

ABSTRAK

Infeksi saluran kemih (ISK) adalah proses inflamasi pada saluran kemih akibat pertumbuhan mikroorganisme dalam jumlah yang tidak normal seperti bakteri dan jamur. Bakteri *E.coli* penghasil ESBL merupakan penyebab tersering terjadinya ISK. Bakteri ini menghasilkan enzim *Beta Lactamase* karena adanya gen pengkode ESBL. Salah satu gen ESBL yang dapat mengakuisisi antibiotik golongan *Beta Lactam* yakni gen Cefotaxim Munich (CTX-M). Pemeriksaan genotipe ESBL saat ini dibutuhkan untuk memonitoring penggunaan antibiotik. Tujuan penelitian ini untuk mengetahui keberadaan gen Cefotaxim Munich (CTX-M) pada bakteri *E.coli* penghasil ESBL dari urine penderita ISK di RSPAL Dr. Ramelan Surabaya. Jenis penelitian yang digunakan adalah deskriptif kuantitatif dengan desain *cross sectional study*. Penelitian ini dilakukan di Laboratorium Bakteriologi dan Biologi Molekuler Jurusan Teknologi Laboratorium Medis Poltekkes Kemenkes Surabaya pada bulan Maret-Mei 2023 menggunakan instrument *Real Time - Polymerase Chain Reaction* (PCR). Hasil penelitian yang telah dilakukan dari total sampel 30 urine penderita ISK ditemukan sebanyak 70% (21/30) teridentifikasi sebagai *E.coli* penghasil ESBL secara fenotipe, dan sebanyak 90,48% (19/21) terdeteksi adanya gen CTX-M. Kesimpulan pada penelitian ini ditemukan adanya gen CTX-M sebanyak 90,48%.

Kata Kunci : *Escherichia coli*; ESBL; Gen Cefotaxime (CTX-M); RT-PCR

ABSTRACT

Urinary tract infection (UTI) is an inflammatory process in the urinary tract due to abnormal growth of microorganisms such as bacteria and fungi. ESBL-producing Escherichia coli bacteria is the most common cause of UTI. These bacteria produce Beta Lactamase enzymes due to the presence of the ESBL coding gene. One of the ESBL genes that can acquire Beta Lactam class antibiotics is the Cefotaxim Munich (CTX-M) gene. Examination of the ESBL genotype is currently needed to monitor the use of antibiotics. The purpose of this study was to determine the presence of the Cefotaxim Munich (CTX-M) gene in ESBL-producing Escherichia coli bacteria from the urine of UTI sufferers at RSPAL Dr. Ramelan Surabaya. The type of research used is descriptive quantitative with a cross sectional study design. This research was conducted at the Bacteriology and Molecular Biology Laboratory, Medical Laboratory Technology Department of the Ministry of Health Surabaya in March-May 2023 using the Real Time - Polymerase Chain Reaction (PCR) instrument. The results of research that has been carried out from a total sample of 30 urine of UTI sufferers found that 70% (21/30) were phenotypically identified as ESBL-producing E. coli, and as much as 90.48% (19/21) detected the CTX-M gene. The conclusion in this study found the presence of the CTX-M gene as much as 90.48%.

Keywords : *Escherichia coli; ESBL; Cefotaxime (CTX-M) gene; RT-PCR*