

ABSTRAK

Infeksi Saluran Kemih (ISK) menjadi salah satu penyakit infeksi yang sering dijumpai di masyarakat. ISK adalah suatu kondisi dimana terdapat mikroorganismenya pada saluran kemih yang ditandai dengan adanya kolonisasi bakteri di dalam saluran kemih. *Escherichia coli* menjadi salah satu penyebab yang paling sering menginfeksi saluran kemih. Hal ini dikarenakan *E. coli* memiliki faktor virulensi yang dapat meningkatkan kolonisasi dan invasi bakteri ke dalam saluran kemih untuk menyebabkan infeksi. *Escherichia coli* diketahui mampu menghasilkan *Extended Spectrum Beta-Lactamases* (ESBLs) yang dapat mengakibatkan bakteri penghasil bersifat resisten terhadap antibiotik beta laktam. ESBLs ini dikode oleh beberapa gen salah satunya adalah gen *Sulphydryl Variable* (SHV).

Tujuan penelitian ini untuk mendeteksi adanya gen SHV pada *Escherichia coli* penghasil *Extended Spectrum Beta Lactamases* (ESBLs) dari sampel urin pasien penderita Infeksi Saluran Kemih (ISK) menggunakan metode *Polymerase Chain Reaction* (PCR). Penelitian ini dilakukan pada bulan April-Mei 2022 di Laboratorium Bakteriologi Poltekkes Surabaya Jurusan Teknologi Laboratorium Medis dan Balai Besar Laboratorium Kesehatan Surabaya. Sampel urin ISK diperoleh dari RSPAL Dr. Ramelan Surabaya. Jenis penelitian ini adalah *Descriptive Laboratorik*.

Hasil penelitian ini dari 30 sampel urin 14 diantaranya teridentifikasi sebagai *Escherichia coli* (46%), uji skrining ESBLs memperoleh 2 sampel kode S3 dan S24 resisten terhadap antibiotik *ceftriaxone* dan *cefataxime*, uji konfirmasi ESBLs menggunakan metode *Double Disk Sinergy Test* (DDST) diperoleh sampel kode S3 menghasilkan ESBLs. Hasil uji PCR sampel kode S3 negatif gen SHV.

Kata Kunci : ISK, *E.coli*, ESBLs, gen SHV.

ABSTRACT

Urinary tract infection (UTI) is one of the infectious diseases that are often found in the community. UTI is a condition in which there are microorganisms in the urinary tract characterized by bacterial colonization in the urinary tract. *Escherichia coli* becomes one of the most frequent causes of infecting the urinary tract. This is due to *E. coli* has virulence factors that can increase the colonization and invasion of bacteria into the urinary tract to cause infection. *Escherichia coli* is known to be able to produce *Extended Spectrum Beta-Lactamases* (ESBL_s) which can result in producing bacteria that are resistant to beta lactam antibiotics. ESBL_s is encoded by several genes, one of which is the *Sulphydryl Variable* (SHV) gene.

The purpose of this study was to detect the presence of SHV gene in *Escherichia coli* producing *Extended Spectrum Beta Lactamases* (ESBL_s) from urine samples of patients with urinary tract infection (UTI) using *Polymerase Chain Reaction* (PCR) method. This research was conducted in April-May 2022 at the Bacteriology Laboratory of Poltekkes Surabaya Department of Medical Laboratory Technology and the Surabaya Health Laboratory Center. UTI urine sample obtained from RSPAL Dr. Ramelan Surabaya. This type of research is *Descriptive Laboratory*.

The results of this study from 30 urine samples, 14 of which were identified as *Escherichia coli* (46%), ESBL_s screening test obtained 2 samples of S3 and S24 codes resistant to *ceftriaxone* and *cefataxime* antibiotics, ESBL_s confirmation test using *Double Disck Synergy Test* (DDST) method was obtained by S3 code samples to produce ESBL_s. PCR test results of S3 code sample negative SHV gene.

Keywords: UTI, *E.coli*, ESBL_s, SHV gene.