

ABSTRAK

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Deteksi Gen *nuc* (*nuclease*) Bakteri *Methicillin Resistent Staphylococcus aureus* (MRSA) pada Sampel Ulkus Diabetikum

xv + 64 Halaman + 8 Tabel + 14 Lampiran

Ulkus diabetikum merupakan salah satu komplikasi yang disebabkan oleh diabetes mellitus. Kondisi dimana terdapat abses atau luka pada kaki yang diakibatkan karena tekanan yang berulang. Ulkus dapat disebabkan adanya bakteri pathogen yang masuk kedalam luka. Keadaan ini diperparah dengan tingginya glukosa dalam darah yang menjadi nutrisi bakteri untuk berkembang biak. Bakteri *Staphylococcus aureus* menjadi salah satu bakteri penyebab infeksi pada ulkus. *Methicillin Resistent Staphylococcus aureus* (MRSA) bakteri yang kebal terhadap antibiotik golongan *methicillin*. Bakteri ini memiliki salah satu faktor virulensi yaitu gen *nuc* (*nuclease*) yang mengkode enzim thermonuklease, enzim yang tahan panas dan memiliki kemampuan mengdegradasi DNA dan membunuh fagosit dalam tubuh.

Penelitian ini bertujuan untuk mendeteksi keberadaan gen *nuc* (*nuclease*) pada bakteri *Methicillin Resistent Staphylococcus aureus* (MRSA) pada pasien penderita ulkus diabetikum. Jenis penelitian yaitu deskriptif kuantitatif dengan menggunakan rancangan *cross-sectional*. Sebanyak 30 sampel ulkus diabetikum diambil di Rumah Rawat Luka Diabetes Surabaya. Penelitian dilakukan pada bulan April-Mei 2025. Identifikasi dan uji sensitivitas antibiotik dilakukan secara fenotip dan deteksi gen *nuc* (*nuclease*) dilakukan dengan metode PCR konvensional dengan amplicon sebesar 279bp.

Hasil penelitian menunjukkan bahwa dari 30 sampel swab ulkus diabetikum yang diisolasi dan diidentifikasi fenotip didapatkan 19 positif *Staphylococcus aureus* dan dilakukan uji sensitivitas antibiotic didapatkan 6 (31,6%) positif *Methicillin Resistant Staphylococcus aureus* (MRSA). Dari 6 sampel MRSA ditemukan sebanyak 3(50%) positif gen *nuc* (*nuclease*).

Kata Kunci : MRSA, Ulkus Diabetikum, Gen *nuc* (*nuclease*), PCR Konvensional
Daftar Bacaan : 15 Buku dan 42 Jurnal (2014-2024)

ABSTRACT

Ari Fajar Lestari

Detection of the nuc (nuclease) gene of methicillin-resistant Staphylococcus aureus (MRSA) bacteria in diabetic ulcer samples

xv + 64 Pages + 8 Tables + 14 Appendices

Diabetic ulcers are one of the complications caused by diabetes mellitus. A condition where there is an abscess or wound on the foot caused by repeated pressure. Ulcers can be caused by pathogenic bacteria entering the wound. This condition is exacerbated by high blood glucose which is a nutrient for bacteria to grow. Staphylococcus aureus bacteria are one of the bacteria that cause ulcer infections. Methicillin Resistant Staphylococcus aureus (MRSA) bacteria are resistant to methicillin antibiotics. These bacteria have one of the virulence factors, namely the nuc (nuclease) gene which encodes the thermonuclease enzyme, a heat-resistant enzyme that has the ability to degrade DNA and kill phagocytes in the body.

This study aims to detect the presence of the nuc (nuclease) gene in Methicillin Resistant Staphylococcus aureus (MRSA) bacteria in patients with diabetic ulcers. The type of research is descriptive quantitative using a cross-sectional design. A total of 30 diabetic ulcer samples were taken at the Surabaya Diabetes Wound Care Home. The study was conducted in April-May 2025. Identification and antibiotic sensitivity testing were carried out phenotypically and detection of the nuc (nuclease) gene was carried out using the conventional PCR method with an amplicon of 279bp.

The results showed that of the 30 diabetic ulcer swab samples that were isolated and identified phenotypically, 19 were positive for Staphylococcus aureus and antibiotic sensitivity testing showed that 6 (31.6%) were positive for Methicillin Resistant Staphylococcus aureus (MRSA). Of the 6 MRSA samples, 3 (50%) were positive for the nuc (nuclease) gene.

Keyword : MRSA, Diabetic Ulcer, nuc (nuclease) gene, Conventional PCR

Reference : 15 Books and 42 Journals (2014-2024)