

## ABSTRAK

Diabetes merupakan penyakit yang diakibatkan terganggunya metabolisme karbohidrat, protein dan lemak sehingga menimbulkan komplikasi seperti ulkus diabetikum. Salah satu bakteri yang berpotensi menginfeksi ulkus pada penderita diabetes yang disertai pus atau nanah adalah *Staphylococcus aureus* yang dapat menjadi lebih virulen jika terjadi resisten antibiotik seperti metisilin atau MRSA (*Methicillin-Resistant Staphylococcus aureus*). Selain resisten, *S. aureus* juga memiliki faktor virulensi lain seperti toksin TSST-1 (*Toxic Shock Syndrome Toxin-1*). Menimbang hal tersebut, penelitian bertujuan mengetahui faktor virulensi TSST-1 pada bakteri MRSA dari pasien ulkus diabetikum.

Jenis penelitian ini adalah deskriptif kuantitatif dengan rancangan penelitian *post test design*. Penelitian ini dilakukan di Rumat Spesialis Luka Diabetes Cabang Dharmahusada dan Banyu Urip, Surabaya untuk pengumpulan sampel swab ulkus diabetikum; di Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Surabaya, Laboratorium Bakteriologi untuk isolasi dan identifikasi bakteri MRSA dan Laboratorium Biologi Molekuler untuk deteksi gen *tst* pengkode TSST-1 pada MRSA pada bulan April-Mei 2022. Teknik analisa data dilakukan dengan membandingkan karakter koloni MRSA dan nilai CT serta analisa kurva yang dihasilkan pada RT PCR.

Hasil penelitian menunjukkan dari 30 sampel swab ulkus diabetikum melalui isolasi *S. aureus* terdapat 12 sampel positif dan dilanjutkan pada identifikasi MRSA metode fenotipe yang menunjukkan 8 sampel (26,6%) terinfeksi MRSA. Pada sampel yang terinfeksi MRSA dilanjutkan pada deteksi gen *tst* pengkode TSST-1 metode RT-PCR menunjukkan 7 sampel (87%) terdeteksi gen *tst*. Sedangkan sisanya yaitu 22 sampel (73,4 %) dari 30 sampel swab ulkus diabetikum tidak terinfeksi MRSA dan 1 sampel (13%) dari 8 sampel terinfeksi MRSA tidak terdeteksi gen *tst* pengkode TSST-1.

**Kata kunci:** ulkus diabetikum, MRSA, gen *tst* pengkode TSST-1.

## ABSTRACT

Diabetes is a disease caused by abnormalities of carbohydrate, protein and fat metabolism, causing complications such as diabetic ulcers. One of the bacteria that has the potential to infect diabetic ulcers by pus is *Staphylococcus aureus* which has the potential to be more virulent if antibiotic resistance occurs such as methicillin or called MRSA (Methicillin-Resistant *Staphylococcus aureus*). Besides being resistant, *S. aureus* also has other virulence factors such as toxins, especially TSST-1 (Toxic Shock Syndrome Toxin-1). The aim of research is to determine the presence of the virulence factor TSST-1, which is encoded by the *tst* gene, in MRSA bacteria from diabetic ulcer patients.

This type of research is descriptive quantitative with post test design and observation data analysis method. This research is taken at the Dharmahusada and Banyu Urip Unit, Clinical Specialist Diabetes Wound Care, Surabaya for the collection of diabetic ulcer swab samples; at the Department of Medical Laboratory Technology, Health Polytechnic Ministry of Health Surabaya, Bacteriology Laboratory for the isolation and identification of MRSA bacteria and Molecular Biology Laboratory for the detection of the TSST-1 gene coding for MRSA in April-May 2022. The data analysis technique by compare the character of the MRSA colony and the CT value and curve by RT PCR.

The results of research that from 30 samples of diabetic ulcer swabs of the isolation of *S. aureus*, there were 12 samples positive and then the identification of MRSA phenotype method, there were 8 samples (26.6%) infected with MRSA. In samples who infected MRSA, the detection of the *tst* gene encoding TSST-1 using the RT-PCR method, which found 7 samples (87%) detected the *tst* gene. While the another 22 samples (73.4%) were not infected with MRSA and 1 sample (13%) not detect the *tst* gene encoding TSST-1.

**Keywords:** diabetic ulcer, MRSA, *tst* gene coding TSST-1.