ISK.

Kata kunci : Infeksi Saluran Kemih, *Staphylococcus aureus*, *Gen Nuc*.

Daftar bacaan : 17 buku (2013-2024), 49 jurnal (2015-2024)

ABSTRACT

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DETECTION OF THE NUC GENE IN Staphylococcus aureus FROM THE URINE OF PATIENTS WITH URINARY TRACT INFECTION (UTI) USING THE PCR METHOD

xvi + 95 Pages + 6 Tables + 12 Appendices

Urinary Tract Infection (UTI) is one of the most common infections in the community with a fairly high prevalence and is caused by various microorganisms, including Staphylococcus aureus bacteria. Staphylococcus aureus strains produce the Nuc gene, a gene that encodes a thermonuclease enzyme or a heat-resistant enzyme and is often used as a specific target in detecting the presence of Staphylococcus aureus through the PCR (Polymerase Chain Reaction) method. This study aims to detect the Nuc gene as a specific marker in Staphylococcus aureus isolated from the urine of patients with urinary tract infections.

The study was conducted from April to May 2025, using a quantitative descriptive design and sampling was carried out using purposive sampling. Thirty urine samples from patients with urinary tract infections were identified in the Microbiology Laboratory of dr. Ramelan Central Naval Hospital, Surabaya, using the Vitek 2 Compact. Nuc gene detection was performed using conventional PCR using agarose gel electrophoresis at the Molecular Biology Laboratory of the Ministry of Health Polytechnic of Surabaya.

The results showed that of the 30 UTI urine samples identified, five tested positive for Staphylococcus aureus. These five samples were then further tested for Nuc gene detection using conventional PCR methods, and the results showed that all five urine samples from UTI patients identified as Staphylococcus aureus showed positive results for the Nuc gene with a percentage of 100%. This indicates that the Nuc gene is a sensitive and specific molecular marker in detecting the presence of Staphylococcus aureus in clinical urine samples from UTI patients.

Keywords : Urinary Tract Infection, Staphylococcus aureus, Nuc Gene.

References : 17 books (2013-2024), 49 journals (2015-2024)